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SECTION 09210 - GYPSUM PLASTER

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Nonstructural steel framing and furring.
 - 2. Gypsum plasterwork on expanded-metal lath and solid plaster bases.
 - 3. Solid-plaster partitions.
- B. Related Sections include the following:
 - 1. Division 5 Section "Cold-Formed Metal Framing" for structural, load-bearing (transverse and axial) steel studs and joists that support lath and gypsum plaster.
 - 2. Division 6 Section "Rough Carpentry" for wood framing and furring that support lath and gypsum plaster.
 - 3. Division 7 Section "Building Insulation" for thermal insulations and vapor retarders included in gypsum plaster assemblies.
 - 4. Division 7 Section "Joint Sealants" for acoustical sealants included in gypsum plaster assemblies.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Show locations and installation of control and expansion joints including plans, elevations, sections, details of components, and attachments to other work.

1.4 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: For gypsum plaster assemblies with fire-resistance ratings, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.

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- B. Sound Transmission Characteristics: For gypsum plaster assemblies with STC ratings, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by a qualified independent testing agency.
- C. Mockups: Before plastering, install mockups of at least 100 sq. ft. in surface area to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Install mockups for the following applications:
 - a. Troweled Finishes:
 - 1) Surfaces indicated to receive nontextured paint finishes.
 - 2) Surfaces indicated to receive textured paint finishes.
 - b. Surfaces with float finishes.
 - c. Surfaces with sprayed finishes.
 - 2. Simulate finished lighting conditions for review of mockups.
 - 3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other causes.

1.6 PROJECT CONDITIONS

- A. Comply with ASTM C 842 requirements or gypsum plaster manufacturer's written recommendations, whichever are more stringent.
- B. Room Temperatures: Maintain temperatures at not less than 55 deg F or greater than 80 deg F for at least 7 days before application of gypsum plaster, continuously during application, and for 7 days after plaster has set, or until plaster has dried.
- C. Avoid conditions that result in gypsum plaster drying out too quickly.
 - 1. Distribute heat evenly; prevent concentrated or uneven heat on plaster.
 - 2. Maintain relative humidity levels for prevailing ambient temperature that produces normal drying conditions.
 - 3. Ventilate building spaces in a manner that prevents drafts of air from contacting surfaces during plaster application and until plaster is dry.

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PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
 - 1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.
 - 2. Products: Subject to compliance with requirements, provide one of the products specified.
 - 3. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.
 - 4. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

- B. Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, not less than 0.0475-inch diameter, unless otherwise indicated.

2.2 STEEL FRAMING FOR CEILINGS

- A. Suspended Furring:
 - 1. Main Runners (Carrying Channels): Cold-rolled channels, 1-1/2 inches deep
 - 2. Cross Furring: Cold-rolled channels, 3/4 inch deep

- B. Direct Furring: Cold-rolled channels, 3/4 inch

- C. Tie Wire:
 - 1. For tying main runners directly to beams or joists (where wire hangers are used between beams or joists), use double loop of 0.1205-inch- diameter wire.
 - 2. For tying furring directly to concrete structure without main runners, use 0.0800-inch- diameter wire.
 - 3. For tying furring directly to steel or wood structure without main runners, use double loop of 0.0625-inch- diameter wire, or quadruple loop of 0.0475-inch-diameter wire.
 - 4. For saddle tying cross furring to main runners use 0.0625-inch- diameter wire, or double strand of 0.0475-inch- diameter wire.

- D. Wire Hangers: 0.162-inch- diameter wire.

- E. Rod Hangers: ASTM A 510, mild carbon steel, ASTM A 153/A 153M, hot-dip galvanized.

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1. Diameter: 3/16-inch
- F. Flat Hangers: Commercial-steel sheet, 1 by 3/16 inch.
1. Protective Coating: Manufacturer's standard rust-inhibiting coating, unless otherwise indicated.
- G. Hanger Attachments to Concrete: Power-actuated fasteners that use explosive powder, gas combustion, or compressed air or other gas to embed fasteners in concrete and that are suitable for application indicated. Fabricated from corrosion-resistant materials, with clips or other devices for attaching hangers. Capable of sustaining, without failure, a load equal to 10 times that imposed by construction as determined by testing according to ASTM E 1190 by a qualified independent testing agency.

2.3 EXPANDED-METAL LATH

- A. Manufacturers:
1. Alabama Metal Industries Corporation (AMICO).
 2. California Expanded Metal Products Company (CEMCO).
 3. Dale/Incor.
 4. MarinoWare; Division of Ware Industries, Inc.
 5. Phillips Manufacturing Co.
 6. Unimast, Inc.
 7. Western Metal Lath & Steel Framing Systems.
- B. Expanded-Metal Lath, General: ASTM C 847.
1. Finish: ASTM A 653/A 653M, G60, hot-dip galvanized zinc coating.
 2. Paper Backing: Kraft paper factory bonded to back of lath.
- C. Diamond-Mesh Lath: Self-furring.
1. Weight: 2.5 lb/sq. yd.
- D. Flat Rib Lath: Rib depth of not more than 1/8 inch.
1. Weight: 2.75 lb/sq. yd..
- E. 3/8-Inch Rib Lath:
1. Weight: 3.4 lb/sq. yd.

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2.4 ACCESSORIES

- A. General: Comply with ASTM C 841 and coordinate depth of trim and accessories with thicknesses and number of plaster coats required.
- B. Zinc and Zinc-Coated (Galvanized) Accessories:
1. Manufacturers:
 - a. Alabama Metal Industries Corporation (AMICO).
 - b. California Expanded Metal Products Company (CEMCO).
 - c. Dale/Incor.
 - d. Dietrich Industries, Inc.
 - e. Phillips Manufacturing Co.
 - f. Unimast, Inc.
 - g. Western Metal Lath & Steel Framing Systems.
 2. Cornerite: Fabricated from expanded-metal lath with ASTM A 653/A 653M, G60, hot-dip galvanized zinc coating].
 3. Striplath: Fabricated from expanded-metal lath with ASTM A 653/A 653M, G60, hot-dip galvanized zinc coating.
 4. Cornerbeads: Fabricated from zinc-coated (galvanized) steel.
 - a. Small nose cornerbead with expanded flanges; use unless otherwise indicated.
 - b. Small nose cornerbead with perforated flanges; use on curved corners.
 - c. Small nose cornerbead with expanded flanges reinforced by perforated stiffening rib; use on columns and for finishing unit masonry corners.
 - d. Bull nose cornerbead, radius 3/4 inch minimum, with expanded flanges; use at locations indicated on Drawings.
 5. Casing Beads: Fabricated from zinc-coated (galvanized) steel; square-edged style; with expanded flanges.
 6. Control Joints: Fabricated from zinc-coated (galvanized) steel; one-piece-type, folded pair of unperforated screeds in M-shaped configuration; with perforated flanges and removable protective tape on plaster face of control joint.
 7. Expansion Joints: Fabricated from zinc-coated (galvanized) steel; folded pair of unperforated screeds in M-shaped configuration; with expanded flanges.
 8. Two-Piece Expansion Joints: Fabricated from zinc-coated (galvanized) steel; formed to produce slip-joint and square-edged reveal that is adjustable from 1/4 to 5/8 inch wide; with perforated flanges.
- C. Plastic Trim: Fabricated from high-impact PVC.
1. Manufacturers:
 - a. Alabama Metal Industries Corporation (AMICO).

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- b. Plastic Components, Inc.
 - c. Vinyl Corp.
2. Cornerbeads: With perforated flanges.
- a. Small nose cornerbead; use unless otherwise indicated.
 - b. Small nose cornerbead recommended by manufacturer for use where durable corner is required; use on columns and for finishing unit masonry corners.
 - c. Bull nose cornerbead, radius 3/4 inch minimum; use at locations indicated on Drawings.
3. Casing Beads: With perforated flanges in depth required to suit plaster bases indicated and flange length required to suit applications indicated.
- a. Square-edge style; use unless otherwise indicated.
 - b. Bull-nose style, radius 3/4 inch minimum; use at locations indicated on Drawings.
4. Control Joints: One-piece-type, folded pair of unperforated screeds in M-shaped configuration; with perforated flanges and removable protective tape on plaster face of control joint.
5. Expansion Joints: Two-piece type, formed to produce slip-joint and square-edged 1/2-inch- wide reveal; with perforated concealed flanges.
- D. Aluminum Trim: Extruded accessories of profiles and dimensions indicated on Drawings.
1. Manufacturers:
- a. Delta Star, Inc., Superior Metal Trim.
 - b. Fry Reglet Corporation.
 - c. Gordon, Inc.
 - d. MM Systems Corporation.
 - e. Pittcon Industries.
2. Aluminum: Alloy and temper with not less than the strength and durability properties of ASTM B 221, Alloy 6063-T5.
3. Finish: Chemical-conversion coating, ASTM D 1730, Type B, compatible with field-applied finish coatings specified.

2.5 MISCELLANEOUS MATERIALS

- A. Water for Mixing and Finishing Plaster: Potable and free of substances capable of affecting plaster set or of damaging plaster, lath, or accessories.

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- B. Bonding Compound: ASTM C 631.
- C. Steel Drill Screws: For metal-to-metal fastening, ASTM C 1002 or ASTM C 954, as required by thickness of metal being fastened; with pan head that is suitable for application; in lengths required to achieve penetration through joined materials of not fewer than three exposed threads.
- D. Fasteners for Attaching Metal Lath to Substrates: Complying with ASTM C 841.
- E. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.
 - 1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.
- F. Isolation Strip at Exterior Walls:
 - 1. Asphalt-Saturated Organic Felt: ASTM D 226, Type I (No. 15 asphalt felt), unperforated.
 - 2. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch thick, in width to suit steel stud size.
- G. Acoustical Sealant for Exposed and Concealed Joints: Nonsag, paintable, nonstaining, latex sealant, with a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24), complying with ASTM C 834 that effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
 - 1. Products:
 - a. OSI Sealants, Inc.; Pro-Series, SC 175 Acoustical Sound Sealant Non-Flammable - Latex.
 - b. Pecora Corporation; AC-20 + Silicone.
 - c. Tremco, Incorporated; Tremflex 834.
 - d. United States Gypsum Co.; SHEETROCK Acoustical Sealant.
- H. Acoustical Sealant for Concealed Joints: Nondrying, nonhardening, nonskinning, nonstaining, gunnable, synthetic-rubber sealant, with a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24), recommended for sealing interior concealed joints to reduce airborne sound transmission.
 - 1. Products:

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- a. OSI Sealants, Inc.; Pro-Series SC 170 Acoustical Sound Sealant - Solvent.
- b. Pecora Corporation; BA-98.
- c. Tremco, Incorporated; Tremco Acoustical Sealant.

2.6 BASE-COAT PLASTER MATERIALS

- A. Base-Coat Plasters, General: ASTM C 28/C 28M.
- B. Gypsum Ready-Mixed Plaster: With mill-mixed perlite aggregate.
 1. Products:
 - a. National Gypsum Company; Gold Bond Gypsolite.
 - b. United States Gypsum Co.; Structo-Lite.
- C. Gypsum Neat Plaster: For use with job-mixed aggregates.
 1. Products:
 - a. National Gypsum Company; Gold Bond Two-Way Hardwall Plaster.
 - b. United States Gypsum Co.; Red Top Gypsum Plaster.
- D. Gypsum Wood-Fibered Plaster:
 1. Products:
 - a. United States Gypsum Co.; Red Top Wood Fiber Plaster.
- E. High-Strength Gypsum Neat Plaster: With a minimum, average, dry compressive strength of 2800 psi per ASTM C 472 for a mix of 100 lb of plaster and 2 cu. ft. of sand.
 1. Products:
 - a. United States Gypsum Co.; Structo-Base.
- F. Aggregates for Base-Coat Plasters: ASTM C 35.

2.7 FINISH-COAT PLASTER MATERIALS

- A. Gypsum Gauging Plaster: ASTM C 28/C 28M.
 1. [Products:

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- a. National Gypsum Company; Gauging Plaster (Super-White).
 - b. United States Gypsum Co.; Red Top Gauging Gypsum Plaster.
- B. Gypsum Ready-Mixed Finish Plaster: Manufacturer's standard, mill-mixed, gauged, interior finish.
1. Products:
 - a. National Gypsum Company; Gold Bond Kal-Kote Smooth
 - b. United States Gypsum Co.; Imperial Finish Plaster
- C. High-Strength Gypsum Gauging Plaster: ASTM C 28/C 28M, with a minimum, average, dry compressive strength of 5000 psi per ASTM C 472 for a neat mix.
1. Products:
 - a. United States Gypsum Co.; Structo-Gauge.
- D. Gypsum Keene's Cement: ASTM C 61/C 61M.
1. Products:
 - a. United States Gypsum Co.; Red Top Keene's Cement.
- E. Lime: ASTM C 206, hydrated finishing type.
1. Type S: Autoclaved, double-hydrate lime.
 - a. Products:
 - 1) United States Gypsum Co.; Ivory Finish Lime.
 2. Type N: Normal, single-hydrate lime.
 - a. Products:
 - 1) United States Gypsum Co.; Grand Prize Finish Lime.
- F. Aggregates for Float Finishes: ASTM C 35; graded per ASTM C 842.

2.8 PLASTER MIXES

- A. General: Comply with ASTM C 842 and manufacturer's written instructions for applications indicated.

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- B. Base-Coat Mixes over Expanded-Metal Lath: Gypsum neat plaster with job-mixed sand for scratch and brown coats of three-coat plasterwork.
- C. Base-Coat Mixes over Expanded-Metal Lath: For three-coat plasterwork, as follows:
 - 1. Scratch Coat: Gypsum wood-fibered plaster; neat or with job-mixed sand.
 - 2. Brown Coat: Gypsum neat plaster with job-mixed sand.
- D. Base-Coat Mix over Unit Masonry: Gypsum neat plaster with job-mixed sand for single base coats of two-coat plasterwork.
- E. Base-Coat Mix over Monolithic Concrete: Gypsum neat plaster with job-mixed sand for single base coats of two-coat plasterwork.
- F. Finish-Coat Mix for Smooth-Troweled Finishes: 1 part gypsum gauging plaster to 2 parts lime.
- G. Finish-Coat Mix for Float Finishes: 1 part gypsum gauging plaster, 2 parts lime, and 6 parts sand.
- H. Finish-Coat Mix for Sprayed Finishes: Gypsum ready-mixed finish plaster.
- I. Finish-Coat Mix for Textured Finishes: Gypsum ready-mixed finish plaster.

PART 3 - EXECUTION

3.1 EXAMINATION

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

3.2 PREPARATION

- A. Protect adjacent work from soiling, spattering, moisture deterioration, and other harmful effects caused by plastering.
- B. Coordination with Sprayed Fire-Resistive Materials:
 - 1. Before sprayed fire-resistive materials are applied, attach offset anchor plates or ceiling runners (tracks) to surfaces indicated to receive sprayed fire-resistive materials. Where offset anchor plates are required, provide continuous plates fastened to building structure not more than 24 inches o.c.

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2. After sprayed fire-resistive materials are applied, remove them only to extent necessary for installation of plaster assemblies and without reducing the fire-resistive material thickness to less than that required to obtain fire-resistance rating indicated. Protect remaining fire-resistive materials from damage.

3.3 INSTALLATION, GENERAL

- A. Fire-Resistance-Rated Assemblies: Install components according to requirements for design designations from listing organization and publication indicated on Drawings.
- B. STC-Rated Assemblies: Install components according to requirements for design designations from listing organization and publication indicated on Drawings.
 1. Seal construction at perimeters, behind control and expansion joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations.
 2. Comply with ASTM C 919 and manufacturer's written recommendations for locating edge trim and closing off sound-flanking paths around or through assemblies, including sealing partitions above acoustical ceilings.
- C. Sound Attenuation Blankets: Where required, install blankets before installing lath unless blankets are readily installed after lath has been installed on one side.
- D. Acoustical Sealant: Where required, seal joints between edges of plasterwork and abutting construction with acoustical sealant.

3.4 INSTALLING NONSTRUCTURAL STEEL FRAMING, GENERAL

- A. General: Comply with requirements in ASTM C 841 for applications indicated.
 1. Comply with ASTM C 754 for installation of items not addressed in ASTM C 841.
- B. Install supplementary framing, blocking, and bracing at terminations in plaster assemblies to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.
 1. Comply with details indicated on Drawings and with plaster manufacturer's written recommendations.
- C. Isolate steel framing from building structure to prevent transfer of loading imposed by structural movement.
 1. Isolate ceiling assemblies where they abut or are penetrated by building structure.

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- 2. Isolate partition framing and wall furring where it abuts structure, except at floor. At head of assemblies, install slip-type joints that avoid axial loading and that support assembly laterally.
- D. Do not bridge building control and expansion joints with steel framing or furring members. Frame both sides of joints independently.
- E. Soffits: Unless otherwise detailed on Drawings, install furred or suspended soffits to comply with requirements for ceiling installation; install framed soffits to comply with requirements for partition installation.

3.5 INSTALLING STEEL FRAMING FOR CEILINGS

- A. Suspend ceiling hangers from building structure as follows:
 - 1. Install hangers plumb and free of contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 - 2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with the location of hangers required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to limit deflection to 1/360 of span while supporting ceiling loads.
 - 3. Wire Hangers: Secure by looping and tying, either directly to structure or directly to fasteners that are secure and appropriate for substrate, in a manner that will not cause them to deteriorate or otherwise fail.
 - 4. Rod and Flat Hangers: Secure to structure, including intermediate framing members, by attaching to fasteners that are secure and appropriate for substrate and hanger, in a manner that will not cause hangers to deteriorate or otherwise fail.
 - 5. Do not support ceilings directly from permanent metal forms. Secure to fastener devices that extend through forms.
 - 6. Do not attach hangers to steel deck tabs.
 - 7. Do not attach hangers to steel roof deck. Attach hangers to structural members.
 - 8. Do not connect steel framing to or suspend it from ducts, pipes, or conduit.
- B. Installation Tolerances: Install steel framing components for ceilings so members are level to within 1/8 inch in 12 feet measured lengthwise on each member and transversely between parallel members.
- C. Sway-brace suspended steel framing with hangers used for support.

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- D. Install steel framing components for ceilings in sizes and spacings indicated but not less than that required by the referenced steel framing and installation standards.
 - 1. Hanger Spacing: 48 inches o.c.
 - 2. Main Runner (Carrying Channel) Spacing: For suspended ceilings, 36 inches o.c.
 - 3. Cross-Furring Spacing: For suspended ceilings, 16 inches o.c.
 - 4. Furring Spacing: For furred ceilings, 16 inches o.c.

3.6 INSTALLING STEEL PARTITION FRAMING

- A. Install tracks (runners) at floors, ceilings, and structural walls and columns where plaster assemblies abut other construction.
 - 1. Where studs are installed directly against exterior walls, install asphalt-felt or foam-gasket isolation strip between studs and wall.
- B. Installation Tolerance: Install each steel framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by the faces of adjacent framing.
- C. Extend partition framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing over frames for doors and openings and frame around ducts penetrating partitions above ceiling.
- D. Install steel studs so flanges point in the same direction.
- E. Frame door openings with two studs installed at each jamb, unless otherwise indicated.
 - 1. Extend jamb studs through suspended ceilings and attach to underside of floor or roof structure above.
- F. Support Spacing:
 - 1. Install steel studs at 16 inches o.c., unless otherwise indicated.
 - 2. Install vertical furring at 16 inches o.c., unless otherwise indicated.

3.7 INSTALLING METAL LATH

- A. General: Install according to ASTM C 841.
- B. Expanded-Metal Lath:
 - 1. Partition Framing and Vertical Furring: Install flat diamond-mesh lath.
 - 2. Flat-Ceiling and Horizontal Framing: Install flat diamond-mesh lath.
 - 3. Curved-Ceiling Framing: Install flat diamond-mesh lath.

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4. On Solid Surfaces, Not Otherwise Furred: Install self-furring diamond-mesh lath.
5. Solid-Plaster Partitions: Where supported by channel studs, install flat diamond-mesh lath.
6. Studless Solid-Plaster Partitions: Install 3/8-inch rib lath.

3.8 INSTALLING ACCESSORIES

- A. General: Install according to ASTM C 841.
- B. Cornerbeads: Install at external corners.
- C. Casing Beads: Install at terminations of plasterwork, except where plaster passes behind and is concealed by other work and where metal screeds, bases, or frames act as casing beads.
- D. Control Joints: Install control joints with spacing between joints in either direction not exceeding the following and in specific locations approved by Architect for visual effect:
 1. Partitions: 30 feet.
 2. Ceilings: 50 feet.

3.9 PLASTER APPLICATION

- A. General: Comply with ASTM C 842.
 1. Do not deviate more than plus or minus 1/8 inch in 10 feet from a true plane in finished plaster surfaces, as measured by a 10-foot straightedge placed on surface.
 2. Grout hollow-metal frames, bases, and similar work occurring in plastered areas, with base-coat plaster material, before lathing where necessary. Except where full grouting is indicated or required for fire-resistance rating, grout at least 6 inches at each jamb anchor.
 3. Finish plaster flush with metal frames and other built-in metal items or accessories that act as a plaster ground, unless otherwise indicated. Where casing bead does not terminate plaster at metal frame, cut base coat free from metal frame before plaster sets and groove finish coat at junctures with metal.
 4. Provide plaster surfaces that are ready to receive field-applied finishes indicated.
- B. Bonding Compound: Apply on unit masonry and concrete plaster bases.
- C. Finish Coats:
 1. Provide troweled finish, unless otherwise indicated.
 2. Provide textured finish where indicated

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- a. Textured Finish: Match Architect's sample.

D. Concealed Plaster:

1. Where plaster application will be concealed behind built-in cabinets, similar furnishings, and equipment, apply finish coat.
2. Where plaster application will be concealed above suspended ceilings and in similar locations, finish coat may be omitted.
3. Where plaster application will be used as a base for adhesive application of tile and similar finishes, finish coat may be omitted.

3.10 CUTTING AND PATCHING

- A. Cut, patch, replace, and repair plaster as necessary to accommodate other work and to restore cracks, dents, and imperfections. Repair or replace work to eliminate blisters, buckles, crazing and check cracking, dry outs, efflorescence, sweat outs, and similar defects and where bond to substrate has failed.

3.11 CLEANING AND PROTECTION

- A. Remove temporary protection and enclosure of other work. Promptly remove plaster from door frames, windows, and other surfaces not indicated to be plastered. Repair floors, walls, and other surfaces stained, marred, or otherwise damaged during plastering.

END OF SECTION 09210

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SECTION 09255 - GYPSUM BOARD ASSEMBLIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Interior gypsum board assemblies
 - 2. Cementitious backer units installed with gypsum board assemblies.
 - 3. Gypsum board screw attached and bonded adhesively to interior substrates.
 - 4. Non-Load bearing steel framing.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 6 Section "Rough Carpentry" for wood framing and furring, and gypsum sheathing applied over wood framing.
 - 2. Division 7 Section "Firestopping" for firestopping systems and fire-resistance-rated joint sealants.

1.3 DEFINITIONS

- A. Gypsum Board Construction Terminology: Refer to ASTM C 11 and GA-505 for definitions of terms for gypsum board assemblies not defined in this Section or in other referenced standards.

1.4 ASSEMBLY PERFORMANCE REQUIREMENTS

- A. Sound Transmission Characteristics: For gypsum board assemblies with STC ratings, provide materials and construction identical to those of assemblies whose STC ratings were determined according to ASTM E 90 and classified according to ASTM E 413 by a qualified independent testing agency.
- B. Fire Resistance: Provide gypsum board assemblies with fire-resistance ratings indicated.

1.5 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product Data for each type of product specified.

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1.6 QUALITY ASSURANCE

- A. Single-Source Responsibility for Steel Framing: Obtain steel framing members for gypsum board assemblies from a single manufacturer, unless otherwise indicated.
- B. Single-Source Responsibility for Panel Products: Obtain each type of gypsum board and other panel products from a single manufacturer.
- C. Single-Source Responsibility for Finishing Materials: Obtain finishing materials from either the same manufacturer that supplies gypsum board and other panel products or from a manufacturer acceptable to gypsum board manufacturer.
- D. Fire-Test-Response Characteristics: Where fire-resistance-rated gypsum board assemblies are indicated, provide gypsum board assemblies that comply with the following requirements:
 - 1. Fire-Resistance Ratings: As indicated by GA File Numbers in GA-600 "Fire Resistance Design Manual" or design designations in UL "Fire Resistance Directory" or in the listing of another testing and inspecting agency acceptable to authorities having jurisdiction.

1.7 DELIVERY, STORAGE, AND HANDLING

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

1.8 PROJECT CONDITIONS

- A. Environmental Conditions, General: Establish and maintain environmental conditions for applying and finishing gypsum board to comply with ASTM C 840 requirements or gypsum board manufacturer's recommendations, whichever are more stringent.
- B. Room Temperatures: For on adhesive and adhesive attachment and finishing of gypsum board, maintain not less than 50 deg F for 48 hours before application and continuously after until dry. Do not exceed 95 deg F when using temporary heat sources.
- C. Ventilation: Ventilate building spaces as required to dry joint treatment materials. Avoid drafts during hot, dry weather to prevent finishing materials from drying too rapidly.

PART 2 - PRODUCTS

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2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:
 - 1. Steel Framing and Furring:
 - a. Clark Steel Framing, Inc.
 - b. Consolidated Systems, Inc.
 - c. Dale/Incor
 - c. Dietrich Industries, Inc.
 - d. Marino/Ware (formerly Marino Industries Corp.).
 - e. National Gypsum Co.; Gold Bond Building Products Division.
 - f. Unimast, Inc.
 - 2. Grid Suspension Assemblies:
 - a. Armstrong World Industries, Inc.
 - b. Chicago Metallic Corp.
 - c. USG Interiors, Inc.
 - d. Worthington Steel Company (formerly National Rolling Mills).
 - 3. Gypsum Board and Related Products:
 - a. Georgia-Pacific Corp.
 - b. National Gypsum Co.; Gold Bond Building Products Division.
 - c. United States Gypsum Co.

2.2 STEEL FRAMING FOR PARTITIONS AND SOFFITS

- A. General: Provide steel framing members complying with the following requirements:
 - 1.d Protective Coating: ASTM A 653, G 40 hot-dip galvanized coating.
- B. Steel Studs and Runners: ASTM C 645, with flange edges of studs bent back 90 degrees and doubled over to form 3/16-inch- wide minimum lip (return), and complying with the following requirements for minimum thickness of base (uncoated) metal and for depth:
 - 1.d Thickness: 0.0179 inch (25 gage), unless otherwise indicated.
 - 2.d Thickness: 0.027 inch (22 gage) for support of 5/8" drywall or double layer applications and where indicated.
 - 3.d Thickness: 0.0329 inch (20 gage) as follows:
 - e. For head runner, sill runner, jamb, and cripple studs at door and other

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- openings.
 - f. In locations to receive cementitious backer units and fiber reinforced drywall units.
 - g. Exterior framing and where indicated.
4. Depth: As indicated.
- C. Deflection Track: Manufacturer's standard top runner designed to prevent cracking of gypsum board applied to interior partitions resulting from deflection of the structure above fabricated from steel sheet complying with ASTM A 653 or ASTM A 568. Thickness as indicated for studs, and width to accommodate depth of studs, and of the following configuration:
- 1. Top runner with 2-inch- deep flanges that either have V-shaped offsets that compress when pressure is applied from construction above or have slots 1 inch o.c. that allow fasteners attached to studs through the slots to accommodate structural movement by slipping.
- D. Steel Rigid Furring Channels: ASTM C 645, hat shaped, depth and minimum thickness of base (uncoated) metal as follows:
- 1. Thickness: 0.0179 inch (25 gage), unless otherwise indicated.
 - 2. Thickness: 0.0329 inch (22 gage), in locations to receive cementitious backer units and fiber reinforced drywall units and where indicated.
 - 3. Depth: 7/8 inch.
 - 4. Depth: 1-1/2 inch.
- F. Furring Brackets: Serrated-arm type, adjustable, fabricated from corrosion-resistant steel sheet complying with ASTM C 645, minimum thickness of base (uncoated) metal of 0.0329 inch (22 gage), designed for screw attachment to steel studs and steel rigid furring channels used for furring.
- G. Steel Resilient Furring Channels: Manufacturer's standard product designed to reduce sound transmission, fabricated from steel sheet complying with ASTM A 653 or ASTM A 568 to form 1/2-inch- deep channel of the following configuration:
- 1. Single- or Double-Leg Configuration: Asymmetric-shaped channel with face connected to a single flange by a single-slotted leg (web) or hat-shaped channel, with 1-1/2-inch- wide face connected to flanges by double-slotted or expanded-metal legs (webs).
- H. Z-Furring Members: Manufacturer's standard Z-shaped furring members with slotted or nonslotted web, fabricated from steel sheet complying with ASTM A 653 or ASTM A 568; with a minimum base metal (uncoated) thickness of 0.0179 inch (26 gage), face flange of 1-1/4 inch, wall-attachment flange of 7/8 inch, and of depth required to fit insulation

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thickness indicated.

- I. Steel Channel Bridging: Cold-rolled steel, 0.0598-inch (16 gage) minimum thickness of base (uncoated) metal and 7/16-inch- wide flanges, 1-1/2 inches deep, 475 lb/1000 feet, unless otherwise indicated.
- J. Steel Flat Strap and Backing Plate: Steel sheet for blocking and bracing complying with ASTM A 653 or ASTM A 568, length and width as indicated, and with a minimum base metal (uncoated) thickness as follows:
 - 1. Thickness: 0.0598 inch (16 gage), unless otherwise indicated.
 - 2. Thickness: As indicated.
- K. Fasteners for Metal Framing: Provide fasteners of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel framing and furring members securely to substrates involved; complying with the recommendations of gypsum board manufacturers for applications indicated.
- L. Grid Suspension System for Interior Ceilings: ASTM C 645, manufacturer's standard direct-hung grid suspension system composed of main beams and cross-furring members that interlock to form a modular supporting network.

2.3 GYPSUM BOARD PRODUCTS

- A. General: Provide gypsum board of types indicated in maximum lengths available that will minimize end-to-end butt joints in each area indicated to receive gypsum board application.
 - 1. Widths: Provide gypsum board in widths of 48 inches.
- B. Gypsum Wallboard: ASTM C 36 and as follows:
 - 1. Type: Regular for vertical surfaces, unless otherwise indicated.
 - 2. Type: Type X where required for fire-resistance-rated assemblies.
 - 3. Type: Sag-resistant type for ceiling surfaces.
 - 4. Edges: Tapered and featured (rounded or beveled) for prefilling.
 - 5. Thickness: As indicated.
- C. Gypsum Board Base Layer(s) for Multilayer Applications: Gypsum wallboard, ASTM C 36, and as follows:
 - 1. Type: Regular for vertical surfaces, unless otherwise indicated.
 - 2. Type: Type X where indicated or required for fire-resistance-rated assemblies.
 - 3. Type: Sag-resistant type for ceiling surfaces, unless otherwise indicated.
 - 4. Edges: Manufacturer's standard.
 - 5. Thickness: As indicated.

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D. Water-Resistant Gypsum Backing Board: ASTM C 630 and as follows:

1. Type: Regular, unless otherwise indicated.
2. Type: Type X where required for fire-resistance-rated assemblies.
3. Thickness: As indicated.

2.4 CEMENTITIOUS BACKER UNITS

A. Provide cementitious backer units complying with ANSI A118.9, of thickness and width indicated below, and in maximum lengths available to minimize end-to-end butt joints.

1. Thickness: ½ inch, unless otherwise indicated.
2. Width: 36' or 48" inches.

B. Available Products: Subject to compliance with requirements, cementitious backer units that may be incorporated in the Work include, but are not limited to, the following:

1. The Original Wonderboard; Custom Building Products.
2. DomCrete Cementitious Tile-Backer Board; Domtar Gypsum.
3. Util-A-Crete Concrete Backer Board; FinPan, Inc.
4. DUROCK Cement Board; United States Gypsum Co.

2.5 TRIM ACCESSORIES

A. Accessories for Interior Installation: Cornerbead, edge trim, and control joints complying with ASTM C 1047 and requirements indicated below:

1. Material: Formed metal or plastic, with metal complying with the following requirement:
 - a. Steel sheet zinc coated by hot-dip or electrolytic process, or steel sheet coated with aluminum or rolled zinc.
2. Shapes indicated below by reference to Fig. 1 designations in ASTM C 1047:
 - a. Cornerbead on outside corners, unless otherwise indicated.
 - b. LC-bead with both face and back flanges; face flange formed to receive joint compound. Use LC-beads for edge trim, unless otherwise indicated.
 - c. L-bead with face flange only; face flange formed to receive joint compound. Use L-bead where indicated.
 - d. U-bead with face and back flanges; face flange formed to be left without application of joint compound. Use U-bead only where indicated.
 - e. One-piece control joint formed with V-shaped slot and removable strip covering slot opening.

B. Accessory for Curved Edges: Cornerbead formed of metal, plastic, or metal combined with plastic, with either notched or flexible flanges that are bendable to curvature radius.

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- C. Accessories for Exterior Installations: Cornerbead, edge trim, and control joints formed from steel sheet zinc coated by hot-dip process or rolled zinc complying with ASTM C 1047, in shapes indicated below by reference to Fig. 1 designations in ASTM C 1047.
 - 1. Cornerbead on outside corners, unless otherwise indicated.
 - 2. Edge trim complying with shape LC-bead per Fig. 1, unless otherwise indicated.
 - 3. One-piece control joint formed from rolled zinc with V-shaped slot and removable strip covering slot opening.

- D. Aluminum Accessories: Where indicated, provide manufacturer's standard extruded-aluminum accessories of profile indicated complying with the following requirements:
 - 1. Aluminum Alloy: Alloy and temper recommended by aluminum producer and finisher for type of finish indicated and with not less than the strength and durability properties of aluminum extrusions complying with ASTM B 221 for alloy and temper 6063-T5.
 - 2. Class II, Clear Anodic Finish: AA-C12C22A31 (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class II, clear coating with a minimum thickness of 0.01 mm).
 - 3. Available Manufacturers: Subject to compliance with requirements, manufacturers offering aluminum accessories that may be incorporated in the Work include, but are not limited to, the following:
 - a. Fry Reglet Corp.
 - b. Gordon, Inc.
 - c. MM Systems, Inc.
 - d. Pittcon Industries, Inc.

2.6 JOINT TREATMENT MATERIALS

- A. General: Provide joint treatment materials complying with ASTM C 475 and the recommendations of both the manufacturers of sheet products and of joint treatment materials for each application indicated.

- B. Joint Tape for Gypsum Board: Paper reinforcing tape, unless otherwise indicated.
 - 1. Use pressure-sensitive or staple-attached, open-weave, glass-fiber reinforcing tape with compatible joint compound where recommended by manufacturer of gypsum board and joint treatment materials for application indicated.

- C. Joint Tape for Cementitious Backer Units: As recommended by cementitious backer unit manufacturer.

- D. Setting-Type Joint Compounds for Gypsum Board: Factory-packaged, job-mixed,

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chemical-hardening powder products formulated for uses indicated.

1. Where setting-type joint compounds are indicated as a taping compound only or for taping and filling only, use formulation that is compatible with other joint compounds applied over it.
 2. For filling joints and treating fasteners of water-resistant gypsum backing board behind base for ceramic tile, use formulation recommended by gypsum board manufacturer.
 3. For topping compound, use sandable formulation.
- E. Drying-Type Joint Compounds for Gypsum Board: Factory-packaged vinyl-based products complying with the following requirements for formulation and intended use.
1. Ready-Mixed Formulation: Factory-mixed product.
 - a. Taping compound formulated for embedding tape and for first coat over fasteners and face flanges of trim accessories.
 - b. Topping compound formulated for fill (second) and finish (third) coats.
 - c. All-purpose compound formulated for both taping and topping compounds.
 2. Job-Mixed Formulation: Powder product for mixing with water at Project site.
 - a. Taping compound formulated for embedding tape and for first coat over fasteners and face flanges of trim accessories.
 - b. Topping compound formulated for fill (second) and finish (third) coats.
 - c. All-purpose compound formulated for both taping and topping compounds.
- F. Joint Compound for Cementitious Backer Units: Material recommended by cementitious backer unit manufacturer.

2.7 ACOUSTICAL SEALANT

- A. Acoustical Sealant for Exposed and Concealed Joints: Manufacturer's standard nonsag, paintable, nonstaining latex sealant complying with ASTM C 834 and the following requirements:
1. Product is effective in reducing airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
- B. Available Products: Subject to compliance with requirements, acoustical sealants that may be incorporated in the Work include, but are not limited to, the following:
1. Acoustical Sealant for Exposed and Concealed Joints:
 - a. PL Acoustical Sealant; ChemRex, Inc.; Contech Brands.

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- b. AC-20 FTR Acoustical and Insulation Sealant; Pecora Corp.
- c. SHEETROCK Acoustical Sealant; United States Gypsum Co.

2.8 MISCELLANEOUS MATERIALS

- A. General: Provide auxiliary materials for gypsum board construction that comply with referenced standards and recommendations of gypsum board manufacturer.
- B. Laminating Adhesive: Special adhesive or joint compound recommended for laminating gypsum panels.
- C. Spot Grout: ASTM C 475, setting-type joint compound recommended for spot-grouting hollow metal door frames.
- D. Fastening Adhesive for Wood: ASTM C 557.
- E. Fastening Adhesive for Metal: Special adhesive recommended for laminating gypsum panels to steel framing.
- F. Steel drill screws complying with ASTM C 1002 for the following applications:
 - 1. Fastening gypsum board to steel members less than 0.033 inch (20 gage) thick.
 - 2. Fastening gypsum board to wood members.
 - 3. Fastening gypsum board to gypsum board.
- G. Steel drill screws complying with ASTM C 954 for fastening gypsum board to steel members from 0.033(20 gage) to 0.112(12 gage) inch thick.
- H. Steel drill screws of size and type recommended by unit manufacturer for fastening cementitious backer units.
- I. Foam Gaskets: Closed-cell vinyl foam adhesive-backed strips that allow fastener penetration without foam displacement, 1/8 inch thick, in width to suit metal stud size indicated.
- J. Sound-Attenuation Blankets: See Division 7 “Building Insulation.”
- K. Thermal Insulation: See Division 7 “Building Insulation.”
- L. Polyethylene Vapor Retarder: ASTM D 4397, thickness and maximum permeance rating as follows:
 - 1. 6 mils, 0.13 perms.
- M. Vapor Retarder Tape: Pressure-sensitive tape of type recommended by vapor retarder manufacturer for sealing joints and penetrations in vapor retarder.

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- N. Textured finishing system: Medium Aggregated ceiling spray texture applied to ceilings indicated in finish schedule according to the Manufacturer’s recommendations.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates to which gypsum board assemblies attach or abut, installed hollow metal frames, cast-in-anchors, and structural framing, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of assemblies specified in this Section. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Ceiling Anchorages: Coordinate installation of ceiling suspension systems with installation of overhead structural assemblies to ensure that inserts and other provisions for anchorages to building structure have been installed to receive ceiling hangers that will develop their full strength and at spacing required to support ceilings.
 - 1. In Concrete Construction furnish concrete inserts and other devices indicated to other trades for installation well in advance of time needed for coordination with other construction.
- B. Before sprayed-on fireproofing is applied in steel framed buildings, attach offset anchor plates or ceiling runners (tracks) to surfaces indicated to receive sprayed-on fireproofing. Where offset anchor plates are required, provide continuous units fastened to building structure not more than 24 inches o.c.
- C. After sprayed-on fireproofing has been applied in steel framed buildings, remove only as much fireproofing as needed to complete installation of gypsum board assemblies without reducing thickness of fireproofing below that is required to obtain fire-resistance rating indicated. Protect remaining fireproofing from damage.

3.3 INSTALLING STEEL FRAMING, GENERAL

- A. Steel Framing Installation Standard: Install steel framing to comply with ASTM C 754 and with ASTM C 840 requirements that apply to framing installation.
- B. Install supplementary framing, blocking, and bracing at terminations in gypsum board assemblies to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction. Comply with details indicated and with recommendations of gypsum board manufacturer or, if none available, with United States Gypsum Co.'s "Gypsum Construction Handbook."

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- C. Isolate steel framing from building structure at locations indicated to prevent transfer of loading imposed by structural movement. Comply with details shown on Drawings and as follows:
 - 1. Where building structure abuts ceiling perimeter or penetrates ceiling.
 - 2. Where partition framing and wall furring abut structure, except at floor.
 - a. Install deflection track top runner to attain lateral support and avoid axial loading.
 - 1. Attach jamb studs at openings to tracks using manufacturer's standard stud clip.
- D. Do not bridge building control and expansion joints with steel framing or furring members. Independently frame both sides of joints with framing or furring members as indicated.

3.4 INSTALLING STEEL FRAMING FOR SUSPENDED AND FURRED CEILINGS

- A. Install ceiling suspension system for suspended and furred gypsum board ceilings as furnished by Armstrong, Celotex, USG, or other preapproved manufacturer. Install gypsum board ceiling according to the manufacturer's instructions for attaching gypsum board to their suspension grid system.

3.5 INSTALLING STEEL FRAMING FOR WALLS AND PARTITIONS

- A. Install runners (tracks) at floors, ceilings, and structural walls and columns where gypsum board stud assemblies abut other construction.
 - 1.a Where studs are installed directly against exterior walls, install foam gaskets between studs and wall.
- B. Installation Tolerances: Install each steel framing and furring member so that fastening surfaces do not vary more than 1/8 inch from the plane formed by the faces of adjacent framing.
- C. Extend partition framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing over frames for doors and openings and frame around ducts penetrating partitions above ceiling to provide support for gypsum board.
 - 1.a Cut studs to accommodate deflection track to provide perimeter relief.
 - 2.a For STC-rated and fire-resistance-rated partitions that extend to the underside of floor/roof slabs and decks or other continuous solid structural surfaces to obtain ratings, install framing around structural and other members extending below floor/roof slabs and decks, as needed, to support gypsum board closures needed to make partitions continuous from floor to underside of solid structure.

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- D. Install steel studs and furring in sizes and at spacings indicated.
- 1.a Single-Layer Construction: Space studs 16 inches o.c., unless otherwise indicated.
 - 2.a Multilayer Construction: Space studs 16 inches o.c., unless otherwise indicated.
 - 3.a Cementitious Backer Unit Construction: Space studs 16 inches o.c., unless otherwise indicated.
- E. Install steel studs so flanges point in the same direction and leading edge or end of each gypsum board panel can be attached to open (unsupported) edges of stud flanges first.
- F. For curved partitions, install steel framing as follows:
- 1.a Cut top and bottom runners through leg and web at 2-inch intervals for arc length. In cutting lengths of runners, allow for uncut straight lengths of not less than 12 inches at ends of arcs.
 - 2.a Bend runners to uniform curve of radius indicated and locate straight lengths so they are tangent to arcs.
 - 3.a Support outside (cut) leg of runners by clinching a 1-inch- high-by-0.0209-inch-thick (22 gage) steel sheet strip to inside of cut legs using metal lock fasteners.
 4. Attach runners to structural elements at floor and ceiling with fasteners located 2 inches from ends and spaced 24 inches o.c.
 5. Attach runners to suspended ceilings with hollow wall anchors located 2 inches from ends and spaced 16 inches o.c. in between where attached to suspended ceilings.
 - b. Screw runners directly to suspension grid of suspended acoustical tile ceilings where runners intersect grid.
 6. Position studs vertically with open sides facing in same direction and engaging floor and ceiling runners. Begin and end each arc with a stud and space intermediate studs equally along arcs at stud spacing recommended by gypsum board manufacturer for radii indicated. Attach studs to runners with 3/8-inch- long framing screws. On straight lengths at ends of arcs, place studs 6 inches o.c. with last stud left free standing.
- G. Frame door openings to comply with GA-219, and with applicable published recommendations of gypsum board manufacturer, unless otherwise indicated. Attach vertical studs at jambs with screws directly to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
1. Install 2 studs at each jamb, unless otherwise indicated.
 2. Extend jamb studs through suspended ceilings and attach to underside of structure above.
- H. Frame openings other than door openings to comply with details indicated or, if none indicated, as required for door openings. Install framing below sills of openings to match framing required above door heads.

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3.6 APPLYING AND FINISHING GYPSUM BOARD, GENERAL

- A. Gypsum Board Application and Finishing Standards: Install and finish gypsum panels to comply with ASTM C 840 and GA-216.
 - 1. Finish to meet Level 4 requirement: Embed tape and apply separate first, fill, and finish coats of joint compound to tape, fasteners, and trim flanges at panel surfaces that will be exposed to view.
- B. Install sound-attenuation blankets, where indicated, prior to installing gypsum panels unless blankets are readily installed after panels have been installed on one side.
- C. Install ceiling board panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in the central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- D. Install gypsum panels with face side out. Do not install imperfect, damaged, or damp panels. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force panels into place.
- E. Locate both edge or end joints over supports, except in ceiling applications where intermediate supports or gypsum board back blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Avoid joints other than control joints at corners of framed openings where possible.
- F. Attach gypsum panels to steel studs so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.
- G. Attach gypsum panels to framing provided at openings and cutouts.
- H. Spot grout hollow metal door frames for solid-core wood doors, hollow metal doors, and doors over 32 inches wide. Apply spot grout at each jamb anchor clip and immediately insert gypsum panels into frames.
- I. Form control and expansion joints at locations indicated and as detailed, with space between edges of adjoining gypsum panels, as well as supporting framing behind gypsum panels.
- J. Cover both faces of steel stud partition framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases that are braced internally.
 - 1. Except where concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.

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2. Fit gypsum panels around beams, ducts, pipes, and conduits.
 3. Where partitions intersect open concrete coffers, concrete joists, and other structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by coffers, joists, and other structural members; allow 1/4- to 3/8-inch- wide joints to install sealant.
- K. Isolate perimeter of nonload-bearing gypsum board partitions at structural abutments, except floors, as detailed. Provide 1/4- to 1/2-inch- wide spaces at these locations and trim edges with U-bead edge trim where edges of gypsum panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- L. Where STC-rated gypsum board assemblies are indicated, seal construction at perimeters, behind control and expansion joints, openings, and penetrations with a continuous bead of acoustical sealant including a bead at both faces of the partitions. Comply with ASTM C 919 and manufacturer's recommendations for location of edge trim and closing off sound-flanking paths around or through gypsum board assemblies, including sealing partitions above acoustical ceilings.
- M. Space fasteners in gypsum panels according to referenced gypsum board application and finishing standard and manufacturer's recommendations.
1. Space screws a maximum of 12 inches o.c. for vertical applications.
- N. Space fasteners in panels that are tile substrates a maximum of 8 inches o.c.

3.7 GYPSUM BOARD APPLICATION METHODS

- A. Single-Layer Application: Install gypsum wallboard panels as follows:
1. On ceilings, apply gypsum panels prior to wall/partition board application to the greatest extent possible and at right angles to framing, unless otherwise indicated.
 2. On partitions/walls, apply gypsum panels horizontally (perpendicular to framing), unless parallel application is required for fire-resistance-rated assemblies. Use maximum-length panels to minimize end joints.
 - b. Stagger abutting end joints not less than one framing member in alternate courses of board.
 3. On Z-furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
- B. Wall Tile Substrates: For substrates indicated to receive thin-set ceramic tile and similar rigid applied wall finishes, comply with the following:
1. Install cementitious backer units to comply with ANSI A108.11 at showers, tubs, and where indicated.
 2. Install gypsum wallboard panels with tapered edges taped and finished to produce a flat surface except at showers, tubs, and other locations indicated to receive water-

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resistant panels.

- C. Multilayer Application on Ceilings: Apply gypsum board indicated for base layers prior to applying base layers on walls/partitions; apply gypsum wallboard face layers in same sequence. Offset face-layer joints one framing member, 16 inches minimum, from parallel base-layer joints. Apply base layers at right angles to framing members, unless otherwise indicated.
- D. Multilayer Application on Partitions/Walls: Apply gypsum board indicated for base layers and gypsum wallboard face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints. Stagger joints on opposite sides of partitions.
- E. Single-Layer Fastening Methods: Apply gypsum panels to supports as follows:
 - 1. Fasten with screws.
- F. Multilayer Fastening Methods: Apply base layers of gypsum panels and face layer to base layers as follows:
 - 1. Fasten both base layers and face layers separately to supports with screws.
- G. Direct-Bonding to Substrate: Where gypsum panels are indicated as directly adhered to a substrate (other than studs, joists, furring members, or base layer of gypsum board), comply with gypsum board manufacturer's recommendations, and temporarily brace or fasten gypsum panels until fastening adhesive has set.
- H. Exterior Soffits and Ceilings: Apply exterior gypsum soffit board panels perpendicular to supports, with end joints staggered over supports.
 - 1. Install with 1/4-inch open space where panels abut other construction or structural penetrations.
 - 2. Fasten with corrosion-resistant screws.
- I. For curved partitions, install gypsum panels as follows:
 - 1. Select gypsum panel lengths and cut them as required to produce one unbroken panel covering each curved surface plus 12-inch- long straight sections at ends of curves and tangent to them.
 - 2. Wet gypsum panels on surfaces that will become compressed when panels are installed over a curve and where curve radius prevents using dry panels. Comply with gypsum board manufacturer's recommendations relative to curve radii, wetting methods, stacking panels after wetting, and other preparations that precede installing wetted gypsum panels.
 - 3. Apply gypsum panels horizontally with wrapped edges perpendicular to studs. On convex sides of partitions, begin installation at one end of curved surface and fasten

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gypsum panels to studs as they are wrapped around the curve. On concave side, start fastening panels to stud at center of curve and work outward to panel ends. Fasten panels to framing with screws spaced 12 inches o.c.

4. For double-layer construction, apply gypsum board base layer horizontally and fasten to studs with screws spaced 16 inches o.c. Center gypsum board face layers over joints in base layer and fasten to studs with screws spaced 12 inches o.c.
5. Allow wetted gypsum panels to dry before applying joint treatment.

3.8 INSTALLING TRIM ACCESSORIES

- A. General: For trim accessories with back flanges, fasten to framing with the same fasteners used to fasten gypsum board. Otherwise, fasten trim accessories according to accessory manufacturer's directions for type, length, and spacing of fasteners.
- B. Install cornerbeads at all external corners.
- C. Install edge trim where edge of gypsum panels would otherwise be exposed. Provide edge trim type with face flange formed to receive joint compound, except where other types are indicated.
 1. Install LC-bead where gypsum panels are tightly abutted to other construction and back flange can be attached to framing or supporting substrate.
 2. Install L-bead where edge trim can only be installed after gypsum panels are installed.
 3. Install U-bead only where indicated.
 4. Install aluminum trim and other accessories where indicated.
- D. Install control joints according to ASTM C 840 and manufacturer's recommendations and in specific locations approved by Architect for visual effect.

3.9 FINISHING GYPSUM BOARD ASSEMBLIES

- A. General: Treat gypsum board joints, interior angles, flanges of cornerbead, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration.
- B. Prefill open joints, rounded or beveled edges, and damaged areas using setting-type joint compound.
- C. Apply joint tape over gypsum board joints and to flanges of trim accessories as recommended by trim accessory manufacturer.
- D. Levels of Gypsum Board Finish: Provide the following levels of gypsum board finish per GA-214.
 1. Level 1 for ceiling plenum areas, concealed areas, and where indicated, unless a

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higher level of finish is required for fire-resistance-rated assemblies and sound-rated assemblies.

2. Level 2 where panels form substrates for tile and where indicated.
 3. Level 3 for gypsum board surfaces in mechanical, electrical, sprinkler and telephone rooms, in janitors' closets and in maintenance storage areas (except related offices and bathrooms).
 4. Level 4 for gypsum board surfaces in all other exposed surfaces, except where otherwise indicated.
- E. Use one of the following joint compound combinations as applicable to the finish levels specified:
1. Embedding and First Coat: Setting-type joint compound. Fill (Second) Coat: Setting-type joint compound. Finish (Third) Coat: Sandable, setting-type joint compound.
 2. Embedding and First Coat: Setting-type joint compound. Fill (Second) Coat: Setting-type joint compound. Finish (Third) Coat: Ready-mixed, drying-type, all-purpose or topping compound.
 3. Embedding and First Coat: Ready-mixed, drying-type, all-purpose or taping compound. Fill (Second) Coat: Ready-mixed, drying-type, all-purpose or topping compound. Finish (Third) Coat: Ready-mixed, drying-type, all-purpose or topping compound.
 4. Embedding and First Coat: Job-mixed, drying-type, taping compound. Fill (Second) Coat: Job-mixed, drying-type, topping compound. Finish (Third) Coat: Job-mixed, drying-type, topping compound.
 5. Embedding and First Coat: Job-mixed, drying-type, all-purpose compound. Fill (Second) Coat: Job-mixed, drying-type, all-purpose compound. Finish (Third) Coat: Job-mixed, drying-type, all-purpose compound.
 6. Embedding and First Coat: Setting-type compound. Fill (Second) Coat: Setting-type compound. Finish (Third) Coat: Job-mixed, drying-type, all-purpose compound.
- F. Where Level 3 gypsum board finish is indicated, embed tape in joint compound and apply first and fill (second) coats of joint compound.
- G. Where Level 2 gypsum board finish is indicated, embed tape in joint compound and apply first coat of joint compound.
- H. Where Level 1 gypsum board finish is indicated, embed tape in joint compound.
- I. Finish cementitious backer units to comply with unit manufacturer's directions.

3.10 FIELD QUALITY CONTROL

- A. Above-Ceiling Observation: Architect will conduct an above-ceiling observation prior to installation of gypsum board ceilings and report any deficiencies in the Work observed. Do

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not proceed with installation of gypsum board to ceiling support framing until deficiencies have been corrected.

6. Notify Architect one week in advance of the date and the time when the Project, or part of the Project, will be ready for an above-ceiling observation.
7. Prior to notifying Architect, complete the following in areas to receive gypsum board ceilings:
 - b. Installation of 80 percent of lighting fixtures, powered for operation.
 - c. Installation, insulation, and leak and pressure testing of water piping systems.
 - d. Installation of air duct systems.
 - e. Installation of air devices.
 - f. Installation of mechanical system controls.
 - g. Installation of ceiling support framing.

3.11 CLEANING AND PROTECTION

- A. Promptly remove any residual joint compound from adjacent surfaces.
- B. Provide final protection and maintain conditions, in a manner acceptable to Installer, that ensure gypsum board assemblies are without damage or deterioration at the time of Substantial Completion.

END OF SECTION 09255

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SECTION 09265 - GYPSUM BOARD SHAFT-WALL ASSEMBLIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Shaft enclosures.
 - 2. Horizontal enclosures.
 - 3. Chase Enclosures
- B. Related Sections include the following:
 - 1. Division 9 "Gypsum Board Assemblies" for applying and finishing panels in gypsum board shaft-wall assemblies.

1.3 DEFINITIONS

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

1.4 PERFORMANCE REQUIREMENTS

- A. Structural Performance:
 - 1. Provide gypsum board shaft-wall assemblies capable of withstanding the full air-pressure loads indicated for maximum heights of partitions without failing and while maintaining an airtight and smoke-tight seal. Evidence of failure includes deflections exceeding limits indicated, bending stresses causing studs to break or to distort, and end-reaction shear causing track (runners) to bend or to shear and studs to become crippled.
 - 2. Provide gypsum board shaft-wall assemblies for horizontal duct enclosures capable of spanning distances indicated within deflection limits indicated.
 - 3. Air-pressure loads and deflection limits are specified in "Gypsum Board Shaft Wall" in Part 2.

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1.5 SUBMITTALS

- A. Product Data: For each gypsum board shaft-wall assembly indicated.
- B. Fire-Test-Response Reports: From a qualified independent testing and inspecting agency substantiating each gypsum board shaft-wall assembly's required fire-resistance rating.
 - 1. Include data substantiating that elevator entrances and other items that penetrate each gypsum board shaft-wall assembly do not negate fire-resistance rating.
- C. Research/Evaluation Reports: Evidence of compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction that substantiate required fire-resistance rating for each gypsum board shaft-wall assembly.
- D. Acoustical-Test-Response Reports: From a qualified independent testing agency substantiating required STC rating for each gypsum board shaft-wall assembly.

1.6 QUALITY ASSURANCE

- A. Fire-Resistance-Rated Assemblies: Provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.
 - 1. Fire-Resistance-Rated Assemblies: Indicated by design designations from UL's "Fire Resistance Directory." GA-600, "Fire Resistance Design Manual."
- B. STC-Rated Assemblies: For gypsum board shaft-wall assemblies indicated to have STC ratings, provide assembly materials and construction complying with requirements of assemblies whose STC ratings were determined according to ASTM E 90 and classified according to ASTM E 413 by a qualified independent testing agency.
- C. Preinstallation Conference: Conduct conference at Project site to comply with requirements of Division 1 Section "Project Management and Coordination." Review methods and procedures for installing work related to gypsum board shaft-wall assemblies including, but not limited to, the following:
 - 1. Fasteners proposed for anchoring steel framing to building structure.
 - 2. Sprayed fire-resistive materials applied to structural framing.
 - 3. Wiring devices in shaft-wall assemblies.
 - 4. Doors and other items penetrating shaft-wall assemblies.
 - 5. Items supported by shaft-wall-assembly framing.
 - 6. Mechanical work enclosed within shaft-wall assemblies.

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1.7 DELIVERY, STORAGE, AND HANDLING

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

1.8 PROJECT CONDITIONS

- A. Comply with requirements for environmental conditions, room temperatures, and ventilation specified in Division 9 Section "Gypsum Board Assemblies."

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
- C. Basis-of-Design Product: The design for gypsum board shaft-wall assemblies is based on products named in Part 2 "Gypsum Board Shaft Wall". Subject to compliance with requirements, provide the named product or a comparable product by one of the following:
 - 1. American Gypsum Co.
 - 2. G-P Gypsum Corp.
 - 3. National Gypsum Company.
 - 4. United States Gypsum Co.

2.2 ASSEMBLY MATERIALS

- A. General: Provide materials and components complying with requirements of fire-resistance-rated assemblies indicated.
 - 1. Provide panels in maximum lengths available to eliminate or minimize end-to-end butt joints.

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2. Provide auxiliary materials complying with gypsum board shaft-wall assembly manufacturer's written recommendations.
- B. Steel Framing: ASTM C 645.
1. Protective Coating: Manufacturer's standard corrosion-resistant zinc coating.
- C. Gypsum Liner Panels: Manufacturer's proprietary liner panels in 1-inch thickness and with moisture-resistant paper faces.
- D. Gypsum Wallboard: ASTM C 36, core type as required by fire-resistance-rated assembly indicated.
1. Edges: Tapered.
- E. Water-Resistant, Gypsum Backing Board: ASTM C 630/C 630M, core type as required by fire-resistance-rated assembly indicated.
- F. Cementitious Backer Units: ANSI A118.9, in manufacturer's standard thickness, but at least
1/2 inch thick.
- G. Accessories: Cornerbead, edge trim, and control joints of material and shapes specified in Division 9 Section "Gypsum Board Assemblies" that comply with gypsum board shaft-wall assembly manufacturer's written recommendations for application indicated.
- H. Gypsum Wallboard Joint-Treatment Materials: ASTM C 475 and as specified in Division 9 Section "Gypsum Board Assemblies."
- I. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
 2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.
- J. Track (Runner) Fasteners: Power-driven fasteners of size and material required to withstand loading conditions imposed on shaft-wall assemblies without exceeding allowable design stress of track, fasteners, or structural substrates in which anchors are embedded.
1. Powder-Actuated Fasteners: Provide powder-actuated fasteners with capability to sustain, without failure, a load equal to 10 times that imposed by shaft-wall assemblies, as determined by testing conducted by a qualified independent testing agency according to ASTM E 1190.

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- K. Sound Attenuation Blankets: ASTM C 665 for Type I, unfaced mineral-fiber-blanket insulation produced by combining thermosetting resins with mineral fibers manufactured from slag or rock wool.

2.3 GYPSUM BOARD SHAFT WALL

- A. Basis-of-Design Product: As indicated on Drawings by design designation of a qualified testing and inspecting agency.
- B. Intermittent Air-Pressure Loads: 15 lbf/sq. ft.
- C. Deflection Limit: L/240.
- D. Studs: Manufacturer's standard profile for repetitive members and corner and end members and for fire-resistance-rated assembly indicated.
 - 1. Depth: As indicated.
 - 2. Minimum Base Metal Thickness: Manufacturer's standard thicknesses that comply with structural performance requirements for stud depth indicated.
- E. Track (Runner): Manufacturer's standard J-profile track with long-leg length as standard with manufacturer, but at least 2 inches in depth matching studs.
 - 1. Minimum Base Metal Thickness: Manufacturer's standard thicknesses that comply with structural performance requirements for stud depth indicated.
- F. Jamb Struts: Manufacturer's standard J-profile strut with long-leg length of 3 inches, in depth matching studs.
- G. Room-Side Finish: Gypsum board.
- H. Shaft-Side Finish: As indicated by fire-resistance-rated assembly design designation.
- I. STC Rating: 40+STC
- J. Cavity Insulation: Sound attenuation blankets.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates to which gypsum board shaft-wall assemblies attach or abut, with Installer present, including hollow-metal frames, elevator hoistway door frames, cast-in anchors, and structural framing. Examine for compliance with requirements for installation tolerances and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

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3.2 INSTALLATION

- A. General: Install gypsum board shaft-wall assemblies to comply with requirements of fire-resistance-rated assemblies indicated, manufacturer's written installation instructions, and the following:
 - 1. ASTM C 754 for installing steel framing.
 - 2. Division 9 Section " Gypsum Board Assemblies" for applying and finishing panels.
- B. Do not bridge building expansion joints with shaft-wall assemblies; frame both sides of joints with furring and other support.
- C. Install supplementary framing in gypsum board shaft-wall assemblies around openings and as required for blocking, bracing, and support of gravity and pullout loads of fixtures, equipment, services, heavy trim, furnishings, and similar items that cannot be supported directly by shaft-wall assembly framing.
 - 1. Where handrails directly attach to gypsum board shaft-wall assemblies, provide galvanized steel reinforcing strip with 0.0312-inch minimum thickness of base (uncoated) metal, accurately positioned and secured behind at least 1 face-layer panel.
- D. Integrate stair hanger rods with gypsum board shaft-wall assemblies by locating cavity of assemblies where required to enclose rods.
- E. At penetrations in shaft wall, maintain fire-resistance rating of shaft-wall assembly by installing supplementary steel framing around perimeter of penetration and fire protection behind boxes containing wiring devices, elevator call buttons, elevator floor indicators, and similar items. Revise first paragraph below to suit Project and details shown on Drawings
- F. Seal gypsum board shaft walls with acoustical sealant at perimeter of each assembly where it abuts other work and at joints and penetrations within each assembly. Install acoustical sealant to withstand dislocation by air-pressure differential between shaft and external spaces; maintain an airtight and smoke-tight seal; and comply with manufacturer's written instructions or ASTM C 919, whichever is more stringent.

END OF SECTION 09265

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SECTION 09300 - TILE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Glazed wall tile.
 - 2. Stone thresholds.
- B. Related Sections: The following sections contain requirements that relate to this Section:
 - 1. Division 3 Section "Concrete Work" for monolithic slab finishes specified for tile substrates.
 - 2. Division 7 Section "Joint Sealers" for sealing of expansion, contraction, control, and isolation joints in tile surfaces.
 - 3. Division 9 Section "Gypsum Drywall" for cementitious backer units installed as part of gypsum wallboard systems.

1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data for each type of product specified.
- C. Shop drawings indicating tile patterns and locations and widths of expansion, contraction, control, and isolation joints in tile substrates and finished tile surfaces.
 - 1. Locate precisely each joint and crack in tile substrates by measuring, record measurements on shop drawings, and coordinate them with tile joint locations, in consultation with Architect.
- D. Samples for initial selection purposes in form of manufacturer's color charts consisting of actual tiles or sections of tile showing full range of colors, textures, and patterns available for each type and composition of tile indicated. Include samples of grout and accessories involving color selection.
- E. Samples for verification purposes of each item listed below, prepared on samples of size and construction indicated, products involve color and texture variations, in sets showing full range of variations expected.
 - 1. Each type and composition of tile and for each color and texture required, at least 12 inches square, mounted on plywood or hardboard backing and grouted.

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- 2. Full-size units of each type of trim and accessory for each color required.
- 3. Stone thresholds in 6-inch lengths.
- 4. Metal edge strips in 6-inch lengths.

- F. Master grade certificates for each shipment, type, and composition of tile, signed by tile manufacturer and Installer.

- G. Material test reports from qualified independent testing laboratory indicating and interpreting test results relative to compliance of tile and tile setting and grouting products with requirements indicated.

- H. Qualification data for firms and persons specified in "Quality Assurance" article to demonstrate their capabilities and experience. Include list of completed projects with project names, addresses, names of Architects and Owners, plus other information specified.

1.4 QUALITY ASSURANCE

- A. Single-Source Responsibility for Tile: Obtain each color, grade, finish, type, composition, and variety of tile from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.

- B. Single-Source Responsibility for Setting and Grouting Materials: Obtain ingredients of a uniform quality from one manufacturer for each cementitious and admixture component and from one source or producer for each aggregate.

- C. Installer Qualifications: Engage an experienced Installer who has successfully completed tile installations similar in material, design, and extent to that indicated for Project.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirement of ANSI A137.1 for labeling sealed tile packages.

- B. Prevent damage or contamination to materials by water, freezing, foreign matter, and other causes.

- C. Handle tile with temporary protective coating on exposed surfaces to prevent coated surfaces from contacting backs or edges of other units. If despite these precautions coating does contact bonding surfaces of tile, remove coating from bonding surfaces before setting tile.

1.6 PROJECT CONDITIONS

- A. Maintain environmental conditions and protect work during and after installation to comply with referenced standards and manufacturer's printed recommendations.

- B. Vent temporary heaters to exterior to prevent damage to tile work from carbon dioxide buildup.

- C. Maintain temperatures at 50 deg F (10 deg C) or more in tiled areas during installation and for 7 days after completion, unless higher temperatures are required by referenced installation standard or manufacturer's instructions.

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1.7 EXTRA MATERIALS

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

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:
 - 1. Glazed Wall Tile:
 - a. American Marrazzi Tile, Inc.
 - b. American Olean Tile Co., Inc.
 - c. Buchtal Corp. USA
 - d. Dal-Tile Corp.
 - e. Summitville Tiles, Inc.
 - f. Villeroy & Boch (U.S.A.) Inc.
 - 2. Dry-Set Mortars and Grouts:
 - a. American Olean Tile Co., Inc.
 - b. Boiardi Products Corp.
 - c. Bostik Construction Products Div.
 - d. DAP Inc. Div.; USG Corp.
 - e. L & M Mfg. Inc.
 - f. Laticrete International Inc.
 - g. Mapei Corp.
 - h. Summitville Tiles, Inc.
 - 3. Polyvinyl-Acetate-Based Latex-Portland Cement Dry Mortar Mix:
 - a. Laticrete International Inc.
 - 4. Ethylene-Vinyl-Acetate-Based Latex-Portland Cement Dry Mortars:
 - a. American Olean Tile Co., Inc.
 - b. Boiardi Products Corp.
 - c. Bostik Construction Products Div.
 - d. DAP Inc. Div.; USG Corp.
 - e. Mapei Corp.
 - f. Summitville Tiles, Inc.
 - 5. Commercial Portland Cement Grouts:

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- a. American Olean Tile Co., Inc.
 - b. Bostik Construction Products Div.
 - c. L & M Mfg. Inc.
6. Ethylene-Vinyl-Acetate-Based Latex-Portland Cement Prepackaged Dry Grout Mixes:
- a. American Olean Tile Co., Inc.
 - b. Boiardi Products Corp.
 - c. DAP Inc. Div.; USG Corp.
 - d. Summitville Tiles, Inc.
7. Styrene Butadiene Rubber Emulsions for Latex-Portland Cement Grouts:
- a. Boiardi Products Corp.
 - b. Laticrete International Inc.
 - c. Syracuse Adhesives Co.

2.2 PRODUCTS, GENERAL

- A. ANSI Standard for Ceramic Tile: Comply with ANSI A137.1 "American National Standard Specifications for Ceramic Tile" for types, compositions, and grades of tile indicated.
 - 1. Furnish tile complying with "Standard Grade" requirements unless otherwise indicated.
- B. ANSI Standard for Tile Installation Materials: Comply with ANSI standard referenced with products and materials indicated for setting and grouting.
- C. Colors, Textures, and Patterns: Where manufacturer's standard products are indicated for tile, grout, and other products requiring selection of colors, surface textures, patterns, and other appearance characteristics, provide specific products or materials complying with the following requirements:
 - 1. Provide selections made by Architect from manufacturer's full range of standard colors, textures, and patterns for products of type indicated.
 - 2. Provide tile trim and accessories that match color and finish of adjoining flat tile.
- D. Factory Blending: For tile exhibiting color variations within the ranges selected during sample submittals, blend tile in factory and package accordingly so that tile units taken from one package show the same range in colors as those taken from other packages and match approved samples.
- E. Mounting: Where factory-mounted tile is required, provide back- or edge-mounted tile assemblies as standard with manufacturer unless another mounting method is indicated.

2.3 TILE PRODUCTS

- A. Glazed Wall Tile: Provide flat tile complying with the following requirements:
 - 1. Nominal Facial Dimensions: 4-1/4 inches by 4-1/4 inches.

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- 2. Nominal Thickness: 5/16 inch.
- 3. Face: Pattern of design indicated, with manufacturer's standard edge.

- B. Trim Units: Provide tile trim units to match characteristics of adjoining flat tile and to comply with following requirements:
 - 1. Size: As indicated, coordinated with sizes and coursing of adjoining flat tile where applicable.
 - 2. Shapes: As follows, selected from manufacturer's standard shapes:
 - a. Base for Thinset Mortar Installations: Coved.
 - b. Wainscot Cap for Thinset Mortar Installations: Surface bullnose.
 - c. External Corners for Thinset Installations: Surface bullnose.
 - d. Internal Corners: Field-buttet square corners, except use coved base and cap angle pieces designed to member with stretcher shapes.

- F. Accessories for Glazed Wall Tile: Provide vitreous china accessories of type and size indicated and in color and finish to match adjoining glazed wall tile.
 - 1. One soap holder for each tub.

2.4 STONE THRESHOLDS

- A. General: Provide stone that is uniform in color and finish, fabricated to sizes and profiles indicated or required to provide transition between tile surfaces and adjoining finished floor surfaces.

- B. Marble Thresholds: Provide marble thresholds complying with ASTM C 503 requirements for exterior use and for abrasion resistance where exposed to foot traffic, a minimum hardness of 10 per ASTM C 241.
 - 1. Provide white, honed marble complying with MIA Group "A" requirements for soundness.

2.5 WATERPROOFING FOR THINSET TILE INSTALLATIONS

- A. Synthetic Polymer Waterproofing: Manufacturer's standard proprietary product consisting of factory-prepackaged, job-mixed two-component synthetic polymer formulation for trowel application and glass fiber fabric reinforcing.

- B. Available Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:

- C. Products: Subject to compliance with requirements, provide one of the following:
 - 1. Synthetic Polymer Waterproofing:
 - a. "Planicrete W"; Mapei Corp.

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2.6 SETTING MATERIALS

- A. Dry-Set Portland Cement Mortar: ANSI A118.1.
- B. Latex-Portland Cement Mortar: ANSI A118.4, composition as follows:
 - 1. Prepackaged dry mortar mix composed of Portland cement, graded aggregate, and the following dry polymer additive in the form of a reemulsifiable powder to which only water is added at job site.
 - a. Dry Polymer Additive: Polyvinyl acetate or ethylene vinyl acetate.
 - 2. Latex additive (water emulsion) of type described below, serving as replacement for part or all of gauging water, combined at job site with prepackaged dry mortar mix supplied or specified by latex additive manufacturer.
 - a. Latex Type: Styrene butadiene rubber.

2.7 GROUTING MATERIALS

- A. Dry-Set Grout: ANSI A118.6, color as indicated.
- B. Latex-Portland Cement Grout: ANSI A118.6, color as indicated, composition as follows:
 - 1. Prepackaged dry grout mix composed of Portland cement, graded aggregate, and the following dry polymer additive in the form of a reemulsifiable powder to which only water is added at job site.
 - a. Dry Polymer Additive: Polyvinyl acetate or ethylene vinyl acetate.
 - 2. Latex additive (water emulsion) serving as replacement for part or all of gauging water, added at job site with dry grout mixture, with type of latex and dry grout mix as follows:
 - a. Latex Type: Styrene butadiene rubber.
 - b. Dry Grout Mixture: Dry-set grout specified or supplied by latex additive manufacturer. Use latex additive without retarder with dry-set grout.
 - 1) Application: Use dry-set grout combined with latex additive for grouting joints in glazed wall tile.
 - c. Dry Grout Mixture: Commercial Portland cement specified or supplied by latex additive manufacturer.
 - 2) Application: Use commercial Portland cement grout combined with latex additive for grouting joints in floor tile unless otherwise indicated.
 - d. Dry Grout Mixture: An on-the-job-mixture of white or gray Portland cement and white or colored fine graded aggregate that complies with latex additive manufacturer's requirements.

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2.8 ELASTOMERIC SEALANTS

- A. General: Provide manufacturer's standard chemically curing, elastomeric sealants of base polymer indicated that comply with requirements of Division 7 Section "Joint Sealers," including ASTM C 920 as referenced by Type, Grade, Class, and Uses.
- B. Colors: Provide colors of exposed sealants to match colors of grout in tile adjoining sealed joints unless otherwise indicated.
- C. One-Part Mildew-Resistant Silicone Sealant: Type S; Grade NS; Class 25; Uses NT, G, A, and as applicable to nonporous joint substrates indicated, O; formulated with fungicide, intended for sealing interior ceramic tile joints and other nonporous substrates that are subject to in-service exposures of high humidity and temperature extremes.
- D. Multipart Pourable Urethane Sealant for Use T: Type M; Grade P; Class 25; Uses T, M, A, and as applicable to joint substrates indicated, O.
- E. Available Products: Subject to compliance with requirements, products which may be incorporated in the Work include, but are not limited to, the following:
 - 1. One-Part Mildew-Resistant Silicone Sealant:
 - a. "Dow Corning 786"; Dow Corning Corp.
 - b. "SCS 1702"; General Electric Co.
 - c. "863 #345 White"; Pecora Corp.
 - d. "Rhodorsil 6B White"; Rhone-Poulenc Inc.
 - e. "Proglaze White"; Tremco Corp.
 - 2. Multipart Pourable Urethane Sealant:
 - a. "Chem-Calk 550"; Bostik Construction Products Div.
 - b. "Vulkem 245"; Mameco International, Inc.
 - c. "Urexpan NR-200"; Pecora Corp.
 - d. "THC-900"; Tremco Corp.

2.9 CEMENTITIOUS BACKER UNITS (GLASS MESH MORTAR UNITS)

- A. Proprietary backing units with glass fiber mesh reinforcing and water-resistant coating on both faces, complying with the following requirements:
 - 1. Vinyl-Coated Portland Cement Panels: Core formed in a continuous process from aggregated Portland cement slurry and reinforced with vinyl-coated woven glass fiber mesh embedded in both surfaces, with one face smooth and other textured; fabricated in panels -inch thick and by 36 inches wide by 48, 60, and 72 inches long; and weighing 3 lbs psf.
- B. Mortar Unit Finishing Materials: Tape and joint compounds as recommended by manufacturer of cementitious backer units.
- C. Available Products: Subject to compliance with requirements, cementitious backer units which may be incorporated in the Work include, but are not limited to, the following:

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1. "Wonder-Board"; Modulars Inc.
2. "Durock Tile Backer Board"; Durabond Div., USG Industries, Inc.

2.10 MISCELLANEOUS MATERIALS

- A. Metal Edge Strips: Zinc alloy or stainless steel terrazzo strips, 1/8-inch wide at top edge with integral provision for anchorage to mortar bed or substrate unless otherwise indicated.

2.11 MIXING MORTARS AND GROUT

- A. Mix mortars and grouts to comply with requirements of referenced standards and manufacturers including those for accurate proportioning of materials, water, or additive content; type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other procedures needed to produce mortars and grouts of uniform quality with optimum performance characteristics for application indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and areas where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.
1. Verify that substrates for setting tile are firm, dry, clean, and free from oil or waxy films and curing compounds.
 2. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed before installing tile.
- B. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Blending: For tile exhibiting color variations within the ranges selected during sample submittals, verify that tile has been blended in factory and packaged accordingly so that tile units taken from one package show the same range in colors as those taken from other packages and match approved samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.

3.3 INSTALLATION, GENERAL

- A. ANSI Tile Installation Standard: Comply with parts of ANSI 108 series of tile installation standards included under "American National Standard Specifications for the Installation of Ceramic Tile" that apply to type of setting and grouting materials and methods indicated.
- B. TCA Installation Guidelines: TCA "Handbook for Ceramic Tile Installation"; comply with TCA installation methods indicated.

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

3.4 WATERPROOFING FOR THINSET TILE INSTALLATIONS

- A. Install waterproofing in compliance with waterproofing manufacturer's instructions to produce a waterproof membrane of uniform thickness bonded securely to substrate.
- B. Do not install tile over waterproofing until waterproofing has cured and been tested to determine that it is watertight.

3.5 FLOOR INSTALLATION METHODS

- A. Stone Thresholds: Install stone thresholds at locations indicated; set in same type of setting bed as abutting field tile unless otherwise indicated.
 - 1. Set thresholds in latex-Portland cement mortar for locations where mortar bed would otherwise be exposed above adjacent nontile floor finish.

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- C. Metal Edge Strips: Install at locations indicated or where exposed edge of tile flooring meets carpet, wood, or other flooring that finishes flush with top of tile.

3.6 WALL TILE INSTALLATION METHODS

- A. Install types of tile designated for wall application to comply with requirements indicated below for setting-bed methods, TCA installation methods related to subsurface wall conditions, and grout types:
 - 1. Dry-Set Portland Cement Mortar: ANSI A108.5.
 - a. Cementitious Backer Units, Interior: TCA W244.
 - b. Bathtub Walls, Cementitious Backer Units: TCA B412.
 - c. Shower Receptors, Cementitious Backer Units: TCA B415.
 - d. Drywall: TCA W243
 - e. Grout: Dry set.

3.7 CLEANING AND PROTECTION

- A. Cleaning: Upon completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
 - 1. Remove latex-Portland cement grout residue from tile as soon as possible.
 - 2. Unglazed tile may be cleaned with acid solutions only when permitted by tile and grout manufacturer's printed instructions, but no sooner than 14 days after installation. Protect metal surfaces, cast iron, and vitreous plumbing fixtures from effects of acid cleaning. Flush surface with clean water before and after cleaning.
- B. Finished Tile Work: Leave finished installation clean and free of cracked, chipped, broken, unbonded, and otherwise defective tile work.
- C. Provide final protection and maintain conditions in a manner acceptable to manufacturer and installer that ensures that tile is without damage or deterioration at time of Substantial Completion.
 - 1. When recommended by tile manufacturer, apply a protective coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear.
 - 2. Prohibit foot and wheel traffic from tiled floors for at least 7 days after grouting is completed.
- D. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

END OF SECTION 09300

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SECTION 09660 - RESILIENT TILE FLOORING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Non-PVC floor tile.
- B. Related Sections:
 - 1. Division 09 Section "Resilient Base and Accessories" for resilient base, reducer strips, and other accessories installed with resilient floor coverings.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Initial Selection: For each type of floor tile indicated.
- C. Samples for Verification: Full-size units of each color and pattern of floor tile required.
 - 1. For heat-welding bead, manufacturer's standard-size Samples, but not less than 9 inches (230 mm) long, of each color required.
- D. Seam Samples: For seamless-installation technique indicated and for each flooring product, color, and pattern required; with seam running lengthwise and in center of 6-by-9-inch (150-by-230-mm) Sample applied to a rigid backing and prepared by Installer for this Project.
- E. Product Schedule: For floor tile (RTF)
- F. Qualification Data: For qualified Installer.
- G. Maintenance Data: For each type of floor tile to include in maintenance manuals.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer who employs workers for this Project who are competent in techniques required by manufacturer for floor tile installation indicated.

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- B. Fire-Test-Response Characteristics: As determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.

1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store floor tile and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F (10 deg C) or more than 90 deg F (32 deg C). Store floor tiles on flat surfaces.

1.6 PROJECT CONDITIONS

- A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F (**21 deg C**) or more than 95 deg F (**35 deg C**), in spaces to receive floor tile during the following time periods:

1. 48 hours before installation.
2. During installation.
3. 48 hours after installation.

- B. Until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F (**13 deg C**) or more than 95 deg F (**35 deg C**).

- C. Close spaces to traffic during floor tile installation.

- D. Close spaces to traffic for 48 hours after floor tile installation or if not possible provide protection.

- E. Install floor tile after other finishing operations, including painting, have been completed.

1.7 EXTRA MATERIALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Floor Tile: Furnish 1 box for every 50 boxes or fraction thereof, of each type, color, and pattern of floor tile installed.

PART 2 - PRODUCTS

2.1 NON-PVC FLOOR TILE

- A. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

1. Armstrong: Migrations BBT;

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2. Amtico International: Amtico;
- B. Tile Standard: ASTM F 1066-99, Class (modified for NON Vinyl Compound) Composition 1 (non-asbestos formulated)
- C. Hardness: Manufacturer's standard hardness.
- D. Wearing Surface: Smooth.
- E. Thickness: 0.080 inch.
- F. Size: 12 by 12 inches
- G. Seaming Method: Standard.
- H. Colors and Patterns: As selected by Architect from full range of manufacturer's standard colors.

2.2 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by manufacturer for applications indicated.
- B. Luan Underlayment: Provide min. 1/4" luan underlayment under all new resilient tile flooring. Mechanically fasten to subfloor and countersink fastener heads for level finish.
- C. Adhesives: Water-resistant type recommended by manufacturer to suit floor tile and substrate conditions indicated.
 1. Use adhesives that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
 - a. Non PVC Tile Adhesives: Not more than 0 g/L.
 - b. Rubber Floor Adhesives: Not more than 60 g/L.
 2. Provide proprietary adhesives when indicated in the manufacturer's written instructions to maintain product warranties:
 - a. Amtico: Amtico PS or Amtico 373 or Amtico Universal;
- D. Floor Polish: Provide protective liquid floor polish products as recommended by manufacturer.
- E. Solid Rubber Edge Strips: Solid rubber, of minimum 2" or as shown, of height required to protect exposed edge of tiles, and in maximum available lengths to minimize running joints.
 1. Provide solid rubber edge strips/transition at joints between resilient flooring and other flooring type.
 2. Color as selected from manufacturer's standard range.
- F. Joint Sealant Color: to be selected by Architect from Manufacturer's full range of standard colors.

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PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for maximum manufacturer moisture content and other conditions affecting performance of the Work.
- B. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of floor tile.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
- B. Luan Substrate over existing flooring and wood substrate: Prepare as follows.
 - 1. Verify condition of wood substrate and replace/repair areas that appear loose, damaged or rotten.
 - 2. Remove broken or loose existing flooring and provide leveling compound or thickness matching material to create a smooth level finish.
 - 3. Mechanically secure 1/4" luan board through existing floor finish to substrate.
- C. Concrete Substrates: Prepare as follows.
 - 1. Remove any existing floor finishes and verify that concrete substrates are dry and free of unevenness.
 - 2. Provide 1/2" plywood secured to concrete with countersunk tapcon screws.
- D. Existing Ceramic Tile Substrate: Prepare as follows:
 - 1. Remove glaze, polished finish, sealers and waves by sanding or by bead blasting.
 - 2. Ensure that the surface is free of dirt, dust, debris or any other deleterious substances that will prevent bonding.
 - 3. Provide Ardex or equivalent Portland cement based underlayment per the manufacturer's recommendations for subfloor preparation and priming.
- E. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.
- F. Do not install floor tiles until they are same temperature as space where they are to be installed.
 - 1. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
- G. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation.

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3.3 FLOOR TILE INSTALLATION

- A. Comply with manufacturer's written instructions for installing floor tile.
- B. Lay out floor tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter.
 - 1. Lay tiles square with room axis or as shown.
- C. Match floor tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles.
 - 1. Lay tiles with grain direction alternating in adjacent tiles (basket-weave pattern).
- D. Scribe, cut, and fit floor tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and door frames.
- E. Extend floor tiles into toe spaces, door reveals, closets, and similar openings. Extend floor tiles to center of door openings.
- F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates. Use chalk or other nonpermanent, nonstaining marking device.
- G. Adhere floor tiles to flooring substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

3.4 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protection of floor tile.
- B. Perform the following operations immediately after completing floor tile installation:
 - 1. Remove adhesive and other blemishes from exposed surfaces.
 - 2. Sweep and vacuum surfaces thoroughly.
 - 3. Damp-mop surfaces to remove marks and soil.
- C. Protect floor tile products from marks, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
- D. Floor Polish: Remove soil, visible adhesive, and surface blemishes from floor tile surfaces before applying liquid floor polish.
 - 1. Apply two coats.
- E. Cover floor tile until Substantial Completion.

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END OF SECTION 09660

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SECTION 09678 - RESILIENT WALL BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Resilient wall base.
 - 2. Resilient flooring accessories.
 - 3. Resilient carpet accessories.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 9 Section "Resilient Tile Flooring."
 - 2. Division 9 Section "Carpet."
 - 3. Division 3 Section "Concrete" for concrete leveling compounds at depressed floor slabs.

1.3 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
- B. Product data for each type of product specified.
- C. Samples for initial selection purposes of manufacturer's standard sample sets in form of pieces cut from each type of product specified showing full range of colors and patterns available.
- D. Samples for verification purposes in manufacturer's standard sizes, but not less than 12 inches long, of each different color and pattern of product specified.
- E. Product certificates, in lieu of laboratory test reports when permitted by Architect, signed by manufacturer certifying that each product complies with requirements.

1.4 QUALITY ASSURANCE

- A. Single-Source Responsibility for Products: Obtain each type and color of product specified from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.
- B. Fire Performance Characteristics: Provide products with the following fire performance characteristics as determined by testing products per ASTM test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
 - 1. Critical Radiant Flux: 0.45 watts per sq. cm or more per ASTM E 648.
 - 2. Smoke Density: Less than 450 per ASTM E 662.

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1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to Project site in original manufacturer's unopened cartons and containers, each bearing names of product and manufacturer, Project identification, and shipping and handling instructions.
- B. Store products in dry spaces protected from the weather with ambient temperatures maintained between 50 deg F (10 deg C) and 90 deg F (32 deg C).
- C. Move products into spaces where they will be installed at least 48 hours in advance of installation.

1.6 PROJECT CONDITIONS

- A. Maintain a minimum temperature of 70 deg F (21 deg C) in spaces to receive products specified in this Section for at least 48 hours prior to installation, during installation, and for not less than 48 hours after installation. After this period, maintain a temperature of not less than 55 deg F (13 deg C).
- B. Do not install products until they are at the same temperature as that of the space where they are to be installed.
- C. Close spaces to traffic during installation of products specified in this Section.

1.7 SEQUENCING AND SCHEDULING

- A. Sequence installing products specified in this Section with other construction to minimize possibility of damage and soiling during remainder of construction period.

1.8 EXTRA MATERIALS

- A. Deliver extra materials to Owner. Furnish extra materials matching products installed as described below, packaged with protective covering for storage, and identified with labels clearly describing contents.
 - 1. Furnish not less than 10 linear feet for each 500 linear feet or fraction thereof of each different type and color of resilient wall base installed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, those specified in each Product Data Sheet at end of this Section.

2.2 RESILIENT WALL BASE

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- A. Wall Base: Products complying with ASTM F 1066-99, Class (modified for non Vinyl compound) Composition 1 (non-asbestos formulated) and requirements specified in the Wall Base Product Data Sheet at end of this Section.
 - 1. Products subject to compliance with requirements, available products that may be incorporated into the work include, but are not limited to the following:
 - a. Armstrong: Migrations BBT:
 - b. Amtico International: Amtico

2.3 RESILIENT ACCESSORIES

- A. Rubber Accessories: Products, including transition strips, carpet edge strips, flooring edge strips, etc. complying with requirements specified in Rubber Accessory Product Data Sheet at end of this Section.

2.4 INSTALLATION ACCESSORIES

- A. Concrete Slab Primer: Nonstaining type as recommended by the flooring manufacturer.
- B. Adhesives: Water-resistant type recommended by manufacturer to suit resilient flooring product and substrate conditions indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas where installation of products specified in this Section will occur, with Installer present, to verify that substrates and conditions are satisfactory for installation and comply with manufacturer's requirements and those specified in this Section.

3.2 PREPARATION

- A. General: Comply with manufacturer's installation specifications for preparing substrates indicated to receive products indicated.
- B. Use stair tread nose filler per tread manufacturer's directions to fill nosing substrates not conforming to tread contours.
- C. Remove coatings, including curing compounds, and other substances that are incompatible with flooring adhesives and that contain soap, wax, oil, or silicone, by method Approved by Manufacturer and Owner's Environmental Consultant.
- D. Broom or vacuum clean substrates to be covered immediately before installing products specified in this Section. Following cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust.
- E. Apply concrete slab primer, if recommended by flooring manufacturer, prior to applying adhesive. Apply according to manufacturer's directions.

3.3 INSTALLATION

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- A. General: Install products specified in this Section using methods indicated according to manufacturer's installation directions.

- B. Apply resilient wall base to walls, columns, pilasters, casework, and other permanent fixtures in rooms and areas where base is required. Install wall base in lengths as long as practicable. Tightly adhere wall base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
 - 1. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient wall base with manufacturer's recommended adhesive filler material.
 - 2. Install inside and exterior corners before installing straight pieces.
 - 3. Form inside corners on job from straight pieces of maximum lengths possible by cutting an inverted V-shaped notch in toe of wall base at the point where corner is formed. Shave back of base where necessary to produce snug fit to substrate.
 - 4. Form outside corners on job from straight pieces of maximum lengths possible by shaving back of base at point where bending will occur. Remove a strip perpendicular to length of base and only deep enough to produce a snug fit without bends whitening or removal of more than half the thickness of wall base.

- C. Place resilient accessories so they are butted to adjacent materials of type indicated and bond to substrates with adhesive. Install reducer strips at edges of flooring that otherwise would be exposed.

3.4 CLEANING AND PROTECTION

- A. Perform the following operations immediately after completing installation:
 - 1. Remove visible adhesive and other surface blemishes using cleaner recommended by manufacturers of resilient product involved.
 - 2. Sweep or vacuum floor thoroughly.
 - 3. Do not wash floor until after time period recommended by manufacturer.
 - 4. Damp-mop resilient accessories to remove black marks and soil.

- B. Protect flooring against mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period. Use protection methods indicated or recommended by manufacturer of resilient product involved.
 - 1. Apply protective floor polish to resilient accessories that are free from soil, visible adhesive, and surface blemishes.
 - a. Use commercially available metal, cross-linked, acrylic product acceptable to resilient accessory manufacturer.
 - b. Coordinate selection of floor polish with Owner's maintenance service.
 - 2. Cover polished resilient accessories on floors and stairs with undyed, untreated building paper until inspection for Substantial Completion.

- C. Clean products specified in this Section not more than 4 days prior to dates scheduled for inspections intended to establish date of Substantial Completion in each area of Project. Clean products using method recommended by manufacturer.

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1. Strip protective floor polish that was applied after completing installation, prior to cleaning.
2. Reapply floor polish after cleaning.

3.5 PRODUCT DATA SHEETS

A. Wall Base Product Data Sheet

1. Wall Base Designation: VWB-1
2. Style: Cove with top-set toe.
3. Minimum Thickness: 1/8 inch.
4. Height: 4 inches.
5. Lengths: Cut lengths 4 feet long, or coils in lengths standard with manufacturer but not less than 96 feet.
6. Exterior Corners: Premolded or formed on job.
7. Interior Corners: Premolded or formed on job.
8. Surface Characteristics: Smooth.
9. Color and Pattern: As selected by Architect from manufacturer's full range of colors and patterns produced for wall base complying with requirements indicated.

B. Rubber Accessory Product Data Sheet

1. Rubber Accessory Designation: RA-1
2. Product Description: Cap for cove carpet, carpet bar for tackless installations, carpet nosing, nosing for rubber tile, Reducer strip for resilient flooring, tile/carpet joiner, etc. (As required by condition.)
3. Profile and Dimensions: As required by condition.
4. Color: As selected by Architect from manufacturer's full range of colors produced for rubber accessories complying with requirements indicated.

END OF SECTION 09678

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SECTION 09680 – CARPET

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes carpet, carpet cushion, and installation. Carpets to comply with CRI Green Label Plus requirements.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 3 Sections for curing compounds and other concrete treatments compatibility with carpet and carpet cushion adhesives.
 - 2. Division 9 Section "Resilient Wall Base and Accessories" for materials and installation.

1.3 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product Data for each type of carpet material, carpet cushion, and installation accessory specified. Submit manufacturer's printed data on physical characteristics, durability, fade resistance, and fire-test-response characteristics. Submit methods of installation for each type of substrate.
- C. Shop Drawings showing columns, doorways, enclosing walls or partitions, built-in cabinets, and locations where cutouts are required in carpet. Indicate the following:
 - 1. Carpet type, color, and dye lot.
 - 2. Locations where dye lot changes occur.
 - 3. Seam locations, types, and methods.
 - 4. Type of subfloor.
 - 5. Type of installation.
 - 6. Pattern type, repeat size, location, direction, and starting point.
 - 7. Pile direction.
 - 8. Type, color, and location of insets and borders.
 - 9. Type of cushion.
 - 10. Type, color, and location of edge, transition, and other accessory strips.
 - 11. Transition details to other flooring materials.

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- D. Samples for initial selection in the form of manufacturer's color charts or Samples of materials showing the full range of colors, textures, and patterns available for each type of carpet indicated.
- E. Samples for verification of the following products, in manufacturer's standard sizes, showing the full range of color, texture, and pattern variations expected. Prepare Samples from the same material to be used for the Work. Label each sample with manufacturer's name, material type, color, pattern, and designation indicated on Drawings and carpet schedule. Submit the following:
 - 1. 12-inch- (300-mm-) square Samples of each type of carpet material required.
 - 2. 12-inch (300-mm) Samples of each type of exposed edge stripping and accessory item.
 - 3. 6-inch (150-mm) Samples of each type of carpet cushion.
- F. Schedule of carpet using same room designations indicated on Drawings.
- G. Maintenance data for carpet and cushion to include in the operation and maintenance manual specified in Division 1. Include the following:
 - 1. Methods for maintaining carpet and carpet cushion, including manufacturer's recommended frequency for maintaining carpet.
 - 2. Precautions for cleaning materials and methods that could be detrimental to finishes and performance. Include cleaning and stain-removal products and procedures.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced Installer who is certified by the Floor Covering Installation Board (FCIB) or who can demonstrate compliance with FCIB certification program requirements.
- B. Manufacturer Qualifications: Engage a firm whose carpet materials comply with the U.S. Department of Housing and Urban Development's (HUD) "Use of Materials Bulletin UM-44D" and are currently listed on HUD's "Certified Products Directory" and so identified by imprint on back of carpet.
- C. Single-Source Responsibility: Obtain each type of carpet from one source and by a single manufacturer.
- D. Carpets shall comply with CRI Green Label Plus Requirements.
- E. Carpet Fire-Test-Response Characteristics: Provide carpet with the following fire-test-response characteristics as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify carpet with appropriate markings of applicable testing and inspecting agency.

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1. Surface Flammability: Passes CPSC 16 CFR, Part 1630.
2. Flame Spread: 25 or less per ASTM E 84.
3. Smoke Developed: 450 or less per ASTM E 84.

F. Carpet Cushion Fire-Test-Response Characteristics: Provide carpet cushion with the following fire-test-response characteristics as determined by testing identical products per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify carpet cushion with appropriate markings of applicable testing and inspecting agency.

1. Surface Flammability: Passes CPSC 16 CFR, Part 1630.
2. Flame Spread: 25 or less per ASTM E 84.
3. Smoke Developed: 450 or less per ASTM E 84.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. General: Comply with the Carpet and Rug Institute's CRI 104, Section 5: "Storage and Handling."
- B. Deliver materials to Project site in original factory wrappings and containers, labeled with identification of manufacturer, brand name, and lot number.
- C. Store materials on-site in original undamaged packages, inside well-ventilated area protected from weather, moisture, soilage, extreme temperatures, and humidity. Lay flat, with continuous blocking off ground.

1.6 PROJECT CONDITIONS

- A. General: Comply with CRI 104, Section 6: "Site Conditions."
- B. Space Enclosure and Environmental Limitations: 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.

1.7 WARRANTY

- A. General Warranty: The special warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.

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- B. Special Carpet Warranty: Submit a written warranty executed by carpet manufacturer and Installer agreeing to repair or replace carpet that does not meet requirements or that fails in materials or workmanship within the specified warranty period. Failures include, but are not limited to, more than 10 percent loss of face fiber, edge raveling, snags, runs, and delamination.
- C. Warranty Period: 5 years from date of Substantial Completion.
- D. Special Carpet Cushion Warranty: Submit a written warranty executed by carpet cushion manufacturer and Installer agreeing to repair or replace carpet cushion that does not meet requirements or that fails in materials or workmanship within the specified warranty period. Failures include, but are not limited to, permanent indentation or compression.
- E. Warranty Period: 5 years from date of Substantial Completion.

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 clearly describing contents.
 - 1. Carpet: Before installation begins, furnish quantity of full-width units equal to 5 percent of amount installed.

PART 2 - PRODUCTS

2.1 CARPET

- A. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the products specified in each carpet Product Data sheet at end of this Section.

2.2 CARPET CUSHION

- A. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the products specified in each carpet cushion Product Data sheet at end of this Section.

2.3 INSTALLATION ACCESSORIES

- A. Concrete-Slab Primer: Nonstaining type as recommended by the following:
 - 1. Carpet manufacturer.
 - 2. Carpet cushion manufacturer.
- B. Trowelable Underlayments and Patching Compounds: As recommended by the following:

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1. Carpet manufacturer.
 2. Carpet cushion manufacturer.
- C. Adhesives: Water-resistant, mildew-resistant, nonstaining type to suit products and subfloor conditions indicated and to comply with flammability requirements for installed carpet as recommended by the following:
1. Carpet manufacturer.
 2. Carpet cushion manufacturer.
 3. Adhesives must comply with Indoor Air Quality Adhesives Test in compliance with CRI Green Label Plus requirements.
- D. Tackless Carpet Stripping: Water-resistant plywood in strips as required to match cushion thickness and in compliance with CRI 104, 11.3.
- E. Seaming Cement: Hot-melt adhesive tape or similar product recommended by carpet manufacturer for taping seams and butting cut edges at backing to form secure seams and to prevent pile loss at seams.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine subfloors and conditions, with Installer present, for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions affecting performance of carpet. Do not proceed with installation until unsatisfactory conditions have been corrected.
- B. Verify that subfloors and conditions are satisfactory for carpet installation and comply with requirements specified in this Section and those of the following:
1. Carpet manufacturer.
 2. Carpet cushion manufacturer.

3.2 PREPARATION

- A. General: Comply with carpet manufacturer's installation recommendations to prepare substrates indicated to receive carpet installation.
- B. Level subfloor within 1/4 inch in 10 feet (6 mm in 3 m), noncumulative, in all directions. Patch and repair cracks and rough areas. Fill depressions.
1. Use leveling and patching compounds to fill cracks, holes, and depressions in subfloor as recommended by the following:
 - a. Carpet manufacturer.

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- b. Carpet cushion manufacturer.
- C. Remove subfloor coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone.
- D. Broom or vacuum clean subfloors to be covered with carpet. Following cleaning, examine subfloors for moisture, alkaline salts, carbonation, or dust.
- E. Concrete-Subfloor Preparation: Apply concrete-slab primer, according to manufacturer's directions, where recommended by the following:
 - 1. Carpet manufacturer.
 - 2. Carpet cushion manufacturer.

3.3 INSTALLATION

- A. Direct Glue-Down Installation (for use in public corridors, other public spaces and Community spaces indicated to receive carpet): Comply with CRI 104, Section 8: "Direct Glue-Down."
- B. Stretch-in Installation: Comply with CRI 104, Section 11: "Stretch-in Utilizing Tackless Strip."
- C. Comply with carpet manufacturer's recommendations for seam locations and direction of carpet; maintain uniformity of carpet direction and lay of pile. At doorways, center seams under door in closed position. Do not bridge building expansion joints with continuous carpet.
- D. Where demountable partitions or other items are indicated for installation on top of finished carpet floor, install carpet before installation of these items.
- E. Cut and fit carpet to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings. Bind or seal cut edges as recommended by carpet manufacturer.
- F. Extend carpet into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.
- G. Install pattern parallel to walls and borders.
- H. Install carpet cushion seams at 90-degree angle with carpet seams.
- I. All carpet shall be power stretched in all directions to percentage of stretch indicated by Manufacturer for that specific carpet. Stretching with knee-kicker will not be acceptable.

3.4 CLEANING

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

3.5 PROTECTION

- A. General: Comply with CRI 104, Section 15: "Protection of Indoor Installation."
- B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure carpet is without damage or deterioration at the time of Substantial Completion.

3.6 TUFTED OR FUSION-BONDED CARPET DATA SHEET

- A. **Carpet Type 1 – None-barrier free units:** Style and design based on Shaw Industries Philadelphia Verbatim for use in Residential Apartment Units or approved equal.

Face Construction: Cut pile.

Face Fiber: 100% Antron Nylon

Primary Backing: MFR'S STANDARD MATERIAL

Secondary Backing: CHOSEN TO SUIT PROJECT REQUIREMENTS

Width: 12'

Performance Characteristics:

Flammability: Pass methenamine pill test, DOC FF 1-70.

Flame Spread: Critical radiant flux to meet Class I as tested by ASTM E 648.

Smoke Density: 450, as rated by ASTM E 662.

- B. **Carpet Type 2- Barrier free units:** Style and design based on J & J “Solutions” (Min. 25% recycled content) or approved equal.

Yarn: Provide J & J Encore SD Nylon with recycled content

Surface Texture: Dense Textured Loop

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Dye Method: Solution Dyed

Pattern Repeat: N/A

Gauge: 1/8

Tufted Stitches Per Inch: 9

Yarn Weight: 20 oz/sy

Finished Pile Thickness: .130 inch (ASTM D-418)

Secondary Backing: ActionBac

Special Treatment(s): Pro Tex – Fluorochemical

Width: 12 ft.

Flammability: Class1

Smoke: Less than 450 Flaming

Static Generation: Less than 3.0 kv (AATCC-134)

ADA Compliance: Compliant for Accessible Routes.

Warranties: 10 Year Limited Wear.

3.7 CARPET CUSHION DATA SHEET

C. Carpet Type 1 Alternate Upgrade-None –barrier free: Style and design based on Shaw Industries for use in Residential Apartment Units or approval equal. Orgins BL-Utimate Collection or J&J Carpet ‘Textures’.

Face Construction: Cut Pile

Face Fiber: 100% Antron Nylon

Primary Backing: MFR’S Standard Materials

Secondary Backing: CHOSEN TO SUIT PROJECT REQUIREMENTS

Width: 12’

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Yarn Weight: 30oz/sy

Performance Characteristics

Flammability: Pass Methenamine pill test, DOC FF 1-70.

Flame Spread: Critical radiant flux to meet Class I as tested by ASTM E 648.

Smoke Density: 450, as rated by ASTM E 662.

- A. Cushion Designation: CC1 (For use in non-barrier free Residential Apartment Units)
 - 1. Material: Bonded polyurethane foam; polyester foam content no to exceed 50 percent; particle size not to exceed 1/8 inch (12 mm).
 - 2. Traffic Classification: CCC Class I, moderate traffic.
 - a. Density: Minimum 5 PCF of Polyester density per ASTM D 3574.
 - b. Thickness: minimum 3/8 inch
 - c. Compression Deflection Test: CLD @ 65%: 4.0 PSI per ASTM D3574.
 - 3. Performance Characteristics: As follows:
 - a. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm per ASTM E 648.

END OF SECTION 09680

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SECTION 09911 - EXTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes surface preparation and the application of paint systems on the following exterior substrates:
 - 1. Concrete.
 - 2. Concrete masonry units (CMU).
 - 3. Steel.
 - 4. Galvanized metal.
 - 5. Aluminum (not anodized or otherwise coated).
 - 6. Exterior gypsum board.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. VOC Content: For each type of product specified.
- C. Samples: For each finish and for each color and texture required.
- D. Product List: Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

1.3 QUALITY ASSURANCE

- A. MPI Standards:
 - 1. Products: Complying with MPI standards indicated and listed in "MPI Approved Products List."
 - 2. Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for products and paint systems indicated.
- B. Mockups: Apply benchmark samples of each paint system indicated and each color and finish selected to verify preliminary selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.
 - a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft..
 - b. Other Items: Architect will designate items or areas required.

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2. Final approval of color selections will be based on benchmark samples.
 - a. If preliminary color selections are not approved, apply additional benchmark samples of additional colors selected by Architect at no added cost to Owner.

1.4 EXTRA MATERIALS

- A. 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 5 gal. of each material and color applied.

PART 2 - PRODUCTS

2.1 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: As selected by Architect from manufacturer's full range.

2.2 BLOCK FILLERS

- A. Interior/Exterior Latex Block Filler: MPI #4.
 1. VOC Content: E Range of E3.

2.3 PRIMERS/SEALERS

- A. Alkali-Resistant Primer: MPI #3.
 1. VOC Content: E Range of E3.
- B. Bonding Primer (Water Based): MPI #17.
 1. VOC Content: E Range of E2.
- C. Bonding Primer (Solvent Based): MPI #69.

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1. VOC Content: E Range of TBD.

D. Wood-Knot Sealer: Sealer recommended in writing by topcoat manufacturer for use in paint system indicated.

2.4 METAL PRIMERS

A. Alkyd Anticorrosive Metal Primer: MPI #79.

1. VOC Content: E Range of E2.

B. Quick-Drying Alkyd Metal Primer: MPI #76.

1. VOC Content: E Range of E3.

C. Cementitious Galvanized-Metal Primer: MPI #26.

1. VOC Content: E Range of E1.

D. Waterborne Galvanized-Metal Primer: MPI #134.

1. VOC Content: E Range of E3.

2. Environmental Performance Rating: EPR 3.

E. Quick-Drying Primer for Aluminum: MPI #95.

1. VOC Content: E Range of E3.

2.5 WOOD PRIMERS

A. Exterior Latex Wood Primer: MPI #6.

1. VOC Content: E Range of E2.

B. Exterior Alkyd Wood Primer: MPI #5.

1. VOC Content: E Range of E3.

C. Exterior Oil Wood Primer: MPI #7.

1. VOC Content: E Range of E2.

2.6 EXTERIOR LATEX PAINTS

A. Exterior Latex (Flat): MPI #10 (Gloss Level 1).

1. VOC Content: E Range of E2.

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- B. Exterior Latex (Semigloss): MPI #11 (Gloss Level 5).
 - 1. VOC Content: E Range of E1.
- C. Exterior Latex (Gloss): MPI #119 (Gloss Level 6, except minimum gloss of 65 units at 60 deg).
 - 1. VOC Content: E Range of E2.

2.7 EXTERIOR ALKYD PAINTS

- A. Exterior Alkyd Enamel (Flat): MPI #8 (Gloss Level 1).
 - 1. VOC Content: E Range of E1.
- B. Exterior Alkyd Enamel (Semigloss): MPI #94 (Gloss Level 5).
 - 1. VOC Content: E Range of TBD.
- C. Exterior Alkyd Enamel (Gloss): MPI #9 (Gloss Level 6).
 - 1. VOC Content: E Range of TBD.

2.8 QUICK-DRYING ENAMELS

- A. Quick-Drying Enamel (Semigloss): MPI #81 (Gloss Level 5).
 - 1. VOC Content: E Range of TBD.
- B. Quick-Drying Enamel (High Gloss): MPI #96 (Gloss Level 7).
 - 1. VOC Content: E Range of TBD.

2.9 TEXTURED AND HIGH-BUILD COATINGS

- A. Latex Stucco and Masonry Textured Coating: MPI #42.
 - 1. VOC Content: E Range of E2.
- B. High-Build Latex (Exterior): MPI #40.
 - 1. VOC Content: E Range of E2.

2.10 ALUMINUM PAINT

- A. Aluminum Paint: MPI #1.
 - 1. VOC Content: E Range of E2.

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2.11 FLOOR COATINGS

- A. Interior/Exterior Clear Concrete Floor Sealer (Water Based): MPI #99.
 - 1. VOC Content: E Range of E2.
- B. Interior/Exterior Clear Concrete Floor Sealer (Solvent Based): MPI #104.
 - 1. VOC Content: E Range of TBD.
- C. Interior/Exterior Latex Floor and Porch Paint (Low Gloss): MPI #60 (maximum Gloss Level 3).
 - 1. VOC Content: E Range of E3.
 - 2. Environmental Performance Rating: EPR 3.
- D. Exterior/Interior Alkyd Floor Enamel (Gloss): MPI #27 (Gloss Level 6).
 - 1. VOC Content: E Range of TBD.
 - 2. Additives: Manufacturer's standard additive to increase skid resistance of painted surface.

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. Concrete: 12 percent.
 - 2. Masonry (Clay and CMU): 12 percent.
 - 3. Wood: 15 percent.
 - 4. Plaster: 12 percent.
 - 5. 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.

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3.2 PREPARATION AND APPLICATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.
- 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. 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.
- D. 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.
- E. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.3 EXTERIOR PAINTING SCHEDULE

- A. Concrete Substrates, Non-traffic Surfaces:
 - 1. Latex System: MPI EXT 3.1A.
 - a. Prime Coat: Exterior latex matching topcoat.
 - b. Intermediate Coat: Exterior latex matching topcoat.
 - c. Topcoat: Exterior latex (semigloss).
- B. CMU Substrates:
 - 1. Latex System: MPI EXT 4.2A.
 - a. Prime Coat: Interior/exterior latex block filler.
 - b. Intermediate Coat: Exterior latex matching topcoat.
 - c. Topcoat: Exterior latex (semigloss).
- C. Steel Substrates:
 - 1. Alkyd System: MPI EXT 5.1D.
 - a. Prime Coat: Alkyd anticorrosive metal primer.
 - b. Intermediate Coat: Exterior alkyd enamel matching topcoat.
 - c. Topcoat: Exterior alkyd enamel (gloss).
- D. Galvanized-Metal Substrates:

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1. Alkyd System: MPI EXT 5.3B.
 - a. Prime Coat: Cementitious galvanized-metal primer.
 - b. Intermediate Coat: Exterior alkyd enamel matching topcoat.
 - c. Topcoat: Exterior alkyd enamel (gloss).

E. Aluminum Substrates:

1. Alkyd System: MPI EXT 5.4F.
 - a. Prime Coat: Quick-drying primer for aluminum.
 - b. Intermediate Coat: Exterior alkyd enamel matching topcoat.
 - c. Topcoat: Exterior alkyd enamel (gloss).

F. Exterior Gypsum Board Substrates:

1. Latex System: MPI EXT 9.2A.
 - a. Prime Coat: Exterior latex matching topcoat.
 - b. Intermediate Coat: Exterior latex matching topcoat.
 - c. Topcoat: Exterior latex (eggshell).

END OF SECTION 09911

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SECTION 09912 - INTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes surface preparation and the application of paint systems on the following interior substrates:
 - 1. Concrete.
 - 2. Concrete masonry units (CMU).
 - 3. Steel.
 - 4. Galvanized metal.
 - 5. Wood.
 - 6. Gypsum board.
 - 7. Spray-textured ceilings.
 - 8. Cotton or canvas insulation covering.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. VOC Content: For each type of product indicated.
- C. Samples: For each finish and for each color and texture required.
- D. Product List: Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

1.3 QUALITY ASSURANCE

- A. MPI Standards:
 - 1. Products: Complying with MPI standards indicated and listed in "MPI Approved Products List."
 - 2. Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for products and paint systems indicated.
- B. Mockups: Apply benchmark samples of each paint system indicated and each color and finish selected to verify preliminary selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.

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- a. Wall and Ceiling Surfaces: Provide samples of at least 100 sq. ft..
 - b. Other Items: Architect will designate items or areas required.
2. Apply benchmark samples after permanent lighting and other environmental services have been activated.
 3. Final approval of color selections will be based on benchmark samples.
 - a. If preliminary color selections are not approved, apply additional benchmark samples of additional colors selected by Architect at no added cost to Owner.

1.4 EXTRA MATERIALS

- A. 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 5 gal. of each material and color applied.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following who are referred to in the Paint Schedule by the shortened version of their names shown in parentheses below:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Benjamin Moore & Co. (BM)
 2. Duron, Inc. (D)
 3. ICI Paints (ICI)
 4. McCormick Paints (MC)
 5. Pratt & Lambert Inc. (PL)
 6. PPG Architectural Finishes, Inc. (PPG)
 7. Sherwin-Williams Company (SW)

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.

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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. VOC Content 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); these requirements do not apply to paints and coatings that are applied in a fabrication or finishing shop:
1. Flat Paints, Coatings, and Primers: VOC content of not more than 16 g/L.
 2. Nonflat Paints, Coatings, and Primers: VOC content of not more than 3 g/L.
 3. Anti-Corrosive and Anti-Rust Paints Applied to Ferrous Metals: VOC not more than 250 g/L.
 4. Floor Coatings: VOC not more than 100 g/L.
 5. Shellacs, Clear: VOC not more than 730 g/L.
 6. Shellacs, Pigmented: VOC not more than 550 g/L.
 7. Flat Topcoat Paints: VOC content of not more than 50 g/L.
 8. Nonflat Topcoat Paints: VOC content of not more than 150 g/L.
 9. Anti-Corrosive and Anti-Rust Paints Applied to Ferrous Metals: VOC not more than 250 g/L.
 10. Floor Coatings: VOC not more than 100 g/L.
 11. Shellacs, Clear: VOC not more than 730 g/L.
 12. Shellacs, Pigmented: VOC not more than 550 g/L.
 13. Primers, Sealers, and Undercoaters: VOC content of not more than 200 g/L.
 14. Dry-Fog Coatings: VOC content of not more than 400 g/L.
 15. Zinc-Rich Industrial Maintenance Primers: VOC content of not more than 340 g/L.
 16. Pre-Treatment Wash Primers: VOC content of not more than 420 g/L.
- C. Chemical Components of Field-Applied Interior Paints and Coatings: Provide topcoat paints and anti-corrosive and anti-rust paints applied to ferrous metals that comply with the following chemical restrictions; these requirements do not apply to paints and coatings that are applied in a fabrication or finishing shop:
1. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
 2. Restricted Components: Paints and coatings shall not contain any of the following:
 - a. Acrolein.
 - b. Acrylonitrile.
 - c. Antimony.
 - d. Benzene.
 - e. Butyl benzyl phthalate.
 - f. Cadmium.
 - g. Di (2-ethylhexyl) phthalate.
 - h. Di-n-butyl phthalate.
 - i. Di-n-octyl phthalate.
 - j. 1,2-dichlorobenzene.
 - k. Diethyl phthalate.
 - l. Dimethyl phthalate.
 - m. Ethylbenzene.

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- n. Formaldehyde.
- o. Hexavalent chromium.
- p. Isophorone.
- q. Lead.
- r. Mercury.
- s. Methyl ethyl ketone.
- t. Methyl isobutyl ketone.
- u. Methylene chloride.
- v. Naphthalene.
- w. Toluene (methylbenzene).
- x. 1,1,1-trichloroethane.
- y. Vinyl chloride.

D. Colors: As selected by Architect from manufacturer's full range.

2.3 BLOCK FILLERS

A. Interior/Exterior Latex Block Filler: MPI #4.

- 1. VOC Content: E Range of E3.

2.4 PRIMERS/SEALERS

A. Interior Latex Primer/Sealer: MPI #50.

- 1. VOC Content: E Range of E3.
- 2. Environmental Performance Rating: EPR 3.

B. Interior Alkyd Primer/Sealer: MPI #45.

- 1. VOC Content: E Range of E1.

C. Wood-Knot Sealer: Sealer recommended in writing by topcoat manufacturer for use in paint systems indicated.

2.5 METAL PRIMERS

A. Alkyd Anticorrosive Metal Primer: MPI #79.

- 1. VOC Content: E Range of E2.

B. Quick-Drying Alkyd Metal Primer: MPI #76.

- 1. VOC Content: E Range of E3.

C. Rust-Inhibitive Primer (Water Based): MPI #107.

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1. VOC Content: E Range of E3.
2. Environmental Performance Rating: EPR 3.

D. Cementitious Galvanized-Metal Primer: MPI #26.

1. VOC Content: E Range of E1.

E. Waterborne Galvanized-Metal Primer: MPI #134.

1. VOC Content: E Range of E3.
2. Environmental Performance Rating: EPR 3.

F. Vinyl Wash Primer: MPI #80.

1. VOC Content: E Range of E3.

G. Quick-Drying Primer for Aluminum: MPI #95.

1. VOC Content: E Range of E3.

2.6 WOOD PRIMERS

A. Interior Latex-Based Wood Primer: MPI #39.

1. VOC Content: E Range of E3.
2. Environmental Performance Rating: EPR 3.

2.7 LATEX PAINTS

A. Interior Latex (Flat): MPI #53 (Gloss Level 1).

1. VOC Content: E Range of E3.
2. Environmental Performance Rating: EPR 2.5.

B. Interior Latex (Low Sheen): MPI #44 (Gloss Level 2).

1. VOC Content: E Range of E3.
2. Environmental Performance Rating: EPR 3.

C. Interior Latex (Eggshell): MPI #52 (Gloss Level 3).

1. VOC Content: E Range of E2.
2. Environmental Performance Rating: EPR 2.

D. Interior Latex (Satin): MPI #43 (Gloss Level 4).

1. VOC Content: E Range of E2.
2. Environmental Performance Rating: EPR 2.5.

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- E. Interior Latex (Semigloss): MPI #54 (Gloss Level 5).
 - 1. VOC Content: E Range of E2.
 - 2. Environmental Performance Rating: EPR 3.
- F. Interior Latex (Gloss): MPI #114 (Gloss Level 6, except minimum gloss of 65 units at 60 deg).
 - 1. VOC Content: E Range of E2.
 - 2. Environmental Performance Rating: EPR 3.
- G. Institutional Low-Odor/VOC Latex (Flat): MPI #143 (Gloss Level 1).
 - 1. VOC Content: E Range of E3.
 - 2. Environmental Performance Rating: EPR 4.
- H. Institutional Low-Odor/VOC Latex (Low Sheen): MPI #144 (Gloss Level 2).
 - 1. VOC Content: E Range of E3.
 - 2. Environmental Performance Rating: EPR 4.5.
- I. Institutional Low-Odor/VOC Latex (Eggshell): MPI #145 (Gloss Level 3).
 - 1. VOC Content: E Range of E3.
 - 2. Environmental Performance Rating: EPR 4.5.
- J. Institutional Low-Odor/VOC Latex (Semigloss): MPI #147 (Gloss Level 5).
 - 1. VOC Content: E Range of E3.
 - 2. Environmental Performance Rating: EPR 5.5.
- K. High-Performance Architectural Latex (Low Sheen): MPI #138 (Gloss Level 2).
 - 1. VOC Content: E Range of E1.
 - 2. Environmental Performance Rating: EPR 4 .
- L. High-Performance Architectural Latex (Eggshell): MPI #139 (Gloss Level 3).
 - 1. VOC Content: E Range of E2.
 - 2. Environmental Performance Rating: EPR 5.
- M. High-Performance Architectural Latex (Satin): MPI #140 (Gloss Level 4).
 - 1. VOC Content: E Range of E3.
 - 2. Environmental Performance Rating: EPR 6.5.
- N. High-Performance Architectural Latex (Semigloss): MPI #141 (Gloss Level 5).
 - 1. VOC Content: E Range of E1.
 - 2. Environmental Performance Rating: EPR 5 .

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- O. Exterior Latex (Flat): MPI #10 (Gloss Level 1).
 - 1. VOC Content: E Range of E2.
- P. Exterior Latex (Semigloss): MPI #11 (Gloss Level 5).
 - 1. VOC Content: E Range of E1.
- Q. Exterior Latex (Gloss): MPI #119 (Gloss Level 6, except minimum gloss of 65 units at 60 deg).
 - 1. VOC Content: E Range of E2.

2.8 ALKYD PAINTS

- A. Interior Alkyd (Flat): MPI #49 (Gloss Level 1).
 - 1. VOC Content: E Range of TBD.
- B. Interior Alkyd (Eggshell): MPI #51 (Gloss Level 3).
 - 1. VOC Content: E Range of TBD.
- C. Interior Alkyd (Semigloss): MPI #47 (Gloss Level 5).
 - 1. VOC Content: E Range of TBD.
 - 2. Environmental Performance Rating: TBD.
- D. Interior Alkyd (Gloss): MPI #48 (Gloss Level 6).
 - 1. VOC Content: E Range of TBD.

2.9 QUICK-DRYING ENAMELS

- A. Quick-Drying Enamel (Semigloss): MPI #81 (Gloss Level 5).
 - 1. VOC Content: E Range of TBD.
- B. Quick-Drying Enamel (High Gloss): MPI #96 (Gloss Level 7).
 - 1. VOC Content: E Range of TBD.

2.10 TEXTURED COATING

- A. Latex Stucco and Masonry Textured Coating: MPI #42.
 - 1. VOC Content: E Range of E2.

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2.11 DRY FOG/FALL COATINGS

- A. Latex Dry Fog/Fall: MPI #118.
 - 1. VOC Content: E Range of E3.
 - 2. Environmental Performance Rating: EPR 3.
- B. Waterborne Dry Fall: MPI #133.
 - 1. VOC Content: E Range of E3.
 - 2. Environmental Performance Rating: EPR 3.
- C. Interior Alkyd Dry Fog/Fall: MPI #55.
 - 1. VOC Content: E Range of TBD.

2.12 ALUMINUM PAINT

- A. Aluminum Paint: MPI #1.
 - 1. VOC Content: E Range of E2.

2.13 FLOOR COATINGS

- A. Interior/Exterior Clear Concrete Floor Sealer (Water Based): MPI #99.
 - 1. VOC Content: E Range of E2.
- B. Interior/Exterior Clear Concrete Floor Sealer (Solvent Based): MPI #104.
 - 1. VOC Content: E Range of TBD.
- C. Interior/Exterior Latex Floor and Porch Paint (Low Gloss): MPI #60 (maximum Gloss Level 3).
 - 1. VOC Content: E Range of E3.
 - 2. Environmental Performance Rating: EPR 3.
- D. Exterior/Interior Alkyd Floor Enamel (Gloss): MPI #27 (Gloss Level 6).
 - 1. VOC Content: E Range of TBD.
 - 2. Additives: Manufacturer's standard additive to increase skid resistance of painted surface.

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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. Concrete: 12 percent.
 - 2. Masonry (Clay and CMU): 12 percent.
 - 3. Wood: 15 percent.
 - 4. Gypsum Board: 12 percent.
 - 5. Plaster: 12 percent.
- C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- D. 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 AND APPLICATION

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

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- 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. Conduits, fittings & surface mounted boxes.
- E. 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.
- F. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.3 INTERIOR PAINTING SCHEDULE

- A. Concrete Substrates, Nontraffic Surfaces:
- 1. Institutional No-Odor/VOC Latex System: MPI INT 3.1M.
 - a. Prime Coat: Institutional no-odor/VOC interior latex matching topcoat.
 - b. Intermediate Coat: Institutional no-odor/VOC interior latex matching topcoat.
 - c. Topcoat: Institutional no-odor/VOC interior latex (Semigloss).
- B. Concrete Substrates, Traffic Surfaces:
- 1. Water-Based Clear Sealer System: MPI INT 3.2G.
 - a. First Coat: Interior/exterior clear concrete floor sealer (water based).
 - b. Topcoat: Interior/exterior clear concrete floor sealer (water based).
- C. CMU Substrates:
- 1. Institutional no-Odor/VOC Latex System: MPI INT 4.2E.
 - a. Prime Coat: Interior/exterior latex block filler.
 - b. Intermediate Coat: Institutional no-odor/VOC interior latex matching topcoat.
 - c. Topcoat: Institutional no-odor/VOC interior latex (Semigloss).
- D. Steel Substrates:
- 1. Quick-Drying Enamel System: MPI INT 5.1A.
 - a. Prime Coat: Quick-drying alkyd metal primer.

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- b. Intermediate Coat: Quick-drying enamel matching topcoat.
- c. Topcoat: Quick-drying enamel (Semigloss).

E. Galvanized-Metal Substrates:

- 1. Alkyd System: MPI INT 5.3C.
 - a. Prime Coat: Cementitious galvanized-metal primer.
 - b. Intermediate Coat: Interior alkyd matching topcoat.
 - c. Topcoat: Interior alkyd (Semigloss).

F. Wood Panel Substrates: Including painted plywood.

- 1. Institutional No-Odor/VOC Latex System: MPI INT 6.4T.
 - a. Prime Coat: Interior latex-based wood primer.
 - b. Intermediate Coat: Institutional no-odor/VOC interior latex matching topcoat.
 - c. Topcoat: Institutional no-odor/VOC interior latex (Semigloss).

G. Gypsum Board Substrates:

- 1. Institutional No-Odor/VOC Latex System: MPI INT 9.2M.
 - a. Prime Coat: Interior latex primer/sealer.
 - b. Intermediate Coat: Institutional no-odor/VOC interior latex matching topcoat.
 - c. Topcoat: Institutional no-odor/VOC interior latex .
 - 1) Sheen: Location(s):
 - a) Flat: all ceilings except at kitchens and bathrooms.
 - b) Low Sheen/Eggshell: all areas of units except those scheduled to receive Flat or Semigloss.
 - c) Semigloss: all base, trim, kitchens, bathrooms and wet-area ceilings.
- 2. Water-based Epoxy System:
 - a. Prime Coat: Interior latex primer/sealer.
 - b. Intermediate Coat: Water-based Catalyzed Epoxy, matching topcoat.
 - c. Topcoat: Water-based Catalyzed Epoxy (Gloss)

H. Spray-Textured Ceiling Substrates:

- 1. Latex (Flat) System: MPI INT 9.1A, spray applied.
 - a. Prime Coat: Interior latex primer/sealer.
 - b. Topcoat: Interior latex (flat).

I. Cotton or Canvas Insulation-Covering Substrates: Including pipe and duct coverings.

- 1. Institutional No-Odor/VOC Latex System: MPI INT 10.1D.

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- a. Prime Coat: Interior latex primer/sealer.
- b. Intermediate Coat: Institutional no-odor/VOC interior latex matching topcoat.
- c. Topcoat: Institutional no-odor/VOC interior latex (flat) .

END OF SECTION 09912