

SECTION 092216 - NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

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

1.2 ACTION SUBMITTALS

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

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Subject to compliance with requirements, provide products by one of the following:
1. Marinoware
 2. Clark-Dietrich Building Systems
 3. An approved equal

2.2 PERFORMANCE REQUIREMENTS

- A. STC-Rated Assemblies: Provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413.

2.3 FRAMING SYSTEMS

- A. Steel Studs and Runners: ASTM C 645.
1. Minimum Base-Metal Thickness: 0.033 inch (20 gage).
 2. Depth: As indicated on Drawings.
- B. Slip-Type Head Joints: Where indicated, provide the following in thickness not less than indicated for studs and in width to accommodate depth of studs:
1. Deflection Track: Steel sheet top runner manufactured to prevent cracking of finishes due to deflection of structure above.
- C. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.

1. Minimum Base-Metal Thickness: 0.033 inch.
- D. Cold-Rolled Channel Bridging: Steel, 0.053-inch minimum base-metal thickness, with minimum 1/2-inch-wide flanges.
 1. Depth: As indicated on Drawings.
 2. Clip Angle: Not less than 1-1/2 by 1-1/2 inches, 0.068-inch-thick, galvanized steel.
- E. Hat-Shaped, Rigid Furring Channels: ASTM C 645.
 1. Minimum Base-Metal Thickness: 0.033 inch.
 2. Depth: As indicated on Drawings.
- F. Resilient Furring Channels: 1/2-inch-deep, steel sheet members designed to reduce sound transmission.
 1. Configuration: Asymmetrical or hat shaped.
- G. Cold-Rolled Furring Channels: 0.053-inch uncoated-steel thickness, with minimum 1/2-inch-wide flanges.
 1. Depth: As indicated on Drawings.
 2. Furring Brackets: Adjustable, corrugated-edge type of steel sheet with minimum uncoated-steel thickness of 0.033 inch.
 3. Tie Wire: ASTM A 641, Class 1 zinc coating, soft temper, 0.062-inch-diameter wire, or double strand of 0.048-inch-diameter wire.

2.4 SUSPENSION SYSTEMS

- A. Tie Wire: ASTM A 641, Class 1 zinc coating, soft temper, 0.062-inch-diameter wire, or double strand of 0.048-inch-diameter wire.
- B. Hanger Attachments to Concrete:
 1. Anchors: Capable of sustaining a load equal to 5 times that imposed as determined by ASTM E 488.
 - a. Type: Post-installed, chemical anchor or Post-installed, expansion anchor.
 2. Powder-Actuated Fasteners: Capable of sustaining, a load equal to 10 times that imposed as determined by ASTM E 1190.
- C. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.16 inch in diameter.
- D. Flat Hangers: Steel sheet, 1 by 3/16 inch by length indicated.
- E. Carrying Channels: Cold-rolled, commercial-steel sheet with a base-metal thickness of 0.053 inch and minimum 1/2-inch-wide flanges.

1. Depth: As indicated on Drawings.

F. Furring Channels (Furring Members):

1. Cold-Rolled Channels: 0.053-inch uncoated-steel thickness, with minimum 1/2-inch-wide flanges, 3/4 inch deep.
2. Steel Studs and Runners: ASTM C 645.
 - a. Minimum Base-Metal Thickness: 0.033 inch.
 - b. Depth: As indicated on Drawings.
3. Hat-Shaped, Rigid Furring Channels: ASTM C 645, 7/8 inch deep.
 - a. Minimum Base-Metal Thickness: 0.033 inch.
4. Resilient Furring Channels: 1/2-inch-deep members designed to reduce sound transmission.
 - a. Configuration: Asymmetrical or hat shaped.

2.5 AUXILIARY MATERIALS

- A. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.
- B. Isolation Strip at Exterior Walls: Provide asphalt saturated organic felt or foam gasket.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

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

3.2 INSTALLING FRAMED ASSEMBLIES

- A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
- B. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.
- C. Install studs so flanges within framing system point in same direction.
- D. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts penetrating partitions above ceiling.
 - 1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
 - 2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
 - a. Install two studs at each jamb unless otherwise indicated.
 - b. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.
 - 3. Other Framed Openings: Frame openings other than door openings the same as required for door openings unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
 - 4. Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.
 - 5. Curved Partitions:
 - a. Bend track to uniform curve and locate straight lengths so they are tangent to arcs.
 - b. Begin and end each arc with a stud, and space intermediate studs equally along arcs. On straight lengths of no fewer than two studs at ends of arcs, place studs 6 inches o.c.
- E. Direct Furring:
 - 1. Screw to wood framing.
 - 2. Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.
- F. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

3.3 INSTALLING SUSPENSION SYSTEMS

- A. Install suspension system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
- B. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.
- C. Suspend hangers from building structure as follows:
 - 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or suspension system.
 - a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 - 2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.
 - 3. Do not attach hangers to steel roof deck.
 - 4. Do not attach hangers to permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
 - 5. Do not attach hangers to rolled-in hanger tabs of composite steel floor deck.
 - 6. Do not connect or suspend steel framing from ducts, pipes, or conduit.
- D. Seismic Bracing: Sway-brace suspension systems with hangers used for support.
- E. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

END OF SECTION 092216

SECTION 092400 – EXTERIOR CEMENT PLASTER (STUCCO) REPAIRS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Exterior vertical plasterwork (stucco) repairs.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each type of factory-prepared finish coat and for each color and texture specified.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Resistance Ratings: Where indicated, provide cement plaster assemblies identical to those of assemblies tested for fire resistance according to ASTM E119 by a qualified testing agency.

2.2 METAL LATH

- A. Expanded-Metal Lath: ASTM C847, cold-rolled carbon-steel sheet with ASTM A653, G60, hot-dip galvanized-zinc coating.
 - 1. Diamond-Mesh Lath: Self-furring, 2.5 lb/sq. yd.
 - 2. Flat-Rib Lath: Rib depth of not more than 1/8 inch
 - 3. 3/8-Inch Rib Lath: 3.4 lb/sq. yd.

2.3 ACCESSORIES

- A. General: Comply with ASTM C1063, and coordinate depth of trim and accessories with thicknesses and number of plaster coats required.
 - 1. Match existing accessories wherever possible.

B. Metal Accessories:

1. Foundation Weep Scream: Fabricated from hot-dip galvanized-steel sheet, ASTM A653, G60 zinc coating.
2. Cornerite: Fabricated from metal lath with ASTM A653, G60, hot-dip galvanized-zinc coating.
3. External- (Outside-) Corner Reinforcement: Fabricated from metal lath with ASTM A653, G60, hot-dip galvanized-zinc coating.
4. Cornerbeads: Fabricated from zinc.
 - a. Smallnose cornerbead with expanded flanges; use unless otherwise indicated.
 - b. Smallnose cornerbead with perforated flanges; use on curved corners.
 - c. Smallnose cornerbead with expanded flanges reinforced by perforated stiffening rib; use on columns and for finishing unit masonry corners.
 - d. Bullnose cornerbead, radius 3/4 inch minimum, with expanded flanges; use at locations indicated on Drawings.
5. Casing Beads: Fabricated from zinc; square-edged style; with expanded flanges.
6. Control Joints: Fabricated from zinc; 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; folded pair of unperforated screeds in M-shaped configuration; with expanded flanges.
8. Two-Piece Expansion Joints: Fabricated from zinc; formed to produce slip-joint and square-edged reveal that is adjustable from 1/4 to 5/8 inch wide; with perforated flanges.

2.4 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.
- B. Fiber for Base Coat: Alkaline-resistant glass or polypropylene fibers, 1/2 inch long, free of contaminants, manufactured for use in cement plaster.
- C. Bonding Compound: ASTM C932.
- D. Fasteners for Attaching Metal Lath to Substrates: ASTM C1063.
- E. Wire: ASTM A641/A641M, Class 1 zinc coating, soft temper, not less than 0.0475-inch diameter unless otherwise indicated.

2.5 PLASTER MATERIALS

- A. Portland Cement: ASTM C150, Type I.
 1. Color for Finish Coats: Match existing

- B. Masonry Cement: ASTM C91, Type N.
 - 1. Color for Finish Coats: Match existing.
- C. Plastic Cement: ASTM C1328.
- D. Colorants for Job-Mixed Finish Coats: Colorfast mineral pigments that produce finish plaster to match existing stucco color..
- E. Lime: ASTM C206, Type S; or ASTM C207, Type S.
- F. Sand Aggregate: ASTM C897.
 - 1. Color for Job-Mixed Finish Coats: In color matching existing stucco.
- G. Perlite Aggregate: ASTM C35.

2.6 PLASTER MIXES

- A. General: Comply with ASTM C926 for applications indicated.
 - 1. Fiber Content: Add fiber to base-coat mixes after ingredients have mixed at least two minutes. Comply with fiber manufacturer's written instructions for fiber quantities in mixes, but do not exceed 1 lb of fiber/cu. yd. of cementitious materials.
- B. Base-Coat Mixes for Use over Metal Lath: Scratch and brown coats for three-coat plasterwork as follows:
 - 1. Portland Cement Mixes:
 - a. Scratch Coat: For cementitious material, mix 1 part portland cement and **0 to 3/4** parts lime. Use 2-1/2 to 4 parts aggregate per part of cementitious material.
 - b. Brown Coat: For cementitious material, mix 1 part portland cement and **0 to 3/4** parts lime. Use 3 to 5 parts aggregate per part of cementitious material, but not less than volume of aggregate used in scratch coat.
 - 2. Masonry Cement Mixes:
 - a. Scratch Coat: Mix 1 part masonry cement and 2-1/2 to 4 parts aggregate.
 - b. Brown Coat: Mix 1 part masonry cement and 3 to 5 parts aggregate, but not less than volume of aggregate used in scratch coat.
 - 3. Plastic Cement Mixes:
 - a. Scratch Coat: Mix 1 part plastic cement and 2-1/2 to 4 parts aggregate.
 - b. Brown Coat: Mix 1 part plastic cement and 3 to 5 parts aggregate, but not less than volume of aggregate used in scratch coat.

- C. Base-Coat Mixes for Use over Unit Masonry and Concrete: Single base (scratch) coat for two-coat plasterwork on low-absorption plaster bases as follows:
1. Portland Cement Mix: For cementitious material, mix 1 part portland cement and 0 to 3/4 part lime. Use 2-1/2 to 4 parts aggregate per part of cementitious material.
 2. Portland and Masonry Cement Mix: For cementitious material, mix 1 part portland cement and 1 part masonry cement. Use 2-1/2 to 4 parts aggregate per part of cementitious material.
 3. Plastic Cement Mix: Use 1 part plastic cement and 2-1/2 to 4 parts aggregate.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Prepare smooth, solid substrates for plaster according to ASTM C926.
- B. Fire-Resistance-Rated Assemblies: Install components according to requirements for design designations from listing organization and publication indicated on Drawings.

3.2 INSTALLING METAL LATH

- A. Metal Lath: Install according to ASTM C1063.

3.3 INSTALLING ACCESSORIES

- A. Install according to ASTM C1063 and at locations indicated on Drawings.
- B. Reinforcement for External (Outside) Corners:
 1. Install cornerbead at exterior locations.
- C. Control Joints: Locate as indicated on Drawings.

3.4 PLASTER APPLICATION

- A. General: Comply with ASTM C926.
- B. Bonding Compound: Apply on unit masonry and concrete substrates for direct application of plaster.
- C. Walls; Base-Coat Mixes for Use over Metal Lath: For scratch and brown coats, for three-coat plasterwork with minimum 3/4-inch thickness, (match existing thickness) as follows:
 1. Portland cement mixes.
 2. Masonry cement mixes.

- D. Plaster Finish Coats: Apply to provide textured finish to match existing stucco finish.
- E. Concealed Exterior Plasterwork: Where plaster application is used as a base for adhered finishes, omit finish coat.

3.5 PLASTER REPAIRS

- A. Repair or replace work to eliminate cracks, dents, blisters, buckles, crazing and check cracking, dry outs, efflorescence, sweat outs, and similar defects and where bond to substrate has failed.
- B. Refer to notes on drawings for related information.
- C. Remove all existing loose, cracked or damaged plaster from existing masonry substrate.
- D. Carefully inspect masonry substrates to ensure proper installation of new work. Patch-repair masonry substrates as necessary.
- E. Clean and straighten existing adjacent plaster (stucco) edges.
- F. Install metal accessories as indicated.
- G. Install full profile, three coat plaster (stucco) system in areas indicated for replacement.

END OF SECTION 092400

SECTION 092900 - GYPSUM BOARD

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Interior gypsum board.
 - 2. Tile backing panels.

1.2 ACTION SUBMITTALS

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

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

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

2.2 GYPSUM BOARD, GENERAL

- A. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.3 INTERIOR GYPSUM BOARD

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. National Gypsum Company
 - 2. Georgia-Pacific Gypsum LLC
 - 3. USG Corporation.
 - 4. An approved equal.

- B. Gypsum Board, Type X: ASTM C 1396.
 - 1. Thickness: 5/8 inch.
 - 2. Long Edges: Tapered.
 - 3. Locations used: All locations unless another type is indicated.

- C. Gypsum Ceiling Board: ASTM C 1396.
 - 1. Thickness: 1/2 inch.
 - 2. Long Edges: Tapered.
 - 3. Locations used: Ceilings unless another type is indicated.

- D. Mold-Resistant Gypsum Board: ASTM C1396. With moisture- and mold-resistant core and paper surfaces.
 - 1. Core: 1/2 inch , regular type
 - 2. Long Edges: Tapered.
 - 3. Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.
 - 4. Locations used: Shower room ceilings.

2.4 EXTERIOR GYPSUM BOARD SHEATHING

- A. Glass-Mat Gypsum Sheathing Board: ASTM C117, with fiberglass mat laminated to both sides and with manufacturer's standard edges.
 - 1. Manufacturer: Subject to compliance with requirements, provide products by one of the following.
 - a. Georgia Pacific Gypsum LLC
 - b. An approved equal
 - 2. Products:
 - a. Dens-gas Gold (GP)
 - 3. Core: 5/8 inch, Type X.

2.5 TILE BACKING PANELS

- A. Glass-Mat, Water-Resistant Backing Board: ASTM C 1178, with manufacturer's standard edges.
 - 1. Products: Subject to compliance with requirements, provide one of the following.
 - a. CertainTeed Corp.; GlasRoc Tile Backer.
 - b. Georgia-Pacific Gypsum LLC; Dens Shield Tile Backer.
 - c. Approved Equal.
 - 2. Core: 5/8 inch, Type X.
 - 3. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.
 - 4. Locations used: Walls and ceilings indicated on the finish schedule to receive a tile finish.

2.6 TRIM ACCESSORIES

A. Interior Trim: ASTM C 1047.

1. Material: Galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized-steel sheet.
2. Shapes:
 - a. Cornerbead.
 - b. Bullnose bead.
 - c. LC-Bead: J-shaped; exposed long flange receives joint compound.
 - d. L-Bead: L-shaped; exposed long flange receives joint compound.
 - e. U-Bead: J-shaped; exposed short flange does not receive joint compound.
 - f. Expansion (control) joint.

2.7 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C 475.

B. Joint Tape:

1. Interior Gypsum Board: Paper.
2. Glass-Mat Gypsum Sheathing Board: 10-by-10 glass mesh.
3. Tile Backing Panels: As recommended by panel manufacturer.

C. Joint Compound for Interior Gypsum Board: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.

1. Prefilling: At open joints or beveled panel edges, and damaged surface areas, use setting-type taping compound.
2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound.
 - a. Use setting-type compound for installing paper-faced metal trim accessories.
3. Fill Coat: For second coat, use setting-type, sandable topping compound.
4. Finish Coat: For third coat, use drying-type, all-purpose compound.
5. Skim Coat: For final coat of Level 5 finish, use high-build interior coating product designed for application by airless sprayer and to be used instead of skim coat to produce Level 5 finish. Use at locations indicated to receive impact resistant gypsum board and other locations indicated on the finish schedule.

D. Joint Compound for Tile Backing Panels:

1. Glass-Mat, Water-Resistant Backing Panel: As recommended by backing panel manufacturer.

2.8 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written instructions.
- B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.
- C. Steel Drill Screws: ASTM C 1002 unless otherwise indicated.
 - 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
- D. Sound-Attenuation Blankets: Provide Sound Attenuation Blankets in accordance with Section 072100, "Thermal Insulation".
- E. Acoustical Sealant: Manufacturer's standard non-sag, paintable, non-staining latex sealant complying with ASTM C 834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E 90.
 - 1. Products: Subject to compliance with requirements, provide one of the following.
 - a. Pecora Corporation; AC-20 FTR.
 - b. Specified Technologies, Inc.; Smoke N Sound Acoustical Sealant.
 - c. USG Corporation; SHEETROCK Acoustical Sealant.
 - d. An approved equal.
- F. Thermal Insulation: As specified in Section 072100 "Thermal Insulation."

PART 3 - EXECUTION

3.1 INSTALLATION OF EXTERIOR GYPSUM WALL PANELS

- A. Apply panels perpendicular to supports, with end joints staggered and located over supports.
 - 1. Install with 1/4-inch open space where panels abut other construction or structural penetrations.
 - 2. Fasten with corrosion-resistant screws.

3.2 INSTALLATION OF TILE BACKING PANELS

- A. Glass-Mat, Water-Resistant Backing Panels: Comply with manufacturer's written installation instructions and install at showers and locations indicated to receive tile. Install with 1/4-inch gap where panels abut other construction or penetrations.

3.3 APPLYING AND FINISHING PANELS

- A. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- B. Comply with ASTM C 840.
- C. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments. Provide 1/4- to 1/2-inch wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- D. For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- E. Prefill open joints, rounded or beveled edges, and damaged surface areas.
- F. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.
- G. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:
 - 1. Level 1: Ceiling plenum areas, concealed areas.
 - 2. Level 2: Panels that are substrate for tile.
 - 3. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated.
 - a. Primer and its application to surfaces are specified in Section 099123 "Interior Painting."
- H. Glass Mat Tile Backer Units: Finish according to manufacturer's written instructions.

3.4 PROTECTION

- A. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- B. Remove and replace panels that are wet, moisture damaged, and mold damaged.

END OF SECTION 092900

SECTION 093013 - CERAMIC TILING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Porcelain tile.
2. Porcelain mosaic tile
3. Stone thresholds.
4. Waterproof membrane for thinset applications.
5. Crack isolation membrane.
6. Setting materials
7. Grout
8. Prefabricated shower base with integral drain
9. Metal edge strips.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples:

1. Each type and composition of tile and for each color and finish required. For ceramic mosaic tile in color blend patterns, provide samples of each color blend.
2. Assembled samples mounted on a rigid panel, with grouted joints, for each type and composition of tile and for each color and finish required.
3. Stone thresholds.

C. Shop drawings:

1. Plans, elevations, details of prefabricated shower base system and drains

1.3 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

1.4 MAINTENANCE MATERIALS

- A. Furnish extra materials that match and are from same production runs as products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed but no less than 5 units for each type, composition, color, pattern, and size indicated.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications:
 - 1. Installer is a five-star member of the National Tile Contractors Association or a Trowel of Excellence member of the Tile Contractors' Association of America.
 - 2. Installer's supervisor for Project holds the International Masonry Institute's Foreman Certification.
 - 3. Installer employs Ceramic Tile Education Foundation Certified Installers or installers recognized by the U.S. Department of Labor as Journeyman Tile Layers.
- B. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 - 1. Build mockup of each type of floor tile installation.
 - 2. Build mockup of each type of wall tile installation.
 - 3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

PART 2 - PRODUCTS

2.1 PRODUCTS, GENERAL

- A. ANSI Ceramic Tile Standard: Provide Standard-grade tile that complies with ANSI A137.1 for types, compositions, and other characteristics indicated.
- B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI A108.02, ANSI standards referenced in other Part 2 articles, ANSI standards referenced by TCNA installation methods specified in tile installation schedules, and other requirements specified.

2.2 TILE PRODUCTS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide products indicated on Drawings by the following:
1. Trinity Tile
 2. An approved equal.
- B. **REFER TO SCHEDULE ON THE DRAWINGS FOR CERAMIC TILING AND GROUT SELECTIONS.**
- C. Product Description- Floor Tile (PFT-1):
1. Composition: Porcelain.
 2. Certification: Tile certified by the Porcelain Tile Certification Agency.
 3. Face Size: 12 by 12.
 4. Thickness: 5/16 inch.
 5. Face: Plain
 6. Dynamic Coefficient of Friction: Not less than 0.50.
 7. Tile Color, Glaze, and Pattern: As indicated on the Drawings.
 8. Grout Color: As indicated on the Drawings.
- D. Product Description- Floor Tile (PFT-2):
1. Composition: Porcelain.
 2. Certification: Tile certified by the Porcelain Tile Certification Agency.
 3. Face Size: Mosaic on 12 by 12 sheets.
 4. Thickness: 5/16 inch.
 5. Face: Plain with square mosaic pattern.
 6. Dynamic Coefficient of Friction: Not less than 0.50.
 7. Tile Color, Glaze, and Pattern: As indicated on the Drawings.
 8. Grout Color: As indicated on the Drawings.
- E. Product Description- Wall Base Tile (PTB-1):
1. Composition: Porcelain.
 2. Certification: Porcelain tile certified by the Porcelain Tile Certification Agency.
 3. Module Size: 6 by 12 inches.
 4. Thickness: 5/16 inch.
 5. Face: Pattern of design indicated, with cushion edges.
 6. Surface: Brushed slip resistant.
 7. Dynamic Coefficient of Friction: Not less than 0.66.
 8. Tile Color Glaze and Pattern: As indicated on the Drawings.
 9. Grout Color: As indicated on the Drawings.
- F. Product description Wall tile (PWT-1):

1. Composition: Porcelain.
2. Certification: Tile certified by the Porcelain Tile Certification Agency.
3. Face Size: 12 by 12 inches.
4. Thickness: 5/16 inch.
5. Face: Plain with square or cushion edge.
6. Tile Color, Glaze, and Pattern: As indicated on the Drawings.
7. Grout Color: As indicated on the Drawings.

G. Product description-Trim Tile (PTT-1):

1. Composition: Porcelain.
2. Certification: Porcelain tile certified by the Porcelain Tile Certification Agency.
3. Module Size: 3 by 6 inches.
4. Face Size Variation: Rectified.
5. Thickness: 5/16 inch.
6. Face: Plain with modified square edges or cushion edges.
7. Finish: Semimat, opaque glaze.
8. Tile Color and Pattern: As indicated on the Drawings.
9. Grout Color: As indicated on the Drawings.
10. Trim Units: Coordinated with sizes and coursing of adjoining flat tile where applicable and matching characteristics of adjoining flat tile. Provide shapes as follows, selected from manufacturer's standard shapes:
 - a. External Corners: Surface bullnose, module size same as adjoining flat tile
 - b. External Corners: Surface bullnose, module size same as adjoining flat tile

2.3 THRESHOLDS

- A. General: Fabricate to sizes and profiles indicated or required to provide transition between adjacent floor finishes.
1. Bevel edges at 1:2 slope, with lower edge of bevel aligned with or up to 1/16 inch above adjacent floor surface. Finish bevel to match top surface of threshold. Limit height of threshold to 1/2 inch or less above adjacent floor surface.
- B. Marble Thresholds: ASTM C 503, with a minimum abrasion resistance of 12 per ASTM C 1353 or ASTM C 241 and with honed finish.
1. Description: Uniform, fine- to medium-grained white stone with gray veining.

2.4 WATERPROOF MEMBRANE

- A. General: Manufacturer's standard product, selected from the following, that complies with ANSI A118.10 and is recommended by the manufacturer for the application indicated. Include reinforcement and accessories recommended by manufacturer.
- B. Fluid-Applied Membrane: Liquid-latex rubber or elastomeric polymer.

1. Products: Subject to compliance with requirements, provide products by one of the following:
 - a. Laticrete International, Inc.; HydroBan.
 - b. An approved equal.

2.5 CRACK ISOLATION MEMBRANE

1. Products: Subject to compliance with requirements, provide products by one of the following:
 - a. Laticrete International, Inc.; HydroBan.
 - b. An approved equal.

2.6 SETTING MATERIALS

- A. Portland Cement Mortar (Thickset) Installation Materials: ANSI A108.02.
- B. Polymer Fortified-Portland Cement Mortar (Thin Set): ANSI A118.4.
 1. Products: Subject to compliance with requirements, provide products by one of the following:
 - a. Laticrete International, Inc. 254 Platinum.
 - b. An approved equal.

2.7 GROUT MATERIALS

- A. Epoxy Grout: ANSI A118.6.

Products: Subject to compliance with requirements, provide products by one of the following:

 - a. Kerapoxy Unsanded Epoxy Grout (Mapei)
 - b. An approved equal.

2.8 MISCELLANEOUS MATERIALS

- A. Trowelable Underlayments and Patching Compounds: Latex-modified, portland cement-based formulation provided or approved by manufacturer of tile-setting materials for installations indicated.
- B. Metal Edge Strips: As indicated on Drawings, dimensions shall match tile and setting-bed thickness, designed specifically for wall and flooring applications; stainless-steel, #304, ASTM A 666 exposed-edge material.
 1. Manufacturer: Basis-of-Design Product: Subject to compliance with requirements, provide the following product:
 - a. Schluter Systems

- b. An approved equal.
- 2. Products: (Schluter)
 - a. Walls – Jolly
 - b. Floors - Schiene
- C. Shower base system:
 - 1. Manufacturer: Basis-of-Design Product: Subject to compliance with requirements, provide the following product.
 - a. Schluter Systems
 - b. An approved equal.
 - 2. Products: (Schluter)
 - a. Kerdi Drain
 - b. Kerdi Prefabricated Shower Tray
 - c. Kerdi Waterproof Corners, Joint Strips, adhesives.
 - d. Other Kerdi Accessories as required for a complete waterproof system.
- D. Temporary Protective Coating: Either product indicated below that is formulated to protect exposed surfaces of tile against adherence of mortar and grout; compatible with tile, mortar, and grout products; and easily removable after grouting is completed without damaging grout or tile.
 - 1. Petroleum paraffin wax, fully refined and odorless, containing at least 0.5 percent oil with a melting point of 120 to 140 deg F per ASTM D 87.
 - 2. Grout release in form of manufacturer's standard proprietary liquid coating that is specially formulated and recommended for use as temporary protective coating for tile.
- E. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.
- F. Grout Sealer: Manufacturer's standard silicone product for sealing grout joints and that does not change color or appearance of grout.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
 - 1. Verify that substrates for setting tile are firm; dry; clean; free of coatings that are incompatible with tile-setting materials, including curing compounds and other substances that contain soap, wax, oil, or silicone; and comply with flatness tolerances required by ANSI A108.01 for installations indicated.

2. Verify that concrete substrates for tile floors installed with thinset mortar comply with surface finish requirements in ANSI A108.01 for installations indicated.

- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Fill cracks, holes, and depressions in concrete substrates for tile floors installed with thinset mortar with trowelable leveling and patching compound specifically recommended by tile-setting material manufacturer.
- B. Where indicated, prepare substrates to receive waterproofing by applying a reinforced mortar bed that complies with ANSI A108.1A and is sloped 1/4 inch per foot toward drains.
- C. Blending: For tile exhibiting color variations, verify that tile has been factory blended and packaged so tile units taken from one package show same range of colors as those taken from other packages and match approved Samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.

3.3 CERAMIC TILE INSTALLATION

- A. Comply with TCNA's "Handbook for Ceramic, Glass, and Stone Tile Installation" for TCNA installation methods specified in tile installation schedules. Comply with parts of the ANSI A108 series "Specifications for Installation of Ceramic Tile" that are referenced in TCNA installation methods, specified in tile installation schedules, and apply to types of setting and grouting materials used.
 1. For the following installations, follow procedures in the ANSI A108 series of tile installation standards for providing 95 percent mortar coverage:
 - a. Tile floors in wet areas.
 - b. Tile floors consisting of tiles 8 by 8 inches or larger.
 - c. Tile floors consisting of rib-backed tiles.
- B. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
- C. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.
- D. Provide manufacturer's standard trim shapes where necessary to eliminate exposed tile edges.
- E. Where accent tile differs in thickness from field tile, vary setting bed thickness so that tiles are flush.

- F. Jointing Pattern: Lay tile in grid pattern unless otherwise indicated. Lay out tile work and center tile fields in both directions in each space or on each wall area. Lay out tile work to minimize the use of pieces that are less than half of a tile. Provide uniform joint widths unless otherwise indicated.
- G. Joint Widths: Unless otherwise indicated, install tile with the following joint widths:
 - 1. Porcelain Floor and Wall Tile: 1/16 inch.
- H. Lay out tile wainscots to dimensions indicated or to next full tile beyond dimensions indicated.
- I. Expansion Joints: Provide expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated. Form joints during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.
 - 1. Where joints occur in concrete substrates, locate joints in tile surfaces directly above them.
- J. Stone Thresholds: Install stone thresholds in same type of setting bed as adjacent floor unless otherwise indicated.
 - 1. Do not extend waterproofing or crack isolation membrane under thresholds set in modified dry-set mortar. Fill joints between such thresholds and adjoining tile set on waterproofing or crack isolation membrane with elastomeric sealant.
- K. Metal Edge Strips: Install where exposed edge of tile flooring meets carpet, wood, or other flooring that finishes flush with top of tile and where no threshold is indicated. Where top of wainscot meets other wall finish.
- L. Install tile backing panels and treat joints according to ANSI A108.11 and manufacturer's written instructions for type of application indicated. Use modified dry-set mortar for bonding material unless otherwise directed in manufacturer's written instructions.
- M. Install waterproofing to comply with ANSI A108.13 and manufacturer's written instructions to produce waterproof membrane of uniform thickness that is bonded securely to substrate.
- N. Install crack isolation membrane to comply with ANSI A108.17 and manufacturer's written instructions to produce membrane of uniform thickness that is bonded securely to substrate.

3.4 INTERIOR CERAMIC TILE INSTALLATION SCHEDULE

- A. Interior Floor Installations, Concrete Subfloor:
 - 1. Ceramic Tile Installation **TCNA F125-Full-18**; thinset mortar on crack isolation membrane.
 - a. Waterproof membrane: Fluid applied membrane.
 - b. Thinset Mortar: Modified dry-set mortar.
 - c. Grout: Epoxy unsanded grout.

B. Interior Wall Installations Plaster sub-strate:

1. Ceramic Tile Installation: **TCNA W223-18** ; organic adhesive.
 - a. Waterproof Membrane: Fluid-Applied Membrane (6" H. above floor level).
 - b. Organic adhesive bond coat
 - c. Grout: Epoxy unsanded grout.

C. Interior Wall Installations, Wood or Metal Studs or Furring:

1. Ceramic Tile Installation: **TCNA W245-18**; thinset mortar on glass-mat, water-resistant gypsum backer board.
 - a. Waterproof Membrane: Fluid-Applied Membrane (6" H. above floor level).
 - b. Thinset Mortar: Modified dry-set mortar.
 - c. Grout: Epoxy unsanded grout.

D. Bathtub/Shower Wall Installations, Wood or Metal Studs or Furring:

1. Ceramic Tile Installation: **TCNA B419-18**; thinset mortar on coated glass-mat, water-resistant gypsum backer board.
 - a. Waterproof Membrane: Fluid-Applied Membrane
 - b. Thinset Mortar: Modified dry-set mortar.
 - c. Grout: Epoxy unsanded grout.

END OF SECTION 093013

SECTION 096513 - RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Resilient base.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

- 1.

B. Samples: For each exposed product and for each color and texture specified, not less than 12 inches long.

1.3 CLOSEOUT SUBMITTALS

A. Maintenance data.

B. Furnish extra materials that match and are from same production runs as products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Base: 10 percent but at least 1 box of each type and size.
2. Stair components: 1 tread/riser assembly and 1 nosing each piece shall be at least as long as the stair is wide.

PART 2 - PRODUCTS

2.1 THERMOPLASTIC-RUBBER BASE

A. REFER TO SCHEDULE ON THE DRAWINGS FOR WALL BASE SELECTIONS

1. Products: Subject to compliance with requirements, provide one of the following:
 - a. As indicated on the Drawings.
 - b. Approved Equal

- B. Product Standard: ASTM F 1861, Type TP (rubber, thermoplastic).
 - 1. Group: I (solid, homogeneous).
- C. Thickness: 0.125 inch.
- D. Height: As indicated on the Drawings.
- E. Lengths: Coils in manufacturer's standard length.
- F. Outside Corners: Preformed.
- G. Inside Corners: Preformed.
- H. Colors: As indicated on the Drawings.

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 resilient-product manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by resilient-product manufacturer for resilient products and substrate conditions indicated.
- C. Stair-Tread Nose Filler: Two-part epoxy compound recommended by resilient stair-tread manufacturer to fill nosing substrates that do not conform to tread contours.
- D. Floor Polish: Provide protective, liquid floor-polish products recommended by resilient stair-tread manufacturer.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
- B. Concrete Substrates for Resilient Stair Accessories: Prepare horizontal surfaces according to ASTM F 710.
 - 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
 - 2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.

3. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing, but not less than 5 or more than 9 pH.
4. Moisture Testing: Proceed with installation only after substrates pass testing according to manufacturer's written recommendations, but not less stringent than the following:
 - a. Perform anhydrous calcium chloride test according to ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.
 - b. Perform relative humidity test using in situ probes according to ASTM F 2170. Proceed with installation only after substrates have maximum 75 percent relative humidity level.
- C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
- D. Do not install resilient products until they are the same temperature as the space where they are to be installed.
- E. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient products.

3.2 RESILIENT BASE INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient base.
- B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
- C. Install resilient base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.
- D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
- E. Do not stretch resilient base during installation.
- F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.
- G. Preformed Corners: Install preformed corners before installing straight pieces.

3.3 RESILIENT ACCESSORY INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient accessories.

B. Resilient Stair Accessories:

1. Use stair-tread-nose filler to fill nosing substrates that do not conform to tread contours.
2. Tightly adhere to substrates throughout length of each piece.

3.4 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protecting resilient products.
- B. Floor Polish: Remove soil, visible adhesive, and surface blemishes from resilient stair treads before applying liquid floor polish.
 1. Apply floor polish as per manufacturer's written instructions.
- C. Cover resilient products subject to wear and foot traffic until Substantial Completion.

END OF SECTION 096513

SECTION 096519 - RESILIENT TILE FLOORING

PART 1 - GENERAL

1.1 SUMMARY

1. Section Includes:
 1. Solid vinyl floor tile.
 2. Vinyl accessories

1.2 ACTION SUBMITTALS

1. Product Data: For each type of product.
2. Shop Drawings: For each type of floor tile. Include floor tile layouts, edges, columns, doorways, enclosing partitions, built-in furniture, cabinets, and cutouts.
 1. Show details of special patterns.
3. Samples: Full-size units of each color and pattern of floor tile required.

1.3 CLOSEOUT SUBMITTALS

1. Maintenance data.
2. Attic stock: Provide 10 percent of each color and size but at least 1 box from the same production run for each type and size.

1.4 WARRANTY

1. Solid vinyl floor tile special warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace air barrier systems that fail in materials or workmanship within specified warranty period.
 1. Warranty Period: 10 years from date of Substantial Completion.
2. PVC edge trim special warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace air barrier systems that fail in materials or workmanship within specified warranty period.
 1. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

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

2.2 SOLID VINYL FLOOR TILE

1. **REFER TO SCHEDULE ON THE DRAWINGS FOR VINYL TILE SELECTIONS**
2. Manufacturers: Subject to compliance with requirements provide products by one of the following.
 - a. Johnsonite-Azrock
 - b. An approved equal
3. Tile Standard: ASTM F 1700.
 1. Class: Class III, printed film vinyl tile.
 2. Type: B, embossed surface.
4. Thickness: 0.125 inch.
5. Size: As indicated on the Drawings.
6. Colors and Patterns: As indicated on the Drawings.

2.3 VINYL MOLDING ACCESSORY

1. Description: Vinyl transition strips
2. Profile and Dimensions: As indicated on the drawings.
3. Locations: Provide vinyl molding accessories in areas indicated.
4. Colors and Patterns: As indicated on the drawings.

2.4 INSTALLATION MATERIALS

1. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by floor tile manufacturer for applications indicated.
2. Adhesives: Water-resistant type recommended by floor tile and adhesive manufacturers to suit floor tile and substrate conditions indicated.
3. Floor Polish: Provide protective, liquid floor-polish products recommended by floor tile manufacturer.

PART 3 - EXECUTION

3.1 PREPARATION

1. Prepare substrates according to floor tile manufacturer's written instructions to ensure adhesion of resilient products.
2. Concrete Substrates: Prepare according to ASTM F 710.
 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
 2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by floor tile manufacturer. Do not use solvents.
 3. Alkalinity and Adhesion Testing: Perform tests recommended by floor tile manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing, but not less than 5 or more than 9 pH.
 4. Moisture Testing: Proceed with installation only after substrates pass testing according to floor tile manufacturer's written recommendations, but not less stringent than the following:
 - a. Perform anhydrous calcium chloride test according to ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.
 - b. Perform relative humidity test using in situ probes according to ASTM F 2170. Proceed with installation only after substrates have a maximum 75 percent relative humidity level.
3. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
 1. Patch and level slabs where ceramic tile has been removed with hydraulic cement underlayment.

4. Do not install floor tiles until they are the same temperature as the space where they are to be installed.
5. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient floor tile.

3.2 FLOOR TILE INSTALLATION

1. Comply with manufacturer's written instructions for installing floor tile.
2. 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 in pattern indicated.
3. 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 in pattern of colors and sizes indicated.
4. 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.
5. Extend floor tiles into toe spaces, door reveals, closets, and similar openings. Extend floor tiles to center of door openings.
6. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates. Use chalk or other nonpermanent marking device.
7. Adhere floor tiles to flooring substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

3.3 RESILIENT ACCESSORY INSTALLATION

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

3.4 CLEANING AND PROTECTION

1. Comply with manufacturer's written instructions for cleaning and protecting floor tile.
2. Floor Polish: Remove soil, adhesive, and blemishes from floor tile surfaces before applying liquid floor polish.
 1. Apply number of coats as per manufacturer's written instructions.
3. Cover floor tile until Substantial Completion.

END OF SECTION 096519

SECTION 099113 - EXTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes surface preparation and the application of paint systems on the following exterior substrates:
 - 1. Steel and iron.
 - 2. Galvanized metal.
 - 3. PVC.
 - 4. Exterior Gypsum Board
- B. MPI Gloss Level 1: Not more than five units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.
- C. MPI Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- D. MPI Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.
- E. MPI Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.
- F. MPI Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.
- G. MPI Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
 - 1. Include printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.
- B. Samples: For each type of paint system and each color and gloss of topcoat.

1.3 CLOSEOUT MATERIALS

- A. Maintenance data.
- B. Furnish extra materials that match and are from same production runs as products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Paint 10 percent but at least one (1) gallon of each type, color and sheen.

1.4 QUALITY ASSURANCE

- A. Mockups: Apply mockups 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.
 - a. Vertical and Horizontal Surfaces: Provide samples of at least 20 sq. ft.
 - b. Other Items: Architect will designate items or areas required.
 - 2. Final approval of color selections will be based on mockups.
 - a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide products by one of the following.
 - 1. Benjamin-Moore
 - 2. An approved equal

2.2 PAINT, GENERAL

- A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its "MPI Approved Products Lists."

B. Material Compatibility:

1. Materials for use within each paint system shall be 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, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.

C. **REFER TO SCHEDULES ON THE DRAWINGS FOR PAINT COLOR AND SHEEN SELECTIONS**

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 1. Concrete: 12 percent.
- C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- D. Proceed with coating application only after unsatisfactory conditions have been corrected.
 1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.

3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Manual."
- B. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 CLEANING AND PROTECTION

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

3.5 EXTERIOR PAINTING SCHEDULE (Benjamin Moore product Nos. used)

A. Steel and Iron Substrates:

1. Water-Based Light Industrial Coating System MPI EXT 5.1M:

- a. Prime Coat: P06-Super Spec HP Acrylic Metal Primer, rust inhibitive, water based MPI #107.
- b. Intermediate Coat: Exterior, water based, matching topcoat.
- c. Topcoat: P29 SuperSpec HP DTM, exterior, Acrylic Semi-Gloss MPI #163.

B. Galvanized-Metal Substrates:

1. Water-Based Light Industrial Coating System MPI EXT 5.3J:

- a. Prime Coat: P04 SuperSpec HP Acrylic Metal Primer MPI #107.
- b. Intermediate Coat: Exterior coating water based, matching topcoat.
- c. Topcoat: P29 SuperSpec HP DTM exterior, Acrylic Semi-Gloss MPI #163.

C. PVC Plastic Trim Substrates:

1. Water-Based Light Industrial Coating System MPI EXT 6.8C:

- a. Prime Coat: 023 Fresh Start All-Purpose 100% Acrylic Primer MPI #6.
- b. Intermediate Coat: Latex, exterior, matching topcoat.
- c. Topcoat: 634 Aura Waterborne Exterior Acrylic Low Lustre MPI #15.

D. Exterior Gypsum Board Substrates:

1. Latex System MPI EXT 9.2A:

- a. Prime Coat: 024 Fresh Start All-Purpose Alkyd Primer MPI #5.
- b. Intermediate Coat: Latex, exterior, matching topcoat.
- c. Topcoat: 629 Aura Waterborne Exterior Acrylic Flat MPI #10.
- d. Topcoat: 634 Aura Waterborne Exterior Acrylic Low Lustre MPI #15.

END OF SECTION 099113

SECTION 099123 - INTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes surface preparation and the application of paint systems on the following interior substrates:
 - 1. Hollow metal
 - 2. Wood.
 - 3. Plaster
 - 4. Gypsum board.

1.2 DEFINITIONS

- A. MPI Gloss Level 1: Not more than five units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.
- B. MPI Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- C. MPI Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- D. MPI Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.
- E. MPI Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.
- F. MPI Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.
- G. MPI Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
 - 1. Include Printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.

- B. Samples: For each type of paint system and in each color and gloss of topcoat.

1.4 CLOSEOUT SUBMITTALS

- A. Maintenance data.
- B. Furnish extra materials that match and are from same production runs as products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Paint: 10 percent but at least 1 gallon of each type, color and sheen.

1.5 QUALITY ASSURANCE

- A. Mockups: Apply mockups 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.
 - a. Vertical and Horizontal Surfaces: Provide samples of at least 10 sq. ft.
 - b. Other Items: Architect will designate items or areas required.
 - 2. Final approval of color selections will be based on mockups.
 - a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide products by one of the following.
 - 1. Benjamin-Moore
 - 2. An approved equal

2.2 PAINT, GENERAL

- A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its "MPI Approved Products Lists."

- B. Material Compatibility:
1. Materials for use within each paint system shall be 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, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.
- C. **REFER TO SCHEDULES ON THE DRAWINGS FOR PAINT COLOR AND SHEEN SELECTIONS.**

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
1. Wood: 15 percent.
 2. Gypsum Board: 12 percent.
 3. Plaster: 12 percent.
- C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- D. Proceed with coating application only after unsatisfactory conditions have been corrected.
1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

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

- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual."
- B. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 INTERIOR PAINTING SCHEDULE (Benjamin Moore Nos. listed)

- A. Hollow Metal Substrates:
 - 1. Waterborne Alkyd over Alkyd Primer System:
 - a. Prime Coat: P06 SuperSpec HP Alkyd Metal Primer [MPI #79].
 - b. Intermediate Coat: 792 Advance Waterborne Interior Alkyd Semi-Gloss
 - c. Topcoat: 792 Advance Waterborne Interior Alkyd Semi-Gloss.
- B. Galvanized-Metal Substrates:
 - 1. Latex over Waterborne Primer System:
 - a. Prime Coat: P04 SuperSpec HP Acrylic Metal Primer
 - b. Intermediate Coat: Latex, interior, matching topcoat.
 - c. Topcoat: 522 Aura Interior Latex Semi-Gloss MPI #54
- C. Wood Substrates: Including wood trim, architectural woodwork and doors
 - 1. Latex System:
 - a. Prime Coat: 023 Fresh Start All-Purpose 100% Acrylic Primer MPI #39.
 - b. Intermediate Coat: Latex, interior, matching topcoat.
 - c. Topcoat: 524 Aura Interior Latex Eggshell MPI #44.
 - d. Topcoat: 528 Aura Interior Latex Semi-Gloss MPI #54.

D. Gypsum Board and Plaster Substrates:

1. Latex System:

- a. Prime Coat: N216 Regal First Coat MPI #50
- b. Prime Coat: Latex, interior, matching topcoat.
- c. Topcoat: 524 Aura Interior Latex Eggshell MPI #44.
- d. Topcoat: 522 Aura Interior Latex Flat MPI #53.

END OF SECTION 099123