

SECTION 092216 - NON-STRUCTURAL METAL FRAMING

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. This Section includes non-load-bearing steel framing members for the following applications:
 - 1. Non-load-bearing steel framing systems for interior gypsum board assemblies.
 - 2. Suspension systems for interior gypsum ceilings, soffits, and grid systems.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For interior partitions and soffits.
 - 1. For interior partitions and soffits, show details of seismic bracing and fastener requirements.
- C. Evaluation Reports: For firestop tracks, from ICC-ES.

1.4 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, 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.

PART 2 - PRODUCTS

2.1 NON-LOAD-BEARING STEEL FRAMING, GENERAL

- A. Framing Members, General: Comply with ASTM C 754 for conditions indicated.
 - 1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal, unless otherwise indicated.
 - 2. Protective Coating: One of the following:
 - a. ASTM A 653/A 653M, G60, hot-dip galvanized.

- b. Meeting requirements of ASTM C645-07; C-channel, roll-formed from galvanized steel; complying with ASTM A1003 and ASTM A653 G40 or equivalent corrosion resistant coating.
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Steel Framing and Furring:
 - a. Steel Stud Manufacturers' Association or Steel Framing Industry Association (SFIA) members.
 - b. ClarkDietrich Building Systems ProSTUD Drywall Framing System.

2.2 SUSPENSION SYSTEM COMPONENTS

- A. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.0625-inch- diameter wire, or double strand of 0.0475-inch- diameter wire.
- B. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.162-inch diameter.
- C. Carrying Channels: Cold-rolled, commercial-steel sheet with a base-metal thickness of 0.0538 inch and minimum 1/2-inch- wide flanges.
 - 1. Depth: 2 inches, unless otherwise indicated.
- D. Furring Channels (Furring Members):
 - 1. Hat-Shaped, Rigid Furring Channels: ASTM C 645, 7/8 inch deep.
 - a. Minimum Base Metal Thickness: 0.0179 inch.
- E. Grid Suspension System for Ceilings: ASTM C 645, direct-hung system composed of main beams and cross-furring members that interlock.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Armstrong World Industries, Inc.; Drywall Grid Systems.
 - b. Chicago Metallic Corporation; Drywall Furring System.
 - c. USG Corporation; Drywall Suspension System.

2.3 STEEL FRAMING FOR FRAMED ASSEMBLIES

- A. Steel Studs and Runners: ASTM C 645.
 - 1. Minimum Base-Metal Thickness: 0.02 inch (20 gauge equivalent), or greater as required to comply with manufacturer's requirements for limiting heights and applied loads
 - 2. Minimum Base-Metal Thickness for Door Jamb Studs: 0.02 inch (20 gauge equivalent).
 - 3. Depth: As indicated on Drawings.
- B. Slip-Type Head Joints: Where indicated, provide one of the following:
 - 1. Double-Runner System: ASTM C 645 top runners, inside runner with 2-inch- deep flanges in thickness not less than indicated for studs and fastened to studs, and outer runner sized to friction fit inside runner.

2. Deflection Track: Steel sheet top runner manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.
 - a. Products: Subject to compliance with requirements, provide one of the following:
 - 1) Steel Network Inc. (The); VertiClip SLD Series.
 - 2) ClarkDietrich Building Systems; BlazeFrame.

- C. Firestop Tracks: Top runner manufactured to allow partition heads to expand and contract with movement of the structure while maintaining continuity of fire-resistance-rated assembly indicated; in thickness not less than indicated for studs and in width to accommodate depth of studs.
 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Fire Trak Corp.; Fire Trak attached to studs with Fire Trak Slip Clip.
 - b. Metal-Lite, Inc.; The System.
 - c. ClarkDietrich Building Systems; BlazeFrame.

- D. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.
 1. Minimum Base-Metal Thickness: 0.0312 inch.

- E. Cold-Rolled Channel Bridging: 0.0538-inch bare-steel thickness, with minimum 1/2-inch- wide flanges.
 1. Depth: 1-1/2 inches, unless indicated otherwise.
 2. Clip Angle: Not less than 1-1/2 by 1-1/2 inches, 0.068-inch- thick, galvanized steel.

- F. Hat-Shaped, Rigid Furring Channels: ASTM C 645.
 1. Minimum Base Metal Thickness: 0.0179 inch (25 gauge equivalent)..
 2. Depth: 7/8 inch.

- G. Resilient Furring Channels: 1/2-inch- deep, steel sheet members designed to reduce sound transmission.
 1. Configuration: Asymmetrical.

2.4 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards.
 1. 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 one of the following:
 1. Asphalt-Saturated Organic Felt: ASTM D 226, Type I (No. 15 asphalt felt), nonperforated.
 2. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch thick, in width to suit steel stud size.

PART 3 - EXECUTION

3.1 EXAMINATION

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

3.2 PREPARATION

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

3.3 INSTALLATION, GENERAL

- A. Installation Standard: ASTM C 754, except comply with framing sizes and spacing indicated.
 - 1. 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.

3.4 INSTALLING SUSPENSION SYSTEMS

- A. Install suspension system components in sizes and spacings indicated on Drawings, but not less than those required by referenced installation standards for assembly types and other assembly components indicated.
- 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 required to support standard suspension system members, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.
 - a. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced installation standards.
 3. Wire Hangers: Secure by looping and wire tying, either directly to structures or to inserts, eye screws, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause hangers to deteriorate or otherwise fail.
 4. Do not attach hangers to steel roof deck.
 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. Fire-Resistance-Rated Assemblies: Wire tie furring channels to supports.
- E. Seismic Bracing: Sway-brace suspension systems with hangers used for support.
- F. Grid Suspension Systems: Attach perimeter wall track or angle where grid suspension systems meet vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.
- G. 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.

3.5 INSTALLING FRAMED ASSEMBLIES

- A. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.
- B. Install studs so flanges within framing system point in same direction.
 1. Space studs as follows: 16 inches o.c., unless otherwise indicated.
- C. 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. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch clearance from jamb stud to allow for installation of control joint in finished assembly.
 - c. 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. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.
 - a. Firestop Track: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.
 5. Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.
- D. Direct Furring:
1. Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.
- E. 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.

END OF SECTION 092216

SECTION 092900 - GYPSUM BOARD

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. This Section includes the following:
 - 1. Interior gypsum board.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples: For the following products:
 - 1. Trim Accessories: Full-size Sample in 12-inch- long length for each trim accessory indicated.

1.4 QUALITY ASSURANCE

- A. 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.

1.5 STORAGE AND HANDLING

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

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.
- B. Do not install interior products until installation areas are enclosed and conditioned.
- C. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.
 - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 PANELS, GENERAL

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

2.2 INTERIOR GYPSUM BOARD

- A. General: Complying with ASTM C 36/C 36M or ASTM C 1396/C 1396M, as applicable to type of gypsum board indicated and whichever is more stringent.

- 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- a. BPB America Inc.
- b. G-P Gypsum.
- c. National Gypsum Company.
- d. USG Corporation.

- B. Type X:

- 1. Thickness: 5/8 inch.
- 2. Long Edges: Tapered.

- C. Moisture and Mold-Resistant Gypsum Board: ASTM C 1396/C 1396M. With moisture- and mold-resistant core and paper surfaces.

- 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- a. American Gypsum.
- b. Georgia-Pacific Building Products.
- c. National Gypsum Company.
- d. USG.

- 2. Core: 5/8 inch, Type X.
- 3. Long Edges: Tapered.
- 4. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

2.3 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047.

- 1. Material: Paper-faced galvanized steel sheet.
- 2. Shapes:
 - a. Cornerbead.
 - b. LC-Bead: J-shaped; exposed long flange receives joint compound.
 - c. Expansion (control) joint.

- B. Aluminum Trim: Extruded accessories of profiles and dimensions indicated.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Fry Reglet Corp. – Profiles as indicated (Basis of Design)
 - b. Gordon, Inc.
 - c. 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: Corrosion-resistant primer compatible with joint compound and finish materials specified.

2.4 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475/C 475M.
- B. Joint Tape:
 1. Interior Gypsum Wallboard: Paper.
- C. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
 1. Prefilling: At open joints 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 drying-type, all-purpose compound.
 - a. Use setting-type compound for installing paper-faced metal trim accessories.
 3. Fill Coat: For second coat, use drying-type, all-purpose compound.
 4. Finish Coat: For third coat, use drying-type, all-purpose compound.

2.5 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
- B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.
- C. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
- D. 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. Free of Formaldehyde: Insulation manufactured with 100 percent acrylic binders and no formaldehyde.
 2. Products: Formaldehyde-free sound batts by one of the following:
 - a. CertainTeed Corporation.
 - b. Johns Manville; a Berkshire Hathaway company.
- E. Acoustical Sealant: As specified in Division 07 Section "Joint Sealants."

- F. Thermal Insulation: As specified in Division 07 Section "Thermal Insulation."

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames and framing, for compliance with requirements and other conditions affecting performance.
- B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLYING AND FINISHING PANELS, GENERAL

- A. Comply with ASTM C 840.
- B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- C. Install panels with face side out. 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 into place.
- D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
- E. Form control and expansion joints with space between edges of adjoining gypsum panels.
- F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.
 - 1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
 - 2. Fit gypsum panels around ducts, pipes, and conduits.
 - 3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch- wide joints to install sealant.
- G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments, except floors. 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.
- H. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.
- I. STC-Rated Assemblies: Seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and with manufacturer's

written recommendations for locating edge trim and closing off sound-flanking paths around or through assemblies, including sealing partitions above acoustical ceilings.

3.3 APPLYING INTERIOR GYPSUM BOARD

- A. Install interior gypsum board in the following locations:
 - 1. Type X: Vertical surfaces, unless otherwise indicated.
 - 2. Mold-Resistant Type: At Shower areas, as indicated on Drawings.
- B. Single-Layer Application:
 - 1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing, unless otherwise indicated.
 - 2. On partitions/walls, apply gypsum panels vertically (parallel to framing), and minimize end joints.
 - a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
 - 3. Fastening Methods: Apply gypsum panels to supports with steel drill screws.
- C. Laminating to Substrate: Where gypsum panels are indicated as directly adhered to a substrate (other than studs, joists, furring members, or base layer of gypsum board), comply with gypsum board manufacturer's written recommendations and temporarily brace or fasten gypsum panels until fastening adhesive has set.

3.4 INSTALLING TRIM ACCESSORIES

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- B. Control Joints: Install control joints according to ASTM C 840, at maximum 30 o.c. spacing and in specific locations approved by Architect for visual effect.
- C. Interior Trim: Install in the following locations:
 - 1. Cornerbead: Use at outside corners, unless otherwise indicated.
 - 2. LC-Bead: Use at exposed panel edges.
- D. Aluminum Trim: Install in locations indicated on Drawings.

3.5 FINISHING GYPSUM BOARD

- A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
- B. Prefill open joints and damaged surface areas.
- C. Apply joint tape over gypsum board joints, except those with trim having flanges not intended for tape.
- D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:

1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
2. Level 2: Panels that are substrate for tile.
3. Level 4: At panel surfaces that will be exposed to view, unless otherwise indicated.

3.6 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.
 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 092900

SECTION 093000 - TILING

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. This Section includes the following:
 - 1. Porcelain tile.
 - 2. Quarry tile.
 - 3. Thresholds.
 - 4. Uncoupling/waterproofing membrane.
 - 5. Metal edge strips.

1.3 PERFORMANCE REQUIREMENTS

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

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Show locations of each type of tile and tile pattern. Show widths, details, and locations of expansion, contraction, control, and isolation joints in tile substrates and finished tile surfaces.
- C. Samples for Verification:
 - 1. Full-size units of each type and composition of tile and for each color and finish required. For ceramic mosaic tile in color blend patterns, provide full sheets 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. Make samples at least 12 inches square, but not fewer than 4 tiles. Use grout of type and in color or colors approved for completed Work.
 - 3. Full-size units of each type of trim and accessory for each color and finish required.
 - 4. Solid surface thresholds in 6-inch lengths.
 - 5. Metal edge strips in 6-inch lengths.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified Installer.
- B. Product Certificates: For each type of product, signed by product manufacturer.

1.6 QUALITY ASSURANCE

- A. Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from a single manufacturer and each aggregate from one source or producer.
- B. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination."

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirement in ANSI A137.1 for labeling sealed tile packages.
- B. Store tile and cementitious materials on elevated platforms, under cover, and in a dry location.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- D. Handle tile that has temporary protective coating on exposed surfaces to prevent coated surfaces from contacting backs or edges of other units. If coating does contact bonding surfaces of tile, remove coating from bonding surfaces before setting tile.

1.8 PROJECT CONDITIONS

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

PART 2 - PRODUCTS

2.1 PRODUCTS, GENERAL

- A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1, "Specifications for Ceramic Tile," for types, compositions, and other characteristics indicated.
- B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI standards referenced in "Setting and Grouting Materials" Article.
- C. Colors, Textures, and Patterns: Where manufacturer's standard products are indicated for tile, grout, and other products requiring selection of colors, surface textures, patterns, and other appearance characteristics, provide specific products or materials complying with the following requirements:
 - 1. As indicated on Finish Schedule.
- D. Factory Blending: For tile exhibiting color variations within ranges selected during Sample submittals, blend tile in factory and package so tile units taken from one package show same range in colors as those taken from other packages and match approved Samples.
- E. Mounting: For factory-mounted tile, provide back- or edge-mounted tile assemblies as standard with manufacturer, unless otherwise indicated.

2.2 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide Basis-of-Design products listed or Architect approved comparable products by one of the following:
1. American Olean.
 2. Daltile.
 3. Crossville.
 4. Ceramic Technics.

2.3 TILE PRODUCTS

A. Porcelain Paver Tile (PT-1):

1. Basis-of- Design Product: Subject to compliance with requirements, provide **14 Ora Italiana** by **Specialty Tile Products, Inc.** or Architect approved comparable product.
2. Composition: Porcelain.
3. Module Size: 8 by 48 inches.
4. Thickness: 5/16 inch.
5. Tile Color: As indicated on Finish Schedule.
6. Grout Color: As indicated on Finish Schedule.

B. Porcelain Paver Tile (PT-2):

1. Basis-of- Design Product: Subject to compliance with requirements, provide **Interno 9** by **Specialty Tile Products, Inc.** or Architect approved comparable product.
2. Composition: Porcelain.
3. Module Size: 12 by 24 inches.
4. Thickness: 5/16 inch.
5. Tile Color: As indicated on Finish Schedule.
6. Grout Color: As indicated on Finish Schedule.
7. 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. Base (PTB-1): Straight, module size 12 by 24 inches, field cut to 4 by 24 inches.

C. Porcelain Paver Tile (PT-3):

1. Basis-of- Design Product: Subject to compliance with requirements, provide **Chromtech** by **Specialty Tile Products, Inc.** or Architect approved comparable product.
2. Composition: Porcelain.
3. Module Size: 12 by 24 inches.
4. Thickness: 5/16 inch.
5. Tile Color: As indicated on Finish Schedule.
6. Grout Color: As indicated on Finish Schedule.
7. 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. Base (PTB-2): Straight, module size 4 by 24 inches.

D. Porcelain Wall Tile (PT-4):

1. Basis-of- Design Product: Subject to compliance with requirements, provide **Rango Glossy Brick by Specialty Tile Products, Inc.** or Architect approved comparable product.
2. Composition: Porcelain.
3. Module Size: 4 by 12 inches.
4. Thickness: 5/16 inch.
5. Tile Color: As indicated on Finish Schedule.
6. Grout Color: As indicated on Finish Schedule.

E. Porcelain Wall Tile (PT-5):

1. Basis-of- Design Product: Subject to compliance with requirements, provide **Chromtech by Specialty Tile Products, Inc.** or Architect approved comparable product.
2. Composition: Porcelain.
3. Module Size: 12 by 24 inches.
4. Thickness: 5/16 inch.
5. Tile Color: As indicated on Finish Schedule.
6. Grout Color: As indicated on Finish Schedule.

F. Porcelain Paver Tile (PT-6) at Officials' Shower:

1. Basis-of- Design Product: Subject to compliance with requirements, provide **Metropolis by Garden State Tile** or Architect approved comparable product.
2. Composition: Porcelain.
3. Module Size: 2 by 2 inches.
4. Thickness: 5/16 inch.
5. Tile Color: As indicated on Finish Schedule.
6. Grout Color: As indicated on Finish Schedule.
7. Trim Units: Coordinated with sizes and coursing of adjoining flat tile where applicable and matching characteristics of adjoining flat tile.
 - a. Base for Thin-Set Mortar Installations: Straight, module size 3 by 12 inches.

G. Quarry Tile (QT-1):

1. Basis-of- Design Product: Subject to compliance with requirements, provide **Quarry Tile 0Q42 by Daltille** or Architect approved comparable product.
2. Face Size: 6 by 6 inches.
3. Thickness: 1/2 inch.
4. Tile Color: As indicated on Finish Schedule.
5. Grout Color: As indicated on Finish Schedule.
6. Trim Units: Coordinated with sizes and coursing of adjoining flat tile where applicable. Provide shapes as follows, selected from manufacturer's standard shapes:
 - a. Base (QTB-1): Coved with surface bullnose top edge, face size 4 by 8 inches.

2.4 THRESHOLDS

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

1. Bevel edges at 1:2 slope, 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. Solid-Surfacing Material: Homogeneous solid sheets of filled plastic resin complying with ISSFA-2.
1. Basis-of- Design Product: Subject to compliance with requirements, provide **Quartz by Wilsonart, LLC** or Architect approved comparable product.
 2. Type: Standard type.
 3. Colors: As indicated on Finish Schedule.

2.5 UNCOUPLING/WATERPROOF MEMBRANE MATERIALS

- A. Basis-of-Design Manufacturer: Provide uncoupling/waterproofing system materials by the following:
1. Schluter Systems L.P., 194 Pleasant Ridge Road, Plattsburgh, NY 12901-5841. Tel: (800) 472-4588. Fax (800) 477-9783. E-mail: info@schluter.com. Internet: www.schluter.com.
- B. Uncoupling / Waterproofing Membrane for Floors: [Schluter-DITRA](#), Corrugated polyethylene matting with 3 mm (1/8 inch) high dovetail-shaped ribs and a polypropylene-fiber support webbing laminated to the underside to provide a mechanical bond to the substrate, meeting ANSI A118.10 and meeting TCNA definition for Uncoupling Membrane.
- C. Perimeter Flashings: [Schluter-KERDI-BAND](#) load bearing bonded waterproof membrane corner joiner and inside/outside corner pre-cut and trimmed units; meeting ANSI A118.10 and as referenced in TCNA Handbook for Ceramic Tile Installation.
- D. Sealing Compound: Schluter-KERDI-FIX/G–Single component sealing and bonding compound with a silane -modified polymer base; color as selected by Architect.
- E. Prefabricated Corner Movement and Expansion Joints: Schluter® - DILEX [DILEX-EKE](#), pre-fabricated extruded rigid PVC joined by a soft CPE movement joint material. Profile includes integral perforated anchoring legs with trapezoidal openings. Height and color as required.
- F. Prefabricated Field Movement and Expansion Joint: Schluter®-DILEX [DILEX-BWS](#), [DILEX BWB](#), [DILEX AKWS](#), and [DILEX KS](#) pre-fabricated extruded rigid PVC roll-formed stainless steel, or extruded aluminum profile, joined by a soft CPE movement joint material. Profile includes integral perforated anchoring legs with trapezoidal openings. Height and color as required.

2.6 SETTING MATERIALS

- A. Dry-Set Portland Cement Mortar (Thin Set): ANSI A118.1.
- B. Latex-Portland Cement Mortar (Thin Set): ANSI A118.4.

2.7 GROUT MATERIALS

- A. Water-Cleanable Epoxy Grout: ANSI A118.3.

2.8 MISCELLANEOUS MATERIALS

- A. 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.
- B. Membrane Flashing Strips: Polyethylene strips faced on both sides with fleece webbing; 0.008-inch nominal thickness; manufacturer's standard widths as required for application.
 - 1. Basis-of-Design Product: Schluter Systems L.P.; KERDI-BAND and KERDI-FLEX.

2.9 MIXING MORTARS AND GROUT

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

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.
 - 1. Verify that substrates for setting tile are firm; dry; clean; free of oil, waxy films, and curing compounds; and within flatness tolerances required by referenced ANSI A108 Series of tile installation standards for installations indicated.
 - 2. Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed before installing tile.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Deliver slate tile to tile fabricator for cutting and arrangement in patterns as indicated on drawings.
- B. Remove coatings, including curing compounds and other substances that contain soap, wax, oil, or silicone, that are incompatible with tile-setting materials.
- C. Blending: For tile exhibiting color variations within ranges selected during Sample submittals, verify that tile has been factory blended and packaged so tile units taken from one package show same range of colors as those taken from other packages and match approved Samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.

3.3 TILE INSTALLATION

- A. Comply with TCNA's "Handbook for Ceramic 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 composed of tiles 8 by 8 inches or larger.
- 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. 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.
- E. Joint Widths: As directed by Architect for specific tile type.
- F. 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.
 - 2. Prepare joints and apply sealants to comply with requirements in Division 07 Section "Joint Sealants."

3.4 UNCOUPLING/WATERPROOFING MEMBRANE INSTALLATION

- A. Install uncoupling/waterproof membrane to comply with manufacturer's written instructions to produce 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 CLEANING AND PROTECTING

- A. Cleaning: On completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.
 - 1. Remove latex-portland cement grout residue from tile as soon as possible.
 - 2. Clean grout smears and haze from tile according to tile and grout manufacturer's written instructions, but no sooner than 10 days after installation. Use only cleaners recommended by tile and grout manufacturers and only after determining that cleaners are safe to use by testing on

- samples of tile and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.
3. Remove temporary protective coating by method recommended by coating manufacturer that is acceptable to tile and grout manufacturer. Trap and remove coating to prevent it from clogging drains.
- B. When recommended by tile manufacturer, apply coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear.
 - C. Prohibit foot and wheel traffic from tiled floors for at least seven days after grouting is completed.
 - D. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

3.6 INTERIOR TILE INSTALLATION SCHEDULE

- A. Interior Floor Installations, Concrete Subfloor:
 1. Tile Installation for Level 1: Cement mortar bed (thickset) bonded to concrete; TCNA F112 and ANSI A108.1C.
 - a. Tile Type: Porcelain tile.
 - b. Thin-Set Mortar for Cured-Bed Method: Dry-set portland cement mortar.
 - c. Grout: Water-cleanable epoxy grout.
 2. Tile Installation for Upper Levels: Thin-set mortar on uncoupling/waterproof membrane; TCNA F122.
 - a. Tile Type: Porcelain and quarry tile.
 - b. Thin-Set Mortar for Cured-Bed Method: Latex- portland cement mortar.
 - c. Grout: Water-cleanable epoxy grout.
- B. Interior Wall Installations, Masonry or Concrete:
 1. Tile Installation W202: Thin-set mortar; TCNA W202.
 - a. Tile Type: Porcelain tile.
 - b. Thin-Set Mortar: Dry-set portland cement mortar.
 - c. Grout: Standard sanded cement grout.
- C. Interior Wall Installations, Metal Studs or Furring:
 1. Tile Installation W243: Thin-set mortar on gypsum board; TCNA W243.
 - a. Tile Type: Porcelain tile.
 - b. Thin-Set Mortar: Latex- portland cement mortar.
 - c. Grout: Standard sanded cement grout.
- D. Shower Receptor Installations:
 1. Ceramic Tile Installation B421: Thinset mortar on waterproof membrane over solid backing. (Note: CMU shower walls to receive epoxy paint.)
 - a. Ceramic Tile Type: Ceramic mosaic floor tile and base.
 - b. Thinset Mortar: Modified dry-set mortar.
 - c. Grout: Water-cleanable epoxy grout.

END OF SECTION 093000

SECTION 095113 - ACOUSTICAL PANEL CEILINGS

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. This Section includes acoustical panels and exposed suspension systems for ceilings.
- B. Related Requirements:
 - 1. Section 122413 "Roller Window Shades" for coordination of perimeter trim system for shades.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For ceiling assembly and installation.
 - 1. Include reflected ceiling plans, elevations, sections, and mounting devices and details.
 - 2. Include details at joints and corners; and details at ceiling intersections and intersections with walls. Indicate panel edge profile and core materials.
 - 3. Include details for compliance with seismic requirements.
- C. Samples for Verification: For each component indicated and for each exposed finish required, prepared on Samples of size indicated below.
 - 1. Acoustical Panel: Set of 6-inch- square Samples of each type, color, pattern, and texture.
 - 2. Exposed Suspension System Members, Moldings, and Trim: Set of 12-inch- long Samples of each type, finish, and color.
- D. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each acoustical panel ceiling.
- E. Maintenance Data: For finishes to include in maintenance manuals.

1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type of acoustical ceiling panel and supporting suspension system through one source from a single manufacturer.
- B. Fire-Test-Response Characteristics: Provide acoustical panel ceilings that comply with the following requirements:

1. Surface-Burning Characteristics: Provide acoustical panels with the following surface-burning characteristics complying with ASTM E 1264 for Class A materials as determined by testing identical products per ASTM E 84:
- C. Seismic Standard: Provide acoustical panel ceilings designed and installed to withstand the effects of earthquake motions according to the following:
 1. 2012 International Building Code, which references applicable requirements of ASCE 7-10, "Minimum Design Loads for Buildings and Other Structures", which reference applicable requirements of ASTM E 580-11, "Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions".
- D. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination."

1.5 DELIVERY, STORAGE, AND HANDLING

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

1.6 PROJECT CONDITIONS

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

1.7 COORDINATION

- A. Coordinate layout and installation of acoustical panels and suspension system with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies. No ceiling supports, seismic restraint wires, etc. shall obstruct the service clearance of VAV terminal units and electric heater panels.

PART 2 - PRODUCTS

2.1 ACOUSTICAL PANELS, GENERAL

- A. Acoustical Panel Standard: Provide manufacturer's standard panels of configuration indicated that comply with ASTM E 1264 classifications as designated by types, patterns, acoustical ratings, and light reflectances, unless otherwise indicated.
 1. Mounting Method for Measuring NRC: Type E-400; plenum mounting in which face of test specimen is 15-3/4 inches away from test surface per ASTM E 795.

- B. Acoustical Panel Colors and Patterns: Match appearance characteristics indicated for each product type.
 - 1. Where appearance characteristics of acoustical panels are indicated by referencing pattern designations in ASTM E 1264 and not manufacturers' proprietary product designations, provide products selected by Architect from each manufacturer's full range that comply with requirements indicated for type, pattern, color, light reflectance, acoustical performance, edge detail, and size.

2.2 MINERAL-BASE ACOUSTICAL PANELS – ACT-1:

- A. Basis-of-Design Products: Subject to compliance with requirements, provide “**Ceramaguard Fine Fissured Lay-in**” Item No. 608 by **Armstrong World Industries, Inc.**, Radar Ceramic #56645 by US Gypsum Corp. or Architect approved comparable product by the following:
 - 1. Certain Teed.
 - 2. Rockfon.
- B. Classification: Provide panels complying with ASTM E 1264 for type, form, and pattern as follows:
 - 1. Type and Form: Type XX, mineral base, wet formed; scrubbable.
 - 2. Pattern: C E (lightly textured).
- C. Color: White.
- D. Edge Detail: Square.
- E. Thickness: 5/8 inch.
- F. Size: 24 by 48 inches.
- G. LR: Not less than 0.82.
- H. NRC: Not less than 0.55.
- I. Fire Rating: Class A.

2.3 MINERAL-BASE ACOUSTICAL PANELS – ACT-2:

- A. Basis-of-Design Products: Subject to compliance with requirements, provide “**Optima Tegular**” Item No. 3262 by **Armstrong World Industries, Inc.**, Halcyon #97367 by US Gypsum Corp. or Architect approved comparable product by the following:
 - 1. Certain Teed.
 - 2. Rockfon.
- B. Classification: Provide panels complying with ASTM E 1264 for type, form, and pattern as follows:
 - 1. Type and Form: Type XII, glass-fiber base with membrane-faced overlay; Form 2, cloth. Binder shall not contain urea formaldehyde.
 - 2. Pattern: E.
- C. Color: White.
- D. Edge Detail: Square tegular.

- E. Thickness: 1 inch.
- F. Size: 24 by 96 inches.
- G. LR: Not less than 0.90.
- H. NRC: Not less than 0.95.
- I. Fire Rating: Class A.

2.4 DECORATIVE PANELS FOR BAR FEATURE WALL AND CEILING:

- A. Basis-of-Design Product: Subject to compliance with requirements, provide “**WOODWORKS Linear 4 ½” Module**”, **Item # 6640W1 by Armstrong World Industries, Inc.**, TRUE WOOD Linear Veneer Planks, 4-1/2” Module by US Gypsum Corp. or Architect approved comparable product by the following:
 - 1. Rulon International.
- B. Description: Natural wood veneer planks.
- C. Surface Texture: Smooth
- D. Module Size: 4-1/2 inches.
- E. Actual Dimensions: 3-3/4 by 96 inches.
- F. Edge Detail: Square; banding and trim to match face veneer.
- G. Fire Rating: Class A.
- H. Color: Custom Color to Match Architect’s Sample.

2.5 METAL SUSPENSION SYSTEMS, GENERAL

- A. Metal Suspension System Standard: Provide manufacturer's standard direct-hung metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable requirements in ASTM C 635.
- B. Finishes and Colors, General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes. Provide manufacturer's standard factory-applied finish for type of system indicated.
 - 1. High-Humidity Finish: Comply with ASTM C 635 requirements for "Coating Classification for Severe Environment Performance" where high-humidity finishes are indicated.
- C. Attachment Devices: Size for five times the design load indicated in ASTM C 635, Table 1, "Direct Hung," unless otherwise indicated.
- D. Wire Hangers, Braces, and Ties: Provide wires complying with the following requirements:
 - 1. Zinc-Coated Carbon-Steel Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper.
 - 2. Nickel-Copper-Alloy Wire: ASTM B 164, nickel-copper-alloy UNS No. N04400.

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

E. Hanger Rods: Mild steel, zinc coated or protected with rust-inhibitive paint.

F. Seismic Struts: Manufacturer's standard compression struts designed to accommodate seismic forces.

G. Seismic Clips: Manufacturer's standard seismic clips designed and spaced to secure acoustical panels in-place.

2.6 METAL SUSPENSION SYSTEM FOR ACT-1

A. Basis-of-Design Products: Subject to compliance with requirements, provide **"Prelude XL Exposed Tee System" Item No. 7301 by Armstrong World Industries, Inc.**, Donn ZXLA by US Gypsum Corp. or Architect approved comparable product by the following:

1. Certain Teed.
2. Rockfon.

B. Wide-Face, Capped, Double-Web, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet; prepainted, hot-dip galvanized, G90 coating designation; with prefinished 15/16-inch-wide metal caps on flanges.

1. Structural Classification: Heavy-duty system.
2. Face Design: Flat, flush.
3. Cap Finish: Painted white.

2.7 METAL SUSPENSION SYSTEM FOR ACT-2

A. Basis-of-Design Products: Subject to compliance with requirements, provide **"Silhouette XL Slotted Tee System" Item No. 7601 by Armstrong World Industries, Inc.**, Donn Fineline DXFH2924 HD by US Gypsum Corp. or Architect approved comparable product by the following:

1. Certain Teed.
2. Rockfon.

B. Narrow-Face, Uncapped, Double-Web, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet; prepainted, electrolytically zinc coated, or hot-dip galvanized, G30 coating designation; to produce structural members with 9/16-inch-wide faces.

1. Structural Classification: Heavy-duty system.
2. Face Design: With 1/4-inch-wide, slotted, box-shaped flange.
3. Face Finish: Painted white.
4. Reveal Finish: Painted to match flange color.

2.8 METAL EDGE MOLDINGS AND TRIM

A. Roll-Formed Sheet-Metal Edge Moldings and Trim: Provide perimeter trim, designed to fit acoustical panel edge details and suspension systems indicated; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension system runners.

1. Provide manufacturer's standard edge moldings that fit acoustical panel edge details and suspension systems indicated and that match width and configuration of exposed runners unless otherwise indicated.
 2. For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit penetration exactly.
 3. Moldings and trim must be provided by same manufacturer as acoustical panels.
 4. 2-inch Molding: Provide one of the following, if indicated:
 - a. #7808 2" Wall Molding by Armstrong.
 - b. #MS20SM 2" Wall Molding by USG.
- B. Beam End Retaining Clips: As approved by authority having jurisdiction, provide beam end retaining clips for perimeter attachment of suspension systems indicated; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension system runners.
1. ACM7 by USG.
 2. BEREC-2 by Armstrong.
- C. Extruded-Aluminum Perimeter Trim: Extruded-aluminum perimeter trim of profile indicated, including splice plates, factory-cut corner pieces, and attachment and other clips, complying with the following requirements:
1. Aluminum Alloy: Alloy and temper recommended by aluminum producer and finisher for type of use and 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. Baked-Enamel Finish: AA-C12C42R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: acid-chromate-fluoride-phosphate conversion coating; Organic Coating: as specified below). Apply baked enamel complying with paint manufacturer's written instructions for cleaning, conversion coating, and painting.
 - a. Organic Coating: Thermosetting, primer/topcoat system with a minimum dry film thickness of 0.8 to 1.2 mils.
 3. Trim for Suspended Ceiling Panels:
 - a. Height: 6 inches.
 - b. Colors: Custom colors as selected by Architect.
 - c. Basis-of-Design Product: Subject to compliance with requirements, provide **Axiom Classic by Armstrong World Industries, Inc.** or Compasso Elite by US Gypsum Corp.
 4. Building Perimeter Trim for Window Shades: Aluminum pocket formed with special bosses to accept t-bar connection clip and splice plates, wire management clip (provided with Lutron Roller Shade), factory finished to match approved samples; factory or field cut miters to match approved shop drawings.
 - a. Profile: 3 Sided Perimeter Pocket, Acoustical/Drywall Transition for seismic installation, 0.875 horizontal flange (5 inches x 5 inches x 5 inches) with Integral Bracket Connection for Lutron Roller Shade.
 - b. Closure Clip: AXPCC3L Axiom Building Perimeter Closure Clip – 3 inch with screw slot for integrated tether; White color.
 - c. Basis-of-Design Product: Subject to compliance with requirements, provide **Axiom Building Perimeter Pocket AXP355LS by Armstrong World Industries, Inc.** or a comparable Architect-approved product.

PART 3 - EXECUTION

3.1 EXAMINATION

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

3.2 PREPARATION

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

3.3 INSTALLATION, GENERAL

- A. General: Install acoustical panel ceilings to comply with ASTM C 636 and seismic requirements indicated, per manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."
- B. Seismic Requirements Seismic Design Category D per 2012 International Building Code, which references applicable requirements of ASCE 7-10, "Minimum Design Loads for Buildings and Other Structures", which reference applicable requirements of ASTM E 580-11, "Installation of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Subject to Earthquake Ground Motions".
 - 1. Space vertical hanger wires on main tees not more than 48 inches o.c., or as required to support loads. Attach hanger wires directly to the structure above, not greater than 1 in 6 out of plumb. Space vertical hanger wires on main tees not more than 48 inches o.c., or as required to support loads. Attach hanger wires directly to the structure above, not greater than 1 in 6 out of plumb.
 - a. Trapeze and Splay wires may be installed as detailed in ASTM C 636.
 - b. Do not support wires from mechanical and/or electrical equipment, piping or other equipment occurring above ceiling.
 - c. Connection device from vertical wire to the structure above must sustain minimum 100 lbs.
 - 2. Perimeter hanger wires on each perimeter tee end not more than 8 inches from the wall.
 - 3. Perimeter tee ends must be tied together to prevent spreading; this may be accomplished with approved grid end clips per approved manufacture's ICC-ESR.
 - 4. Perimeter closure molding, minimum 7/8 inch with approved grid end clips per approved manufacture's ICC-ESR.
 - 5. Grid connection to perimeter, fixed on two adjacent walls.
 - 6. Grid connection to perimeter, floating on two adjacent walls and cut back 3/4".
 - 7. Lighting Fixtures:
 - a. All light fixtures shall be mechanically attached to the suspension system per NEC 410-16 (two per fixture unless the fixture is independently supported).
 - b. Support of rigid lay-in (Type G) or can light fixtures.
 - 1) Each fixture less than 10 lbs. shall have a single wire (wire may be slack) attached from the fixture to structure.
 - 2) Each fixture that weighs between 10 and 56 lbs. shall have two wires (wires may be slack) attached at diagonal corners of the fixture to structure.
 - 3) Each fixture greater than 56 lbs. shall be directly supported to structure by approved hangers.

- 4) Pendant light fixtures shall be directly supported from structure with 9-gauge wire (or approved alternative).
 8. Air Terminals:
 - a. Air terminals less than 20 lbs. shall be positively attached to the suspension syst.
 - 1) Air terminals that weigh between 20 and 56 lbs. shall be mechanically attached to the suspension system. Two slack wires shall be attached from the housing to structure.
 - 2) Air terminals in excess of 56 lbs. shall be directly supported to structure by approved hangers.
 9. Splay Wire and Compression Posts:
 - a. Horizontal restraint (splay wires or rigid bracing) within 2 inches of intersection and splayed 90° apart at 45° angles. Splay bracing connection strength 200 lbs or the design load, whichever is greater.
 - b. Compression posts (struts) 12 feet o.c. in both directions, starting 6 feet from the wall.
 10. Seismic Separation Joint: Required for areas >2,500 sq. ft.
 11. Rigid bracing required for ceiling plane elevation changes.
 12. Sprinkler heads and other penetrations must have 2 inch clearance or a swing joint.
 13. Cable trays and electrical conduit must be independently supported and braced.
 14. Partitions must be braced to structure independent of the ceiling.
- C. Secure bracing wires to ceiling suspension members and to supports with a minimum of four tight turns. Suspend bracing from building's structural members as required for hangers, without attaching to permanent metal forms, steel deck, or steel deck tabs. Fasten bracing wires into concrete with cast-in-place or postinstalled anchors.
- D. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.
1. Screw attach moldings to substrate at intervals not more than 16 inches o.c. and not more than 3 inches from ends, leveling with ceiling suspension system to a tolerance of 1/8 inch in 12 feet. Miter corners accurately and connect securely.
 2. Do not use exposed fasteners, including pop rivets, on moldings and trim.
- E. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.
- F. Install acoustical panels with undamaged edges and fit accurately into suspension system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit.
1. Paint cut edges of panel remaining exposed after installation; match color of exposed panel surfaces using coating recommended in writing for this purpose by acoustical panel manufacturer.

3.4 CLEANING

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

END OF SECTION 095113

SECTION 096513 - RESILIENT 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 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Resilient base.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For each exposed product and for each color and texture specified, not less than 12 inches long.
- C. Samples for Verification: For each type of product indicated and for each color, texture, and pattern required in manufacturer's standard-size Samples, but not less than 12 inches long.
- D. Product Schedule: For resilient base products. Use same designations indicated on Drawings.

1.4 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Furnish not less than 10 linear feet for every 500 linear feet or fraction thereof, of each type, color, pattern, and size of resilient product installed.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store resilient products 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 or more than 90 deg F.

1.6 FIELD CONDITIONS

- A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 95 deg F, in spaces to receive resilient products during the following time periods:
 - 1. 48 hours before installation.
 - 2. During installation.
 - 3. 48 hours after installation.

- B. After installation and until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.
- C. Install resilient products after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 THERMOPLASTIC-RUBBER BASE

- A. Product Standard: ASTM F 1861, Type TP (rubber, thermoplastic).
 - 1. Group: I (solid, homogeneous).
 - 2. Style and Location: Style A, Straight: Provide in areas with carpet.
- B. Thickness: 0.125 inch.
- C. Height: 4 inches.
- D. Lengths: Cut lengths 48 inches long or coils in manufacturer's standard length.
- E. Inside and Outside Corners: Preformed.
- F. Colors: As indicated on Finish Schedule.
- G. Basis-of-Design Product: Subject to compliance with requirements, provide **Traditional Rubber Wall Base by Johnsonite** or Architect approved comparable product by Roppe or Allstate.

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.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
 - 1. 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 resilient products.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
 - 1. Installation of resilient products indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
- B. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
- C. Do not install resilient products until they are the same temperature as the space where they are to be installed.
 - 1. At least 48 hours in advance of installation, move resilient products and installation materials into spaces where they will be installed.
- D. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient products.

3.3 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.

3.4 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protecting resilient products.
- B. Perform the following operations immediately after completing resilient-product installation:
 - 1. Remove adhesive and other blemishes from exposed surfaces.
 - 2. Sweep and vacuum horizontal surfaces thoroughly.
 - 3. Damp-mop horizontal surfaces to remove marks and soil.
- C. Protect resilient products from marks, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
- D. Cover resilient products subject to wear and foot traffic until Substantial Completion.

END OF SECTION 096513

SECTION 096813 – TILE CARPETING

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. This Section includes modular, carpet tile.
- B. Related Requirements:
 - 1. Section 012100 "Allowances" for carpet tile allowance.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include manufacturer's written data on physical characteristics, durability, and fade resistance. Include installation recommendations for each type of substrate.
- B. Shop Drawings: Show the following:
 - 1. Columns, doorways, enclosing walls or partitions, built-in cabinets, and locations where cutouts are required in carpet tiles.
 - 2. Carpet tile type, color, and dye lot.
 - 3. Type of subfloor.
 - 4. Type of installation.
 - 5. Pattern of installation.
 - 6. Pattern type, location, and direction.
 - 7. Pile direction.
 - 8. Type, color, and location of insets and borders.
 - 9. Type, color, and location of edge, transition, and other accessory strips.
 - 10. Transition details to other flooring materials.
- C. Samples: For each of the following products and for each color and texture required. Label each Sample with manufacturer's name, material description, color, pattern, and designation indicated on Drawings and in schedules.
 - 1. Carpet Tile: Full-size Sample.
 - 2. Exposed Edge, Transition, and other Accessory Stripping: 12-inch- long Samples.
- D. Product Schedule: For carpet tile. Use same designations indicated on Drawings.
- E. Qualification Data: For Installer.
- F. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency.

- G. Maintenance Data: For carpet tiles to include in maintenance manuals. Include the following:
 - 1. Methods for maintaining carpet tile, including cleaning and stain-removal products and procedures and manufacturer's recommended maintenance schedule.
 - 2. Precautions for cleaning materials and methods that could be detrimental to carpet tile.
- H. Warranty: Special warranty specified in this Section.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who is certified by the Floor Covering Installation Board or who can demonstrate compliance with its certification program requirements.
- B. Fire-Test-Response Characteristics: Provide products with the critical radiant flux classification indicated in Part 2, as determined by testing identical products per ASTM E 648 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.
- C. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to carpet tile installation including, but not limited to, the following:
 - 1. Review delivery, storage, and handling procedures.
 - 2. Review ambient conditions and ventilation procedures.

1.5 DELIVERY, STORAGE, AND HANDLING

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

1.6 PROJECT CONDITIONS

- A. Comply with CRI 104, Section 7.2, "Site Conditions; Temperature and Humidity" and Section 7.12, "Ventilation."
- B. Environmental Limitations: Do not install carpet tiles until wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
- C. Do not install carpet tiles over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by carpet tile manufacturer.
- D. Where exhibits or other items are indicated for installation on top of carpet tiles, install carpet tiles before installing these items.

1.7 WARRANTY

- A. Special Warranty for Carpet Tiles: Manufacturer's standard form in which manufacturer agrees to repair or replace components of carpet tile installation that fail in materials or workmanship within specified warranty period.

1. Warranty does not include deterioration or failure of carpet tile due to unusual traffic, failure of substrate, vandalism, or abuse.
2. Failures include, but are not limited to, more than 10 percent loss of face fiber, edge raveling, snags, runs, loss of tuft bind strength, dimensional stability, and delamination.
3. Warranty Period: Lifetime.

1.8 EXTRA MATERIALS

- A. Furnish extra materials described below, before installation begins, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Carpet Tile: Full-size units equal to 5 percent of amount installed for each type indicated, but not less than 10 sq. yd.

PART 2 - PRODUCTS

2.1 CARPET TILE (CPT-1)

- A. Carpet Tile: As selected by Architect under allowance.

2.2 INSTALLATION ACCESSORIES

- A. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided or recommended by carpet tile manufacturer.
- B. Adhesives: Water-resistant, mildew-resistant, nonstaining, pressure-sensitive type to suit products and subfloor conditions indicated, that complies with flammability requirements for installed carpet tile and is recommended by carpet tile manufacturer for releasable installation.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions affecting carpet tile performance. Examine carpet tile for type, color, pattern, and potential defects.
- B. Concrete Subfloors: Verify that concrete slabs comply with ASTM F 710 and the following:
 1. Slab substrates are dry and free of curing compounds, sealers, hardeners, and other materials that may interfere with adhesive bond. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by carpet tile manufacturer.
 2. Subfloor finishes comply with requirements specified in Division 03 Section "Cast-in-Place Concrete" for slabs receiving carpet tile.
 3. Subfloors are free of cracks, ridges, depressions, scale, and foreign deposits.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. General: Comply with CRI 104, Section 6.2, "Site Conditions; Floor Preparation," and with carpet tile manufacturer's written installation instructions for preparing substrates indicated to receive carpet tile installation.
- B. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, depressions, and protrusions in substrates. Fill or level cracks, holes and depressions 1/8 inchwide or wider and protrusions more than 1/32 inch, unless more stringent requirements are required by manufacturer's written instructions.
- C. Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, without using solvents. Use mechanical methods recommended in writing by carpet tile manufacturer.
- D. Clean metal substrates of grease, oil, soil and rust, and prime if directed by adhesive manufacturer. Rough sand painted metal surfaces and remove loose paint. Sand aluminum surfaces, to remove metal oxides, immediately before applying adhesive.
- E. Broom and vacuum clean substrates to be covered immediately before installing carpet tile.

3.3 INSTALLATION

- A. General: Comply with CRI 104, Section 14, "Carpet Modules," and with carpet tile manufacturer's written installation instructions.
- B. Installation Method: Glue down; install every tile with full-spread, releasable, pressure-sensitive adhesive.
- C. Maintain dye lot integrity. Do not mix dye lots in same area.
- D. Cut and fit carpet tile 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 tile manufacturer.
- E. Extend carpet tile into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.
- F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on finish flooring as marked on subfloor. Use nonpermanent, nonstaining marking device.
- G. Install pattern parallel to walls and borders.
- H. Stagger joints of carpet tiles so carpet tile grid is offset from access flooring panel grid. Do not fill seams of access flooring panels with carpet adhesive; keep seams free of adhesive.

3.4 CLEANING AND PROTECTION

- A. Perform the following operations immediately after installing carpet tile:
 - 1. Remove excess adhesive, seam sealer, and other surface blemishes using cleaner recommended by carpet tile manufacturer.
 - 2. Remove yarns that protrude from carpet tile surface.

3. Vacuum carpet tile using commercial machine with face-beater element.
- B. Protect installed carpet tile to comply with CRI 104, Section 16, "Protection of Indoor Installations."
- C. Protect carpet tile against damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by carpet tile manufacturer.

END OF SECTION 096813

SECTION 097200 - WALL COVERINGS

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. Vinyl wall covering.
- B. Related Sections:
 - 1. Division 09 Section "Painting" for priming wall surfaces.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include data on physical characteristics, durability, fade resistance, and flame-resistance characteristics.
- B. Shop Drawings: Show location and extent of each wall-covering type. Indicate pattern placement, seams and termination points.
- C. Samples for Verification: Full width by 36-inch- long section of wall covering.
 - 1. Sample from same print run or dye lot to be used for the Work, with specified treatments applied. Show complete pattern repeat. Mark top and face of fabric.
- D. Product Schedule: For wall coverings. Use same designations indicated on Drawings.
- E. Qualification Data: For qualified testing agency.
- F. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for wall covering.
- G. Maintenance Data: For wall coverings to include in maintenance manuals.

1.4 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: As determined by testing identical wall coverings applied with identical adhesives to substrates according to test method indicated below by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Surface-Burning Characteristics: As follows, per ASTM E 84:

- a. Flame-Spread Index: 25 or less.
- b. Smoke-Developed Index: 450 or less.

1.5 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install wall coverings until spaces are enclosed and weathertight, wet work in spaces is complete and dry, work above ceilings is complete, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.
- B. Lighting: Do not install wall covering until a permanent level of lighting is provided on the surfaces to receive wall covering.
- C. Ventilation: Provide continuous ventilation during installation and for not less than the time recommended by wall-covering manufacturer for full drying or curing.

1.6 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. Wall-Covering Materials: For each type, full-size units equal to 5 percent of amount installed.

PART 2 - PRODUCTS

2.1 WALL COVERINGS

- A. General: Provide rolls of each type of wall covering from same print run or dye lot.

2.2 VINYL WALL COVERING (VWC-1)

- A. Vinyl Wall-Covering Standards: Provide products complying with the following:
 - 1. FS CCC-W-408D and CFFA-W-101-D for Type II, Medium-Duty products.
 - 2. Basis-of-Design Product: Subject to compliance with requirements, provide **Custom Graphic Vinyl Wall Covering by Koroseal** or Architect approved comparable product by the following:
 - a. MDC Wallcovering.
 - b. National Wallcovering.
 - c. Eykon Design Resources.
- B. Total Weight Excluding Coatings: 20 oz./lin.yd.
- C. Width: 54 inches.
- D. Colors, Textures, and Patterns: As indicated in Finish Schedule.

2.3 ACCESSORIES

- A. Adhesive: Mildew-resistant, nonstaining adhesive, for use with specific wall covering and substrate application; as recommended in writing by wall-covering manufacturer and with a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- B. Primer/Sealer: Mildew resistant, complying with requirements in Division 09 Section "Painting" and recommended in writing by wall-covering manufacturer for intended substrate.
- C. Metal Primer: Interior ferrous metal primer complying with Division 09 Section "Painting."

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for levelness, wall plumbness, maximum moisture content, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions for surface preparation.
- B. Clean substrates of substances that could impair bond of wall covering, including dirt, oil, grease, mold, mildew, and incompatible primers.
- C. Prepare substrates to achieve a smooth, dry, clean, structurally sound surface free of flaking, unsound coatings, cracks, and defects.
 - 1. Moisture Content: Maximum of 5 percent on new plaster, concrete, and concrete masonry units when tested with an electronic moisture meter.
 - 2. Metals: If not factory primed, clean and apply metal as recommended in writing by primer/sealer manufacturer and wall-covering manufacturer.
 - 3. Gypsum Board: Prime with primer as recommended in writing by primer/sealer manufacturer and wall-covering manufacturer.
 - 4. Painted Surfaces: Treat areas susceptible to pigment bleeding.
- D. Check painted surfaces for pigment bleeding. Sand gloss, semigloss, and eggshell finish with fine sandpaper.
- E. Remove hardware and hardware accessories, electrical plates and covers, light fixture trims, and similar items.
- F. Acclimatize wall-covering materials by removing them from packaging in the installation areas not less than 24 hours before installation.

3.3 INSTALLATION

- A. General: Comply with wall-covering manufacturers' written installation instructions applicable to products and applications indicated except where more stringent requirements apply.
- B. Cut wall-covering strips in roll number sequence. Change roll numbers at partition breaks and corners.
- C. Install strips in same order as cut from roll.
- D. Install reversing every other strip.
- E. Install wall covering with no gaps or overlaps, no lifted or curling edges, and no visible shrinkage.
- F. Match pattern 72 inches above the finish floor.
- G. Install seams vertical and plumb at least 6 inches from outside corners and [3 inches] [6 inches] from inside corners unless a change of pattern or color exists at corner. No horizontal seams are permitted.
- H. Fully bond wall covering to substrate. Remove air bubbles, wrinkles, blisters, and other defects.
- I. Trim edges and seams for color uniformity, pattern match, and tight closure. Butt seams without any overlay or spacing between strips.

3.4 CLEANING

- A. Remove excess adhesive at finished seams, perimeter edges, and adjacent surfaces.
- B. Use cleaning methods recommended in writing by wall-covering manufacturer.
- C. Replace strips that cannot be cleaned.
- D. Reinstall hardware and hardware accessories, electrical plates and covers, light fixture trims, and similar items.

END OF SECTION 097200

SECTION 099100 - PAINTING

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. This Section includes surface preparation and field painting of exposed exterior and interior items and surfaces.
 - 1. Surface preparation, priming, and finish coats specified in this Section are in addition to shop priming and surface treatment specified in other Sections.
- B. Paint exposed surfaces, except where these Specifications indicate that the surface or material is not to be painted or is to remain natural. If an item or a surface is not specifically mentioned, paint the item or surface the same as similar adjacent materials or surfaces. If a color of finish is not indicated, Architect will select from standard colors and finishes available.
- C. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.

1.3 SUBMITTALS

- A. Product Data: For each paint system indicated. Include block fillers and primers.
- B. Product List: For each product indicated, include the following:
 - 1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
 - 2. Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.
- C. Paint Color Schedule: Prior to requesting inspection for Substantial Completion, submit schedule indicating all paint manufacturers, product numbers and colors for all painted surfaces.

1.4 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. Wall Surfaces: Provide samples on at least 100 sq. ft. of wall surface.
 - b. Doors: Provide full size samples for interior and exterior doors.
 - c. Small Areas and Items: The Architect will designate an item or area as required.
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.

1.5 DELIVERY, STORAGE, AND HANDLING

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

1.6 PROJECT CONDITIONS

- A. Apply waterborne paints only when temperatures of surfaces to be painted and surrounding air are between 50 and 90 deg F.
- B. Apply solvent-thinned paints only when temperatures of surfaces to be painted and surrounding air are between 45 and 95 deg F.
- C. Do not apply paint in snow, rain, fog, or mist; or when relative humidity exceeds 85 percent; or at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.
 1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by manufacturer during application and drying periods.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following or equivalent MPI listed manufacturer:

1. Benjamin Moore & Co.
2. PPG Architectural Finishes.
3. Sherwin-Williams Co.

2.2 PAINT, GENERAL

- A. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

- B. VOC Content of Field-Applied Interior Paints and Coatings: Provide products that comply with the specified 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.

- C. Colors: As selected by Architect.

2.3 EXTERIOR METAL PRIMERS

- A. Epoxy Zinc Primer: MPI #20.

1. Basis-of-Design Product: S-W Zinc Clad IV, B69A8/V8.

- B. Epoxy, Anti-Corrosive Metal Primer: MPI #101.

1. Basis-of-Design Product: S-W Duraplate 235 Multi-Purpose Epoxy, B67W235.

- C. Primer, Rust-Inhibitive, Water-Based:

1. Basis-of-Design Product: S-W Pro Industrial Pro-Cryl Universal Primer B66-310 Series.

2.4 EXTERIOR INTERMEDIATE PAINTS

- A. Fast-Cure Epoxy Coating: MPI #108.

1. Basis-of-Design Product: S-W Macropoxy 646, B58W6 Series.

2.5 EXTERIOR LIGHT INDUSTRIAL COATINGS

- A. Light Industrial Coating, Exterior, Water Based, Gloss (Gloss Level 6): MPI #164.

1. Basis-of-Design Product: S-W Pro Industrial™ Acrylic Gloss Coating, B66W00611Series.

2.6 EXTERIOR POLYURETHANE PAINTS

- A. Polyurethane, Two-Component, Pigmented, Gloss: MPI #72.
 - 1. Basis-of-Design Product: S-W Hi-Solids Polyurethane Coating.
- 2.7 EXTERIOR LIGHT INDUSTRIAL COATINGS
 - A. Light Industrial Coating, Exterior, Water Based, Gloss (Gloss Level 5): MPI #163.
 - 1. Basis-of-Design Product: Sherwin-Williams; S-W Pro Industrial™ DTM Semigloss Coating, B66W01151 Series.
- 2.8 BLOCK FILLERS
 - A. Interior/Exterior Latex Block Filler: MPI #4.
 - 1. Basis-of-Design Product: S-W Loxon Block Surfacer, A24W200.
- 2.9 INTERIOR METAL PRIMERS
 - A. Steel and Galvanized-Metal Primer:
 - 1. Basis-of-Design Product: S-W Pro Industrial Pro-Cryl Universal Primer B66-310 Series.
- 2.10 INTERIOR LIGHT INDUSTRIAL COATINGS
 - A. Light Industrial Coating, Interior, Water Based, Semi-Gloss (Gloss Level 5): MPI #153.
 - 1. Basis-of-Design Product: S-W Pro Industrial™ Acrylic Coating, B66-651 Series.
- 2.11 INTERIOR LATEX PAINTS
 - A. Latex, Interior, Flat, (Gloss Level 1): MPI #53.
 - 1. Basis-of-Design Product: S-W ProMar 200 Zero VOC Latex Flat, B30-2600 Series.
 - B. Latex, Interior, (Gloss Level 2): MPI #44.
 - 1. Basis-of-Design Product: S-W ProMar 200 Zero VOC Latex Eg-Shel, B20-2600 Series.
 - C. Latex, Interior, Semi-Gloss, (Gloss Level 5): MPI #54.
 - 1. Basis-of-Design Product: S-W ProMar 200 Zero VOC Latex Semi-Gloss, B31-2600 Series.
- 2.12 DRY FALL COATINGS
 - A. Dry Fall, Latex, Flat (Gloss Level 1): MPI #118.
 - 1. Basis-of-Design Product: S-W Waterborne Acrylic Dryfall.

2.13 EPOXY COATINGS

A. Water-Based Epoxy (Interior and Exterior): MPI #115.

1. Basis-of-Design Product: S-W Waterbased Catalyzed Epoxy, B73W311/B73V300.

2.14 MASTIC AND INTUMESCENT FIRE-RESISTIVE COATINGS FOR PLYWOOD BACKER PANELS

A. MIFRC: Manufacturer's standard, factory-mixed formulation for plywood backing panels, and complying with indicated fire-resistance design.

1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Albi Manufacturing; Albi Clad FP.
 - b. Shield Industries, Inc.; FireGuard E-84.
 - c. Firefree Coatings, Inc.; Firefree 88.
2. Application: Designated for "interior general purpose" use by a qualified testing agency acceptable to authorities having jurisdiction.
3. Thickness: As required for fire-resistance design indicated, measured according to requirements of fire-resistance design.
4. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - a. Flame-Spread Index: 25 or less.
 - b. Smoke-Developed Index: 50 or less.
5. Finish: Smooth; white color.

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

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.
- B. Remove plates, machined surfaces, and similar items already in place that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
 - 2. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
- C. 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.
- D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
- E. Concrete Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
- F. Steel Substrates: Remove rust and loose mill scale. Clean using methods recommended in writing by paint manufacturer.
- A. Galvanized-Metal Substrates: Perform the following preparation procedures, as applicable for condition of hot-dip galvanized surfaces:
 - 1. Surface Smoothing (If High Spots of Zinc Are Present): Remove zinc high spots, such as a metal drip line, by cleaning with hand or power tools as described in SSPC Surface Preparation Specification 2 or 3. Remove zinc until it is level with the surrounding area, taking care that the base coating is not removed by the cleaning methods. After cleaning, inspect surface for conformance to required zinc thickness in accordance with ASTM A 123/A 123M or A 153/A 153M, utilizing a magnetic-field-type thickness instrument in accordance with ASTM E 376. Repair areas below required zinc thickness in accordance with ASTM A 780.
 - 2. Cleaning: Use one of the following methods:
 - a. Aqueous Alkaline Cleaning: Use alkaline solution, pH of 11 to 12 but not greater than 13, to remove traces of oil, grease or dirt. Apply through immersion in tank filled with solution, sprayed on, or brushed on with soft bristle brush. Apply in temperature range of 140 to 185F. After cleaning, rinse thoroughly in hot water or water under pressure. Allow to dry completely before proceeding.
 - b. Solvent Cleaning: Use typical cleaning solvents, such as mineral spirits or high-flash naphtha, to remove oil and grease, as specified in SSPC Surface Preparation Specification 1. Use proper rags or brushes to wipe galvanized parts. Dip small parts or cleaned in ultrasonic baths of solvents. After cleaning, rinse thoroughly in hot water or water under pressure. Allow to dry completely before proceeding.
 - 3. Surface Conditioning: Use one of the following methods:

- a. Sweep Blasting: Abrasive sweep or brush blast with rapid nozzle movement to roughen galvanized surface profile. Select abrasive material with care to provide stripping action without removing excess zinc layers. Follow the procedures detailed in ASTM D 6386 for abrasive sweep blasting. Following abrasive blast cleaning, blow down surfaces with clean, compressed air.
 - b. Zinc Phosphate Treatment: Treat newly galvanized zinc surface with acidic zinc phosphate solution containing oxidizing agents and other salts for accelerating conversion action. Follow procedures detailed in ASTM D 6386 for zinc phosphate treatment. After 3 to 6 minutes, wash surface with clean water and allow to completely dry before application of paint system.
 - c. Wash Primer Treatment: Use metal conditioner to neutralize surface oxides and hydroxides and to etch surface. Follow procedures detailed in ASTM D 6386 for wash primer treatment. Follow manufacturer's instructions for drying time prior to top coating. This wash-primer treatment may be better suited to certain types of paint systems.
 - d. Acrylic Passivation Process: Apply acidic acrylic solution to newly galvanized surface and then allow to dry, forming thin film coating. Follow procedures detailed in ASTM D 6386 for acrylic passivation/pretreatment. Painting is possible any time during period of 4 months after application as long as the surface is free of visible zinc oxides or zinc hydroxides.
4. Repair of Damaged Coating: Repair areas damaged by welding, flame cutting or during handling, transport or erection, by one of approved methods in accordance with ASTM A 780 whenever damage exceeds 3/16" in width.

3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions.
 1. Use applicators and techniques suited for paint and substrate indicated.
 2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. 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 FIELD QUALITY CONTROL

- A. Owner reserves the right to invoke test procedure at any time and as often as Owner deems necessary during the period when paint is being applied:
 1. Owner may direct Contractor to stop painting if test results show material being used does not comply with specified requirements. Contractor shall remove noncomplying paint from Project site, pay for testing, and repaint surfaces previously coated with the noncomplying paint.

3.5 CLEANING AND PROTECTION

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

3.6 EXTERIOR PAINTING SCHEDULE

- A. Steel and Galvanized Metal Substrates (**High Performance Coating**): Including exterior structural steel components and stairs.
 - 1. Steel Shop Primed and/or Galvanized Surfaces:
 - a. Surface Conditioner for Galvanized Steel: Galvanized metal surface conditioner (as needed to remove passivators).
 - b. Shop-Applied Epoxy-Compatible Prime Coat: Kem-Kromik Universal Metal Primer (applied in shop by qualified applicator).
 - c. Treatment of Field Welds: Clean welds in accordance with SSPC-SP 3, "Power Tool Cleaning" and spot prime with multi-purpose epoxy primer.
 - d. Solvent Wipe: Solvent wipe epoxy primer in field prior to application of topcoat in accordance with SSPC SP-1. Solvent wipe field installed bolts and spot prime with multi-purpose epoxy primer.
 - e. Intermediate Coat: Fast cure epoxy (field apply to all bolts and welds).
 - f. Topcoat: Polyurethane, two-component, pigmented, gloss (to be field applied by qualified applicator within 90 days of epoxy primer application).
 - 2. Unprimed Steel Surfaces:
 - a. Prime Coat: Epoxy zinc primer.
 - b. Treatment of Field Welds: Clean welds in accordance with SSPC-SP 3, "Power Tool Cleaning" and spot prime with multi-purpose epoxy primer.
 - c. Solvent Wipe: Solvent wipe epoxy primer in field prior to application of topcoat in accordance with SSPC SP-1. Solvent wipe field installed bolts and spot prime with multi-purpose epoxy primer.
 - d. Intermediate Coat: Fast cure epoxy (field apply to all bolts and welds).
 - e. Topcoat: Two-part polyurethane (to be field applied by qualified applicator within 90 days of epoxy primer application).
 - f. Final Coat: Two-part polyurethane.
- B. Galvanized Steel Lintels, Shelf Angles and Hollow Metal Doors and Frames:
 - 1. Water-Based, Light-Industrial Coating System: MPI EXT 5.3K.
 - a. Prime Coat: Epoxy, Anti-Corrosive Metal Primer.
 - b. Intermediate Coat: Light industrial coating, exterior, water based, matching topcoat.
 - c. Topcoat: Light industrial coating, exterior, water based, gloss (MPI Gloss Level 6).

C. CMU Substrates:

1. Water-Based Light Industrial Coating System MPI EXT 4.2C:
 - a. Block Filler: Block filler, latex, interior/exterior.
 - b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
 - c. Topcoat: Light industrial coating, exterior, water based, semigloss (Gloss Level 5).

3.7 INTERIOR PAINTING SCHEDULE

A. Concrete Unit Masonry: Provide the following finish systems over interior concrete masonry:

1. Water-Based Epoxy Coating System: MPI INT 4.2J.
 - a. Prime Coat: Interior/exterior latex block filler, MPI #4.
 - b. Intermediate Coat: Water-based epoxy (interior and exterior), MPI #115.
 - c. Topcoat: Water-based epoxy (interior and exterior), MPI #115.

B. Steel Substrates:

1. Water-Based Light Industrial Coating System (Typical), MPI INT 5.1B:
 - a. Prime Coat: Primer, water-based, for metal.
 - b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
 - c. Topcoat: Light industrial coating, interior, water based, semigloss (Gloss Level 5).
2. Water-Based Dry-Fall System for Exposed Steel Deck, Joists and Framing (over shop applied Q.D. shop primer): MPI INT 5.1C.
 - a. Prime Coat: Shop applied Q.D. primer.
 - b. Topcoat: Latex dry fog/fall (flat).

C. Galvanized-Metal Substrates:

1. Water-Based Light Industrial Coating System (Typical), MPI INT 5.1B:
 - a. Prime Coat: Primer, water-based, for metal.
 - b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
 - c. Topcoat: Light industrial coating, interior, water based, semi-gloss (Gloss Level 5).
2. Water-Based Dry-Fall System: MPI INT 5.3H:
 - a. Prime Coat: Dry fall, water based, for galvanized steel.
 - b. Topcoat: Dry fall, water based, for galvanized steel.

D. Gypsum Board Substrates:

1. Low-Odor/VOC Latex System:
 - a. Prime Coat: Interior latex primer/sealer.
 - b. Intermediate Coat: Interior latex matching topcoat.
 - c. Topcoat: Interior latex (flat, eggshell or semigloss, as indicated on Finish Schedule).

E. Plywood Backing Panels:

1. Intumescent Coating System:

- a. Prime Coat: Intumescent coating or manufacturer's recommended wood primer.
- b. Topcoat: Intumescent coating.

END OF SECTION 099100