

SECTION 092216 - NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

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

1.2 SUBMITTALS

A. Product Data: For products indicated.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Structural Performance: Provide cold-formed steel framing capable of withstanding design loads within limits and under conditions indicated.

1. Deflection Limits: Design framing systems to withstand design loads without deflections greater than the following:
 - a. Interior Wall Framing: Horizontal deflection of $L/240$ of the wall height under a horizontal load of 5 lbf/sq. ft.

2.2 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: ASTM A 653/A 653M, G60, hot-dip galvanized.
3. Depth: As indicated on Drawings.
4. Minimum Base-Metal Thickness: 0.0188 inch (25 gauge), except as indicated below.
 - a. Provide 3-5/8-inch, 20 DW gauge metal studs at 16 inches on center for walls between 10 to 12 feet in height.
 - b. Provide 3-5/8-inch, 20 STR gauge metal studs at 16 inches on center for walls between 12 to 16 feet in height.
 - c. Provide 0.0312-inch thick studs for framing supporting ceramic tile substrates.

- B. Cold-Rolled Channel Bridging: Steel, 0.053-inch minimum base-metal thickness, with minimum 1/2-inch- wide flanges.
 - 1. Depth: As indicated on Drawings.
 - 2. Clip Angle: Not less than 1-1/2 by 1-1/2 inches, 0.068-inch- thick, galvanized steel.
- C. Hat-Shaped, Rigid Furring Channels: ASTM C 645.
 - 1. Depth: As indicated on Drawings.
- D. Cold-Rolled Furring Channels: 0.053-inch uncoated-steel thickness, with minimum 1/2-inch-wide flanges.
 - 1. Depth: As indicated on Drawings.
 - 2. Furring Brackets: Adjustable, corrugated-edge type of steel sheet with minimum uncoated-steel thickness of 0.033 inch.
 - 3. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.062-inch- diameter wire, or double strand of 0.048-inch- diameter wire.

2.3 SUSPENSION SYSTEM COMPONENTS

- A. Tie Wire: ASTM A 641, Class 1 zinc coating, soft temper, 0.0625-inch- diameter wire, or double strand of 0.0475-inch- diameter wire.
- B. Hanger Attachments to Concrete:
 - 1. Anchors: Fabricated from corrosion-resistant materials with holes or loops for attaching wire hangers and capable of sustaining, without failure, a load equal to 5 times that imposed by construction as determined by testing according to ASTM E 488 by an independent testing agency.
 - 2. Powder-Actuated Fasteners: Suitable for application indicated, fabricated from corrosion-resistant materials with clips or other devices for attaching hangers of type indicated, and capable of sustaining, without failure, a load equal to 10 times that imposed by construction as determined by testing according to ASTM E 1190 by an independent testing agency.
- C. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.162-inch diameter.
- D. Furring Channels (Furring Members):
 - 1. Cold-Rolled Channels: 0.0538-inch bare-steel thickness, with minimum 1/2-inch- wide flanges, 3/4 inch deep.
 - 2. Steel Studs: ASTM C 645.
 - a. Minimum Base-Metal Thickness: 0.0179 inch.
 - b. Depth: As indicated on Drawings.

- E. Grid Suspension System for Ceilings: ASTM C 645, direct-hung system composed of main beams and cross-furring members that interlock.
 - 1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Armstrong World Industries, Inc.; Drywall Grid Systems.
 - b. USG Corporation; Drywall Suspension System.

2.4 AUXILIARY MATERIALS

- A. Fasteners for Metal Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.
- B. Isolation Strip at Exterior Walls: Provide one of the following:
 - 1. 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 INSTALLATION, GENERAL

- A. Installation Standard: ASTM C 754.
 - 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.

3.2 INSTALLING FRAMED ASSEMBLIES

- A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types and other assembly components indicated.
- B. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.
- C. Install studs so flanges within framing system point in same direction.
- D. Stud Spacing: 16-inches on center unless otherwise indicated.

- E. 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.
- F. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

3.3 INSTALLING SUSPENSION SYSTEMS

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

- D. Fire-Resistance-Rated Assemblies: Wire tie furring channels to supports.
- E. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

END OF SECTION 092216

SECTION 092900 - GYPSUM BOARD

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Interior gypsum board.
2. Backer board.

1.2 SUBMITTALS

A. Product Data: For products indicated.

1.3 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.

1.4 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 INTERIOR GYPSUM BOARD

- A. General: Complying with ASTM C 36 or ASTM C 1396, as applicable to type of gypsum board indicated and whichever is more stringent.
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. G-P Gypsum.
 - b. Lafarge North America Inc.
 - c. National Gypsum Company.
 - d. USG Corporation.
- B. Regular Type:
 - 1. Thickness: As indicated.
 - 2. Long Edges: Tapered.
- C. Tile Backer Board: ASTM C 1396. With moisture- and mold-resistant core and paper surfaces.
 - 1. Thickness: As indicated on Drawings.
 - 2. Long Edges: Tapered.
 - 3. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

2.2 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047.
 - 1. Material: Paper-faced galvanized steel sheet.
 - 2. Shapes: As indicated.

2.3 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475.
- B. Joint Tape:
 - 1. Interior Gypsum Wallboard: Paper.
 - 2. Tile Backer Board: As recommended by panel manufacturer.
- 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.
- D. Joint Compound for Tile Backer Board: As recommended by backer unit manufacturer.

2.4 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
- B. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
 - 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
 - 2. For fastening backer board, use screws of type and size recommended by panel manufacturer.

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

- A. General: Comply with ASTM C 840.
- B. Examine panels before installation. Reject panels that are wet or moisture damaged.
- C. 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.
- D. Tile Backer Board Units: Comply with manufacture's instructions and recommendations.
 - 1. Where backer board units abut other types of panels in same plane, shim surfaces to produce a uniform plane across panel surfaces.

3.3 INSTALLING TRIM ACCESSORIES

- A. General: Attach trim according to manufacturer's written instructions.
- B. Control Joints: Install control joints according to ASTM C 840 in specific locations identified, where approved by Architect, as indicated on the Drawings, and as follows:
 - 1. Ceilings: Unless otherwise indicated install control joints as follows:
 - a. Install control joints in areas exceeding 2500 sq. ft.
 - b. Space control joints not more than 50 feet on center.
 - c. Install control joints where ceiling framing or furring changes direction.
 - 2. Partitions and Furring: Unless otherwise indicated install control joints as follows:
 - a. Install control joints in partitions and wall furring runs exceeding 30 feet.
 - b. Space control joints not more than 30 feet on center.
 - c. Install control joints in furred assemblies where control joints occur in base exterior wall.

3.4 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: As indicated on the Drawings. Finish panels to levels ASTM C 840:
- E. Tile Backer Board Units: Finish according to manufacturer's written instructions.

3.5 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 or moisture damaged.
 - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.

END OF SECTION 092900

SECTION 093013 - TILING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Tile.
 - 2. Waterproofing and crack suppression membrane.

1.2 SUBMITTALS

- A. Product Data: For products indicated.
- B. Samples for Verification:
 - 1. Full-size units of each type and composition of tile and for each color and finish required.

1.3 QUALITY ASSURANCE

- A. Source Limitations for Tile: Obtain all tile of same type and color or finish from one source or producer.
 - 1. Obtain tile from same production run and of consistent quality in appearance and physical properties for each contiguous area.
- B. 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.

1.4 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.

1.5 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.

1.6 EXTRA MATERIALS

- A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Tile and Trim Units: Furnish quantity of full-size units equal to 5 percent of amount installed, for each type, composition, color, pattern, and size indicated.
 - 2. Grout: Furnish quantity of grout equal to 5 percent of amount installed for each color and type indicated.
- B. All extra materials shall be in original manufacturers' containers, sealed, marked with stock number, color number, tile name, etc. Deliver to Owner with a transmittal sheet indicating each item and quantity.

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.

2.2 TILE

- A. Products and Manufacturers – Basis of Design: Refer to the Finish Materials Legend.

2.3 TRANSITIONS

- A. Tile to Vinyl Tile:
 - 1. Product and Manufacturer – Basis of Design: Schluter RENO-U; Schluter Systems

2.4 WATERPROOFING AND CRACK SUPPRESSION MEMBRANE

- A. Products and Manufacturers: Subject to compliance with requirements, available products and manufacturers that may be incorporated into the Work include, but are not limited to the following:
 - 1. Laticrete 9235 Waterproofing Membrane; LATICRETE International Inc.
 - 2. Mapelastic AquaDefense; Mapei, Corporation

2.5 SETTING AND GROUTING MATERIALS – CERAMIC AND CLAY TILE

- A. Mortar for Wall and Floor Tile: ANSI A118.4, consisting of the following:
 - 1. Acceptable Products and Manufacturer: Subject to compliance with requirements, available products and manufacturers that may be incorporated into the Work include, but are not limited to, the following:
 - a. Granirapid System; MAPEI Corporation
- B. Grout: ANSI A118.7, color to be selected by the Architect from manufacturer's full line.
 - 1. Acceptable Products and Manufacturer: Subject to compliance with requirements, available products and manufacturers that may be incorporated into the Work include, but are not limited to, the following:
 - a. Ultracolor Plus; MAPEI Corporation

2.6 SEALANTS

- A. Products and Manufacturers: Subject to compliance with requirements, available products and manufacturers that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Mapesil T; MAPEI Corporation
 - a. Colors: To be selected by the Architect from manufacturer's full line.

2.7 MISCELLANEOUS MATERIALS

- A. Trowelable Underlayments and Patching Compounds: Latex-modified, portland cement-based formulation provided or approved by manufacturer of tile-setting materials for installations indicated.
- B. 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.

2.8 MIXING MORTARS AND GROUT

- A. Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions.

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.
 - 3. Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust joint locations in consultation with Architect.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Remove coatings, including curing compounds and other substances that contain soap, wax, oil, or silicone, that are incompatible with tile-setting materials.
- B. Provide concrete substrates for tile floors installed with thin-set mortar that comply with flatness tolerances specified in referenced ANSI A108 Series of tile installation standards.
 - 1. Fill cracks, holes, and depressions with trowelable leveling and patching compound according to tile-setting material manufacturer's written instructions. Use product specifically recommended by tile-setting material manufacturer.
 - 2. Remove protrusions, bumps, and ridges by sanding or grinding.
- 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.
- D. For all thin-set tile applications prepare substrates to receive waterproofing and fracture membrane materials in accordance with manufacturer's instructions and recommendations.
- E. Field-Applied Temporary Protective Coating: Where recommended by the tile manufacturer or as needed to prevent grout from staining or adhering to exposed tile surfaces, precoat them with continuous film of temporary protective coating, taking care not to coat unexposed tile surfaces.

3.3 INSTALLATION, GENERAL

- A. Workmanship and Visual Appearance: All tile shall be installed with zero-lippage, with straight and even joints, and smooth and flat. The intent is that all tile installations are to be installed using the best of techniques. Any tile that does not meet or exceed the requirements indicated shall be removed and replaced in accordance with specified requirements.
- B. ANSI Tile Installation Standards: Comply with parts of ANSI A108 Series "Specifications for Installation of Ceramic Tile" that apply to types of setting and grouting materials and to methods indicated.
- C. TCA Installation Guidelines: TCA's "Handbook for Ceramic Tile Installation." Comply with TCA installation methods for applications indicated.
- D. 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.
- E. 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.
- F. Jointing Pattern: Lay tile in grid pattern, unless otherwise indicated. Align joints when adjoining tiles on floor, base, walls, and trim are same size. Lay out tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths, unless otherwise indicated.
 - 1. For tile mounted in sheets, make joints between tile sheets same width as joints within tile sheets so joints between sheets are not apparent in finished work.
- G. Expansion Joints: Locate expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.
 - 1. Locate joints in tile surfaces directly above joints in concrete substrates.
 - 2. Prepare joints and apply sealants to comply with requirements in Division 7 Section "Joint Sealants."

3.4 WATERPROOFING AND CRACK ISOLATION MEMBRANE INSTALLATION

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

3.5 TILE INSTALLATION

- A. General: Install tile to comply with TCNA installation methods indicated.
 - 1. Floor Tile: As indicated on the Drawings.
 - 2. Wall Tile: TCNA W243
- B. Joint Widths: As directed by the Architect.

3.6 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. Protect installed tile work 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.

END OF SECTION 093013

SECTION 095113 - ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Acoustical ceiling tile.
2. Exposed grid suspension systems.

1.2 SUBMITTALS

A. Product Data: For products indicated.

B. Samples for Verification: For each component indicated and for each exposed finish required, prepared on Samples of size indicated below.

1. Ceiling Panels: Set of 12-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.

1.3 QUALITY ASSURANCE

A. Source Limitations:

1. Ceiling Panels: Obtain through one source from a single manufacturer.
2. Suspension System: Obtain each type 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:
 - a. Smoke-Developed Index: 450 or less.

C. Preinstallation Conference: Conduct conference at Project site.

1.4 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.

1.5 FIELD 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.

1.6 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.

PART 2 - PRODUCTS

2.1 ACOUSTICAL TILE

- A. Product and Manufacture – Basis of Design: Refer to the Finish Materials Legend.

2.2 GRID SYSTEMS, GENERAL

- A. Product and Manufacture – Basis of Design: Refer to the Finish Materials Legend.
- B. 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 653.
 - 1. Structural Classification: Intermediate-duty system.
- C. 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.

- D. Attachment Devices: Size for five times the design load indicated in ASTM C 635, Table 1, "Direct Hung," unless otherwise indicated.
1. Anchors in Concrete: Anchors of type and material indicated below, with holes or loops for attaching hangers of type indicated and with capability to sustain, without failure, a load equal to five times that imposed by ceiling construction, as determined by testing per ASTM E 488 or ASTM E 1512 as applicable, conducted by a qualified testing and inspecting agency.
 - a. Type: Postinstalled expansion anchors.
 - b. Corrosion Protection: Carbon-steel components zinc plated to comply with ASTM B 633, Class Fe/Zn 5 (0.005 mm) for Class SC 1 service condition.
 2. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hangers of type indicated, and with capability to sustain, without failure, a load equal to 10 times that imposed by ceiling construction, as determined by testing per ASTM E 1190, conducted by a qualified testing and inspecting agency.
- E. Wire Hangers, Braces, and Ties: Provide wires complying with the following requirements:
1. Zinc-Coated Carbon-Steel Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper.
 2. Size: Select wire diameter so its stress at three times hanger design load (ASTM C 635, Table 1, "Direct Hung") will be less than yield stress of wire, but provide not less than 0.106-inch- diameter wire.

2.3 METAL EDGE MOLDINGS AND TRIM

- A. Manufacturers:
1. Armstrong World Industries, Inc.
 2. Chicago Metallic Corporation.
 3. Fry Reglet Corporation.
 4. MM Systems, Inc.
 5. USG Interiors, Inc.
- B. Roll-Formed Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that 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. For lay-in panels with reveal edge details, provide stepped edge molding that forms reveal of same depth and width as that formed between edge of panel and flange at exposed suspension member.

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 per manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."
- B. Suspend ceiling hangers from building's structural members and as follows:
 - 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
 - 2. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 - 3. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards and publications.
 - 4. Secure wire hangers to ceiling suspension members and to supports above with a minimum of three tight turns. Connect hangers directly either to structures or to inserts, eye screws, or other devices that are secure and appropriate for substrate and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
 - 5. Do not attach hangers to steel roof deck. Attach hangers to structural members.
 - 6. Space hangers not more than 48 inches o.c. along each member supported directly from hangers, unless otherwise indicated; provide hangers not more than 8 inches from ends of each member.
- C. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.
 - 1. Apply acoustical sealant in a continuous ribbon concealed on back of vertical legs of moldings before they are installed.

2. Screw attach moldings to substrate at intervals not more than 16 inches o.c. and not more than 3 inches from ends, leveling with ceiling suspension system to a tolerance of 1/8 inch in 12 feet. Miter corners accurately and connect securely.
 3. Do not use exposed fasteners, including pop rivets, on moldings and trim.
- D. Install suspension system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.
- E. 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. For square-edged panels, install panels with edges fully hidden from view by flanges of suspension system runners and moldings.
 2. For reveal-edged panels on suspension system runners, install panels with bottom of reveal in firm contact with top surface of runner flanges.
 3. 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 SUMMARY

A. Section Includes:

1. Wall base.

1.2 SUBMITTALS

- A. Product Data: For products indicated.
- B. Samples: For wall base 12 inches long.

1.3 PROJECT CONDITIONS

- A. Maintain temperatures within range recommended by manufacturer, but not less than 70 degrees F or more than 95 degrees F, in spaces to receive floor tile during the following time periods:
1. 48 hours before installation.
 2. During installation.
 3. 48 hours after installation.
- B. After postinstallation period, maintain temperatures within range recommended by manufacturer, but not less than 55 degrees F or more than 95 degrees F.
- C. Install materials after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 WALL BASE

- A. Product and Manufacture – Basis of Design: Refer to the Finish Materials Legend.
1. Height: As indicated.

2.2 MISCELLANEOUS MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic cement-based formulation provided or approved by resilient product manufacturers for applications indicated.

PART 3 - EXECUTION

3.1 PREPARATION

- A. General: Prepare substrates according to manufacturer's written recommendations to ensure adhesion of resilient products.
- B. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
- C. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
 - 1. Do not install resilient products until they are the same temperature as the space where they are to be installed.

3.2 RESILIENT WALL BASE INSTALLATION

- A. General: Install resilient base in accordance with manufacturer's instructions and recommendations.
 - 1. Install wall base in lengths as long as practicable without gaps at seams and with tops and bottoms of adjacent pieces aligned.
 - 2. Attach wall base to substrates.
 - 3. On irregular substrates, fill voids along top edge of wall base with manufacturer's recommended adhesive filler material.

3.3 CLEANING AND PROTECTION

- A. Perform the following operations immediately after completing resilient product installation:
 - 1. Remove adhesive and other blemishes from exposed surfaces.
 - 2. Clean surfaces to remove marks and soil.
- B. Protect installed materials from marks, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period. Use protection methods recommended in writing by manufacturer.

END OF SECTION 096513

SECTION 096519 - RESILIENT FLOORING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Resilient flooring.

1.2 SUBMITTALS

A. Product Data: For each product indicated.

B. Samples: Samples of each color and pattern of resilient floor tile required.

1.3 PROJECT CONDITIONS

A. Maintain temperatures within range recommended by manufacturer, but not less than 70 degrees F or more than 95 degrees F, in spaces to receive floor tile during the following time periods:

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

B. After postinstallation period, maintain temperatures within range recommended by manufacturer, but not less than 55 degrees F or more than 95 degrees F.

C. Close spaces to traffic during floor covering installation.

D. Close spaces to traffic for 48 hours after floor covering installation.

E. Install resilient products after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 RESILIENT FLOORING

A. Vinyl Tile Flooring:

1. Products and Manufacturers – Basis of Design: Refer to the Finish Materials Legend.

B. Fire-Test-Response Characteristics:

1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm per ASTM E 648.

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 manufacturer to suit resilient products and substrate conditions indicated.
- C. Metal Edge Strips: Extruded aluminum with mill finish of width shown, of height required to protect exposed edges of tiles, and in maximum available lengths to minimize running joints.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Prepare substrates according to manufacturer's written recommendations to ensure adhesion of resilient products.
- B. Concrete Substrates: Prepare according to ASTM F 710.
 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
 2. Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
 3. Moisture Testing:
 - a. Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours or as required by the materials manufacturer.
 - b. Alkali Testing - Allowable PH Reading: 5-9 or as required by the materials manufacturer.
 - c. Perform additional tests recommended by manufacturer. Proceed with installation only after substrates pass testing.
- C. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.
- D. Use trowelable leveling and patching compound to fill cracks, holes, and depressions in substrates.

- E. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
 - 1. Do not install resilient products until they are same temperature as space where they are to be installed.
- F. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation. After cleaning, examine substrates for moisture, alkaline salts, carbonation, and dust. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Lay out tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter.
- B. Match tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles.
- C. Scribe, cut, and fit tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, edgings, door frames, and thresholds.
- D. Extend tiles into toe spaces, door reveals, closets, and similar openings.
- E. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates. Use chalk or other nonpermanent, nonstaining marking device.
- F. Install tiles on covers for telephone and electrical ducts and similar items in finished floor areas. Maintain overall continuity of color and pattern with pieces of tile installed on covers. Tightly adhere tile edges to substrates that abut covers and to cover perimeters.
- G. Adhere tiles to flooring substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.
- H. Perform the following operations immediately after completing resilient product installation:
 - 1. Remove adhesive and other blemishes from exposed surfaces.
 - 2. Sweep and vacuum surfaces thoroughly.
 - 3. Damp-mop surfaces to remove marks and soil.
 - a. Do not wash surfaces until after time period recommended by manufacturer.

- I. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period. Use protection methods recommended in writing by manufacturer.

END OF SECTION 096519

SECTION 096813 - TILE CARPETING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Carpet tile.

1.2 SUBMITTALS

A. Product Data: Submit product data for each carpet material and installation accessory required. Submit written data on physical characteristics, durability, resistance to fading, and flame resistance characteristics.

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.

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.
- I. Sustainable Design Submittals:
 - 1. Product Data: For adhesives, indicating VOC content.

1.3 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 determined by testing identical products per ASTM E 648 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.
 - 1. Flammability:
 - a. Methenamine Pill: Meets CGSB 4-GP-129/DOC FF-1-70
 - b. Radiant Panel: Class 1 (direct gluedown)
 - c. Smoke Density: ASTM E-662 less than 450.
- C. Preinstallation Conference: Conduct conference at Project site.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Comply with CRI 104.

1.5 PROJECT CONDITIONS

- A. Comply with CRI 104 for temperature, humidity, and ventilation limitations.
- B. Comply with manufacturer's requirements for temperature and humidity.
- C. Environmental Limitations: Do not deliver or install carpet tiles until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at occupancy levels during the remainder of the construction period.
- D. 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.

- E. 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.

1.6 WARRANTY

- A. Warranty for Carpet Tiles: 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 edge raveling, snags, runs, dimensional stability, excess static discharge, loss of tuft bind strength, loss of face fiber, and delamination.
 - 3. Warranty Period: Minimum 10 years from date of Substantial Completion.

1.7 EXTRA MATERIALS

- A. At the time of building acceptance, deliver to the Owner the following extra materials. Deliver in original unopened cartons or containers with each item properly identified.
 - 1. Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with labels describing contents.
 - a. 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

- A. Product and Manufacture – Basis of Design: Refer to the Finish Materials Legend.

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.
 - 1. VOC Limits: Refer to Section 018113.19 Sustainable Requirements – LEED 2009 for Core and Shell Development.

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 3 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 "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 inch wide 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. Broom and vacuum clean substrates to be covered immediately before installing carpet tile.

3.3 INSTALLATION

- A. General: Comply with manufacturer's instructions and recommendations for carpet installation.
- B. Maintain dye lot integrity. Do not mix dye lots in same area.
- C. 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.

- D. Extend carpet tile into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.
- E. 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.
- F. Install pattern parallel to walls and borders.
- G. 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 "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 097743 – FIBERGLASS REINFORCED PLASTIC PANELS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Fiberglass reinforced plastic panels.

1.2 SUBMITTALS

A. Product Data: Submit product data products specified.

B. Samples: Submit two samples of each type of panel, each type of trim and fastener.

1.3 QUALITY ASSURANCE

A. Single Source Responsibility: Provide panels, and molding only from the manufacturer specified to ensure warranty and color harmonization of accessories.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Delivery of Materials: Package sheets for shipment to project site.

B. Storage of Materials: Store panels in a dry place at the project site.

C. Handling: Remove foreign matter from face of panel by use of a soft bristle brush, avoiding abrasive action.

1.5 PROJECT CONDITIONS

A. Installation shall not begin until building is enclosed, permanent heating and cooling equipment is in operation, and residual moisture from plaster, concrete or terrazzo work has dissipated.

B. During installation and for not less than 48 hours before, maintain an ambient temperature and relative humidity within limits required by type of adhesive used and recommendation of adhesive manufacturer.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Fiberglass Reinforced Plastic Panels:
 - 1. Product and Manufacturer – Basis of Design: Refer to the Finish Materials Legend.
 - 2. Surface Burning Characteristics: Class A per ASTM E-84.
- B. Division Bars, Corner Trim and Moldings: PVC; panel manufacturer's standard length extruded vinyl pieces.
 - 1. Colors: To be selected by the Architect from manufacturer's full line.
- C. Sealant: Type as recommended by the panel manufacturer for installation indicated.
- D. Fasteners: Manufacturer's standard product for installation indicated.
 - 1. Colors: To be selected by the Architect from manufacturer's full line.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Examine backup surfaces to determine that corners are plumb and straight, surfaces are smooth, uniform, clean and free from foreign matter, nails countersunk, joints and cracks filled flush and smooth with the adjoining surface.
- B. Do not begin installation until backup surfaces are put into satisfactory condition.

3.2 APPLICATION

- A. General: Install panels and accessories in accordance with manufacturer's instructions and recommendations and Installation Guide.
 - 1. Cut panel material with carbide tipped saw blades or drill bits, or cut with snips.
 - 2. Install panels with manufacturer's recommended gap for panel field and corner joints.

3.3 CLEANING:

- A. Remove adhesives or other contaminants from panel face and exposed accessory surfaces using solvent or cleaner recommended by panel manufacturer.

END OF SECTION 097743

SECTION 099100 - PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Exposed exterior items and surfaces.
2. Exposed interior items and surfaces.
3. 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 the paint schedules indicate that a surface or material is not to be painted or is to remain natural. If the paint schedules do not specifically mention an item or a surface, paint the item or surface the same as similar adjacent materials or surfaces whether or not schedules indicate colors. If the schedules do not indicate color or finish, the Architect will select from standard colors and finishes available. Painting includes field painting of exposed bare and covered pipes and ducts (including color coding), hangers, exposed steel and iron work, and primed metal surfaces of mechanical and electrical equipment installed and application of paint coats to all finish coated mechanical and electrical equipment in exterior locations, except as otherwise indicated.

C. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.

D. Do not paint over Underwriters Laboratories (UL), Factory Mutual (FM), or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.

1.2 SUBMITTALS

A. Product Data: For each paint system specified.

1. Material List: Provide an inclusive list of required coating materials. Indicate each material and cross-reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
2. Manufacturer's Information: Provide manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material proposed for use.

B. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors available for each type of finish-coat material indicated.

1. After color selection, the Architect will furnish color chips for surfaces to be coated.

- C. Samples for Verification: Of each color and material to be applied, with texture to simulate actual conditions, on representative Samples of the actual substrate.
 - 1. Provide stepped Samples, defining each separate coat, including block fillers and primers. Use representative colors when preparing Samples for review. Resubmit until required sheen, color, and texture are achieved.
 - 2. Provide a list of materials and applications for each coat of each sample. Label each sample for location and application.
 - 3. On actual wall surfaces and other exterior and interior building components, duplicate painted finishes of prepared samples. On at least 100 square feet of surface, as directed, provide full-coat finish samples until required sheen level., color and texture is obtained; simulate finished lighting conditions for review of in-place work.

- D. Qualification Data: For firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

1.3 QUALITY ASSURANCE

- A. Applicator Qualifications: Engage an experienced applicator who has completed painting system applications similar in material and extent to that indicated for this Project with a record of successful in-service performance.

- B. Source Limitations: Obtain block fillers, primers, and undercoat materials for each coating system from the same manufacturer as the finish coats.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to the 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.
 - 8. VOC content.

- 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 containers used in storage 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. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing, and application.

1.5 PROJECT CONDITIONS

- A. Apply water-based paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 50 and 90 degrees F.
- B. Apply solvent-thinned paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 45 and 95 degrees F.
- C. Do not apply paint in snow, rain, fog, or mist; or when the 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. Products and Manufacturers: Subject to compliance with requirements, products and manufacturers specified include, but are not limited to, the following:
 - 1. The Sherwin-Williams Company
- B. Other Products and Manufacturers: Subject to compliance with requirements, available products and manufacturers that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Benjamin Moore & Company (Moore)
 - 2. Glidden Professional
 - 3. PPG Industries, Inc. (PPG)

2.2 PAINT MATERIALS, GENERAL

- A. Material Compatibility: Provide block fillers, primers, undercoats, and finish-coat materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
- B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified. Paint-material containers not displaying manufacturer's product identification will not be acceptable.
 - 1. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish manufacturer's material data and certificates of performance for proposed substitutions.
- C. Colors: Refer to the Finish Legend; where colors are not indicated provide color selections made by the Architect.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with the Applicator present, under which painting will be performed for compliance with paint application requirements.
 - 1. Do not begin to apply paint until unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
 - 2. Start of painting will be construed as the Applicator's acceptance of surfaces and conditions within a particular area.
- B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
 - 1. Notify the Architect about anticipated problems using the materials specified over substrates primed by others.

3.2 PREPARATION

- A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of the size or weight of the item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.
- B. Cleaning: Before applying paint or other surface treatments, clean the substrates of substances that could impair the bond of the various coatings. Remove oil and grease before cleaning.
 - 1. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
- C. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.
- D. Materials Preparation: Mix and prepare paint materials according to manufacturer's written instructions.
- E. Tinting: Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of the same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

3.3 APPLICATION

- A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.

3.4 CLEANING

- A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from the site.
 - 1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping. Be careful not to scratch or damage adjacent finished surfaces.

3.5 PROTECTION

- A. Protect work of other trades, whether being painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Architect.
- B. Provide "Wet Paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others to protect their work after completing painting operations.
 - 1. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

3.6 INTERIOR PAINT SCHEDULE

- A. Gypsum Drywall – Walls:
 - 1. Paint System, Application and Finish: Two Finish Coats over Primer.
 - a. Primer: Promar 200 Zero VOC Latex Primer
 - b. Finish Coats: Promar 200 Zero VOC Interior Latex
 - c. Sheen Level: Refer to the Finish Materials Legend.
- B. Gypsum Drywall – Ceilings:
 - 1. Paint System, Application and Finish: Two Finish Coats over Primer; refer to the Finish Identification list for gloss level (Finish).
 - a. Primer: Promar 200 Zero VOC Latex Primer
 - b. Finish Coats: Promar 200 Zero VOC Interior Latex
 - c. Sheen Level: Refer to the Finish Materials Legend.
- C. Exposed Structural Framing:
 - 1. Paint System: Dry fall coating system; two finish coats over primer.
 - a. Primer: Pro-Cryl Metal Primer, B66W1300
 - b. Finish Coat: Pro Industrial WB Dry Fall
 - c. Sheen Level: Refer to the Finish Materials Legend.

- D. Ferrous Metal: Includes steel door frames.
 - 1. Paint System, Application and Finish:
 - a. Primer: Kem Kromik Universal Metal Primer
 - b. Finish Coats: ProIndustrial Urethane Alkyd Enamel
 - c. Sheen Level: Refer to the Finish Materials Legend.
- E. Gypsum Drywall Indicated to Receive Epoxy Paint:
 - 1. Paint System, Application and Finish: Epoxy; two Finish Coats over Primer.
 - a. Primer: Promar 200 Zero VOC Latex Wall Primer
 - b. Finish Coats: Water Based Catalyzed Epoxy B-70 Series
 - c. Sheen Level: Refer to the Finish Materials Legend.
- F. Sealed Concrete (Floors):
 - 1. Paint System, Application and Finish: Two coats over prepared substrates.
 - a. AquArmor WBU GP4411, flat, clear.

3.7 EXTERIOR PAINT SCHEDULE

- A. Zinc Coated Metal, Primed and Unprimed:
 - 1. Paint System, Application and Finish: Two finish coats over prime coat; Gloss finish. Pre-primed requires top finish only; prime coat damaged surfaces.
 - a. Primer: Pro Industrial Pro-Cryl Universal Primer
 - b. Finish: Fast Clad HB Acrylic Semi-Gloss

END OF SECTION 099100