

SECTION 09111 - NON-LOAD-BEARING STEEL FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes non-load-bearing steel framing members for the following applications:
 - 1. Interior framing systems (e.g., supports for partition walls, framed soffits, furring, etc.).
 - 2. Suspension systems (e.g., supports for ceilings, suspended soffits, etc.).
- B. Related Sections include the following:
 - 1. Division 5 Section "Cold-Formed Metal Framing" for exterior non-load-bearing wall studs.
 - 2. Division 7 Section "Building Insulation" for insulation installed with Z-shaped furring members.
 - 3. Division 9 Section "Gypsum Board Shaft-Wall Assemblies" for non-load-bearing metal shaft-wall framing, gypsum panels, and other components of shaft-wall assemblies.

1.3 SUBMITTALS

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

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: ASTM A 653/A 653M, G40 (Z120), hot-dip galvanized, unless otherwise indicated.

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 (4.12-mm) 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.
- D. Furring Channels (Furring Members):
 1. Steel Studs: ASTM C 645.
 - a. Minimum Base-Metal Thickness: 0.0312 inch.
 - b. Depth: 3-5/8 inches.
 2. Hat-Shaped, Rigid Furring Channels: ASTM C 645, 7/8 inch deep.
 - a. Minimum Base Metal Thickness: 0.0312 inch.

2.3 STEEL FRAMING FOR FRAMED ASSEMBLIES

- A. Steel Studs and Runners: ASTM C 645.
 1. Minimum Base-Metal Thickness: 0.0312 inch.
 2. Depth: 3-5/8 inches.
- B. Slip-Type Head Joints: Provide one of the following:
 1. Single Long-Leg Runner System: ASTM C 645 top runner with 2-inch-deep flanges in thickness not less than indicated for studs, installed with studs friction fit into top runner and with continuous bridging located within 12 inches of the top of studs to provide lateral bracing.
 2. 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.
- 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. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
 2. 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.
- D. Cold-Rolled Channel Bridging: 0.0538-inch bare-steel thickness, with minimum 1/2-inch-wide flanges.
1. Depth: 1-1/2 inches.
 2. Clip Angle: Not less than 1-1/2 by 1-1/2 inches, 0.068-inch-thick, galvanized steel.
- E. Hat-Shaped, Rigid Furring Channels: ASTM C 645.
1. Minimum Base Metal Thickness: 0.0312 inch.
 2. Depth: 7/8 inch.
- F. Cold-Rolled Furring Channels: 0.0538-inch bare-steel thickness, with minimum 1/2-inch-wide flanges.
1. Depth: 3/4 inch.
 2. Furring Brackets: Adjustable, corrugated-edge type of steel sheet with minimum bare-steel thickness of 0.0312 inch.
 3. 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.
- G. Z-Shaped Furring: With slotted or nonslotted web, face flange of 1-1/4 inches, wall attachment flange of 7/8 inch, minimum bare-metal thickness of 0.0179 inch, and depth required to fit insulation thickness indicated.

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 the following:
1. Asphalt-Saturated Organic Felt: ASTM D 226, Type I (No. 15 asphalt felt), nonperforated.

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.
- B. Coordination with Sprayed Fire-Resistive Materials:
 - 1. Where sprayed fire-resistive materials are indicated, attach offset anchor plates or ceiling runners (tracks) to surfaces indicated to receive sprayed fire-resistive materials. Where offset anchor plates are required, provide continuous plates fastened to building structure not more than 24 inches o.c.
 - 2. After sprayed fire-resistive materials are applied, remove them only to extent necessary for installation of non-load-bearing steel framing. Do not reduce thickness of fire-resistive materials below that required for fire-resistance ratings indicated. Protect adjacent fire-resistive materials from damage.

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 permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
 - 6. Do not attach hangers to rolled-in hanger tabs of composite steel floor deck.
 - 7. 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. 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:
 - a. Single-Layer Application: 16 inches o.c., unless otherwise indicated.

- b. Multilayer Application: 16 inches o.c., unless otherwise indicated.
 - c. Tile backing panels: 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: 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. Z-Furring Members:
 - 1. Erect insulation (specified in Division 7 Section "Building Insulation") vertically and hold in place with Z-furring members spaced 24 inches o.c.
 - 2. Except at exterior corners, securely attach narrow flanges of furring members to wall with concrete stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.
 - 3. At exterior corners, attach wide flange of furring members to wall with short flange extending beyond corner; on adjacent wall surface, screw-attach short flange of furring channel to web of attached channel. At interior corners, space second member no more than 12 inches from corner and cut insulation to fit.

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- 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.

END OF SECTION

SECTION 09210 - GYPSUM PLASTER

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Gypsum plaster patching of existing flat and ornamental plaster as required for completion of contract work at and behind existing interior surfaces.
 - 2. Repair of flat and ornamental plaster as indicated on the drawings and in this section.
 - 3. Metal framing and furring.
 - 4. Metal lath.
 - 5. Metal accessories.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section "Renovation Procedures" for existing conditions and patching requirements.
 - 2. Division 6 Section "Rough Carpentry" for wood framing and furring.
 - 3. Division 8 Section "Access Doors" for access doors requiring installation as part of this section.

1.3 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product Data consisting of manufacturer's product specifications and installation instructions for each product, including data showing compliance with specified requirements.
- C. Material Certificates: Submit certificate signed by manufacturer for each kind of plaster aggregate certifying that materials comply with requirements.

1.4 QUALITY ASSURANCE

- A. Single-Source Responsibility: Obtain gypsum lath and gypsum plaster from one source and by a single manufacturer.
- B. Coordination of Work: Coordinate layout and installation of suspension system components for suspended ceilings with other work supported by or penetrating through ceiling.

- C. Mockups: Prior to installing plaster work, construct samples for each type of application required to demonstrate aesthetic effects as well as qualities of materials and execution. Build mockups to comply with the following requirements, using materials indicated for final Work.
 - 1. Locate mockups on-site in the location and of the size indicated or, if not indicated, as directed by Architect.
 - 2. Notify Architect seven days in advance of the dates and times when mockups will be viewed.
 - 3. Demonstrate the proposed range of aesthetic effects and workmanship.
 - 4. Obtain Architect's approval of mockups before proceeding with plaster production.
 - 5. Retain and maintain mockups during construction in an undisturbed condition as a standard for judging the completed plaster Work.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in original packages, containers, or bundles, labeled with manufacturer's name, product brand name, and lot number.
- B. Store materials inside, under cover, and dry, protected from weather, direct sunlight, surface contamination, aging, corrosion, and damage from construction traffic and other causes.

1.6 PROJECT CONDITIONS

- A. Environmental Requirements, General: Comply with requirements of referenced plaster application standards and recommendations of plaster manufacturer for environmental conditions before, during, and after plaster application.
- B. Ventilation: Ventilate building spaces as required to remove water in excess of that required for hydrating plaster. Begin ventilation immediately after plaster is applied and continue until it sets.
- C. Protect contiguous work from soiling, spattering, moisture deterioration, and other harmful effects caused by plastering.

PART 2 - PRODUCTS

2.1 VERTICAL METAL FURRING

- A. General: Provide vertical furring complying with the following requirements:
 - 1. Protective Coating: ASTM A 653, G40 (ASTM A 653M, Z90) hot-dip galvanized coating.
- B. Channel Furring and Braces: Cold-rolled steel, minimum 0.0598-inch- (1.5-mm-) thick base (uncoated) metal and 3/4-inch- (19-mm-) deep-by-7/16-inch- (11.1-mm-) wide flanges, 300 lb/1000 feet (0.45 kg/m).

- C. Hat Channels: Hat-shaped screwable furring channels, 7/8 inch (22.2 mm) deep, formed from zinc-coated (galvanized) steel sheet, minimum 0.0179 inch (0.455 mm) thick, Grade 33.
- D. Furring Brackets: Serrated-arm type, minimum 0.0329-inch- (0.836-mm-) thick base (uncoated) metal, adjustable from 1/4- to 2-1/4-inch (6.4-to 57.1-mm) wall clearance for channel furring.

2.2 LATH

- A. Expanded-Metal Lath: Fabricate expanded-metal lath from zinc-coated (galvanized) steel sheet to produce lath complying with ASTM C 847 for type, configuration, and other characteristics indicated below, with uncoated steel sheet coated after fabrication into lath.
 - 1. Rib Lath: Comply with the following requirements:
 - a. Configuration: Rib depth of 3/8 inch (9.5 mm), 3.4 lb/sq. yd. (1.8 kg/sq. m).

2.3 ACCESSORIES

- A. General: Comply with material provisions of ASTM C 841 and the requirements indicated below; coordinate depth of accessories with thicknesses and number of plaster coats required.
 - 1. Galvanized Steel Components: Fabricated from zinc-coated (galvanized) steel sheet complying with ASTM A 653, G40 (ASTM A 653M, Z90) minimum coating designation.
- B. Metal Corner-beads: Type as indicated below, fabricated from zinc-coated (galvanized) steel.
 - 1. Type: Small nose with expanded flanges, unless otherwise indicated.
- C. Strip Reinforcement: Smooth-edge strips of expanded-metal lath fabricated from uncoated or zinc-coated (galvanized) steel sheet, with uncoated steel sheet coated after fabrication; in the following forms:
 - 1. Cornerite: Strips bent lengthwise in center for internal plaster angles not otherwise reinforced by metal lath lapped or carried around.
 - 2. Stripite: Flat strips for reinforcing joints in gypsum lath, and between dissimilar plaster bases.
- D. Casing Beads: Style matching existing beads, with short or expanded flanges to suit kinds of plaster bases indicated; of the following material:
 - 1. Material: Zinc-coated (galvanized) steel.
- E. Control Joints: Prefabricated, of material and type indicated below:
 - 1. Material: Zinc-coated (galvanized) steel.
 - 2. One-Piece Type: Folded pair of nonperforated screeds in M-shaped configuration, with expanded or perforated flanges.
 - a. Provide removable protective tape on plaster face of control joints.

- F. Aluminum Trim: Extruded accessories as indicated in the drawings, including picture rails and ½" x ½" or other indicated recesses at gypsum plaster surfaces, of profiles and dimensions indicated.
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. Fry Reglet Corp.
 - 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: For each extrusion type, Class II Clear anodic finish or manufacturer's standard white finish as selected by the Architect.

2.4 MISCELLANEOUS MATERIALS

- A. Water for Mixing and Finishing Plaster: Potable and free of substances capable of affecting plaster set or of damaging plaster, lath, or accessories.
- B. Bonding Compound: ASTM C 631.
- C. Steel drill screws complying with ASTM C 1002 for fastening metal lath to steel members less than 0.033 inch (0.84 mm) thick.
- D. Steel drill screws complying with ASTM C 954 for fastening metal lath to steel members 0.033 to 0.112 inch (0.84 to 2.84 mm) thick.

2.5 PLASTER MATERIALS

- A. Base-Coat Plasters: ASTM C 28, types as indicated below:
 1. High-strength gypsum neat plaster with a minimum, average, dry compressive strength of 2800 psi (19 MPa) per ASTM C 472 for a mix of 100 lb (45 kg) of plaster and 2 cu. ft. (0.06 cu. m) of sand.
- B. Finish-Coat Plasters: Types as indicated below:
 1. Gypsum gauging plaster, ASTM C 28.
- C. Finishing Hydrated Limes: ASTM C 206, type as indicated below:
 1. Type S: Special hydrated lime for finishing purposes.
- D. Aggregates for Base-Coat Plasters: ASTM C 35, type as indicated below:
 1. Sand aggregate, unless otherwise indicated.

E. Products: Subject to compliance with requirements, provide one of the following:

1. Gypsum Neat Plasters:
 - a. Two-Way Hardwall Plaster; National Gypsum Co.
 - b. Red Top Gypsum Plaster; United States Gypsum Co.
 - c. Red Top Two-Purpose Plaster; United States Gypsum Co.
2. Gypsum Gauging Plasters, Unaggregated:
 - a. Super-White Gauging Plaster; National Gypsum Co.
 - b. Champion Gauging Plaster; United States Gypsum Co.
 - c. Red Top Gauging Gypsum Plaster; United States Gypsum Co.
 - d. Star Gauging Plaster; United States Gypsum Co.
3. Finishing Hydrated Limes, Type S:
 - a. Ivory Finish Lime; United States Gypsum Co.
 - b. Snowdrift Finish Lime; United States Gypsum Co.

2.6 PLASTER MIXES AND COMPOSITIONS

- A. Plaster Base-Coat Compositions: Comply with ASTM C 842 and manufacturer's written instructions for plaster base-coat proportions that correspond to application methods and plaster bases indicated below:
 1. Three-Coat Work over Metal Lath: Base coats as indicated below:
 - a. Scratch Coat: High-strength gypsum plaster with job-mixed sand.
 - b. Brown Coat: High-strength gypsum plaster with job-mixed sand.
- B. Finish Coats: Proportion materials for finish coats to comply with ASTM C 842 for each type of finish coat and texture indicated.
 1. Troweled Finishes: Finish-coat proportion as indicated below:
 - a. Gypsum Gauging Plaster: 1 part plaster to 2 parts lime.

2.7 MIXING

- A. Mechanically mix cementitious and aggregate materials for plasters to comply with applicable referenced application standard and with recommendations of plaster manufacturer.

PART 3 - EXECUTION

3.1 INSTALLATION OF LATH AND FURRING, GENERAL

- A. Interior Lathing and Furring: Install materials indicated for plaster to comply with ASTM C 841.
- B. Install supplementary framing, blocking, and bracing at terminations in Work and for support of fixtures, equipment services, heavy trim, and similar work to comply with details indicated or, if not otherwise indicated, to comply with applicable written instructions of plaster manufacturer or, if not available, of USG's "Gypsum Construction Handbook." Do not support fixtures from plaster.
- C. Isolation: Where lathing and metal support system abuts building structure horizontally and where partition or wall abuts overhead structure, sufficiently isolate from structural movement to prevent transfer of loading from building structure. Install slip- or cushion-type joints to absorb deflections but maintain lateral support.
 - 1. Frame both sides of control joints independently and do not bridge joints with furring and lathing or accessories.

3.2 INSTALLATION OF VERTICAL METAL FURRING

- A. For furring on interior side of exterior walls, provide furring brackets, unless otherwise indicated. Tie new furring systems to existing and tie new metal lath to existing in order to provide continuous reinforcement of repaired plaster finishes.
- B. Metal Furring to Receive Metal Lath: Comply with requirements of ML/SFA 920, "Guide Specifications for Metal Lathing and Furring," applicable to each installation condition indicated.

3.3 METAL LATHING

- A. Install expanded-metal lath where plaster base coats are required. Provide appropriate type, configuration, and weight of metal lath selected from materials indicated that comply with referenced lathing installation standards.

3.4 INSTALLATION OF PLASTERING ACCESSORIES

- A. General: Comply with referenced lathing and furring installation standards for provision and location of plaster accessories of type indicated. Miter or cope accessories at corners; install with tight joints and in alignment. Attach accessories securely to plaster bases to hold accessories in place and in alignment during plastering.
- B. Accessories: Provide the following types to comply with requirements indicated for location:
 - 1. Cornerbeads: Install at external corners.
 - 2. Casing Beads: Install at terminations of plaster work, except where plaster passes behind and is concealed by other work and where metal screeds, bases, or frames act as casing beads.

3. Control Joints: Install at locations indicated or, if not indicated, at spacings and locations required by referenced standard, recommended by plaster manufacturer, and approved by Architect prior to installation. Spacing between joints in either direction shall not exceed the following:
 - a. Partitions: 30 feet (9 m).
 - b. Ceilings with Perimeter Relief: 50 feet (15 m).
 - c. Ceilings without Perimeter Relief: 30 feet (9 m).
 - d. indicated or required by fire-resistance-rated assembly.
4. On Z-furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.

3.5 INSTALLATION OF ACCESS DOORS

- A. Review locations of access doors with the Architect prior to installation. Make adjustments in locations as directed.
- B. Comply with manufacturer's instructions for installing access doors.
- C. Set frames accurately in position and attach securely to supports with plane of face panels aligned with adjacent finished surfaces.
- D. Install concealed-frame access doors flush with adjacent finish surfaces.
- E. Install gypsum lath and plaster in recessed panel doors as recommended by access door manufacturer.

3.6 PLASTER APPLICATION

- A. Plaster Application Standard: Apply plaster materials, composition, mixes, and finishes indicated to comply with ASTM C 842.
- B. Number of Coats: Apply plaster of composition indicated, to comply with the following requirements:
 1. Three Coats: Over the following plaster bases:
 - a. Metal lath.
- C. Finish Coats: Apply finish coats to comply with the following requirements:
 1. Troweled, to match existing finishes, unless otherwise indicated.

3.7 PLASTER APPLICATION, GENERAL

- A. Tolerances: Do not deviate more than plus or minus 1/8 inch in 10 feet from a true plane in finished plaster surfaces, as measured by a 10-foot straightedge placed at any location on surface.
- B. Sequence plaster application with installation and protection of other work so that neither will be damaged by installation of other.
- C. Plaster flush with metal frames and other built-in metal items or accessories that act as a plaster ground, unless otherwise indicated. Where plaster is not terminated at metal frame by casing beads, cut base coat free from metal frame before plaster sets and groove finish coat at junctures with metal.

3.8 REPAIR OF EXISTING FLAT PLASTER

- A. Repair and replace all missing plaster, cracks, roughness, spalls, sags, out of plane surfaces, or other flaws of appearance or durability in existing plaster to remain, whether flaws are a consequence of construction, cutting operations or are inherent in the existing construction. At the completion of repairs, all plaster shall be flat, matching adjoining finish textures, and without cracks or other visible imperfections.
- B. Hairline Cracks: Small cracks in wall and ceiling plaster may be repaired if plaster is otherwise in good condition. Widen hairline cracks slightly with a sharp, pointed tool such as a crack widener or a triangular can opener, moisten the existing plaster, then fill the crack with finishing plaster. After drying, follow by a light sanding. For cracks larger than 1/16" but less than 3/16", bridge the crack with fiberglass mesh tape. Press the tape into setting-type taping compound. After the first application of compound dries, cover the tape with a second coat of finishing plaster. Apply a third coat to even out the surface, matching adjoining textures.
- C. Large Cracks: When cracks are larger than 3/16", or when adjacent surfaces are out of plane, repairs need to be made to the existing lath before repairing the plaster. Remove plaster on each side of the crack to a width of about 6 inches, down to the existing lath. Remove all loose materials from the edges of the existing plaster, clean out all debris and wire new metal lath to the cleared area, leaving the existing lath in place. Re-plaster with three layers (base coats and finish coat) as for holes in walls or ceilings. Match adjoining textures.
- D. Patching Holes in Walls: For small holes (less than 4 inches in diameter) where existing metal lath remains, but that involve loss of the brown and finish coats, make the repair in three applications over plaster manufacturer's recommended bonding agent onto the original lath. For larger holes, where all three coats of plaster are damaged or missing down to the existing lath, clean out old plaster over existing lath and taper the edges of existing plaster to allow for overlapping of new and old plaster in the patch. Attach new expanded metal lath over existing with tie wires. Apply new plaster in three layers over the metal lath, lapping each new layer of plaster over the old plaster so that old and new are evenly joined to produce a strong, invisible patch. Conform the patch to the irregularities in plane of the existing work.
- E. Patching Newly Cut Openings: When large openings are cut into existing ceilings, in order to allow mechanical, electrical or plumbing work to be run above, install new metal lath supported by metal suspension systems. Re-support existing ceilings from building structure above.

Comply with the standards for new work. Provide new support grillage for areas to be replaced, supported from structure above. Insure that new and original ceilings have not been reduced in strength due to cutting operations. Do not rely upon existing ceiling structures to support patched areas. Integrate new and existing support systems and lath into a coherent system, allowing new metal lath to be wired to existing lath in a continuous manner with surfaces overlapping. Apply new plaster in three layers over the metal lath, lapping each new layer of plaster over the old plaster so that old and new are evenly joined to produce a strong, invisible patch. Match existing textures.

3.9 REPAIR OF ORNAMENTAL PLASTER WORK CORNICES AND MOLDINGS

- A. Cornice Repairs: New or repaired cornices should exactly match the original undamaged cornice, installed in a manner to be flush with existing surfaces, with repetitive ornament evenly spaced. Repair all damaged or missing plasterwork, whatever the cause of the damage. Retain existing cornices where possible. Footage which is beyond repair should be identified and carefully demolished to expose the underlying structure beneath the molding. Obtain a cross-section, or profile, through the cornice from finish ceiling to finish wall lines. This is best accomplished using one of these methods:
- B. A section through the cornice may be determined by sawing through existing molding, inserting a sheet metal blank in the slot and tracing the profile directly on the template. This is considerably more accurate than a profile gauge, but will require repointing the saw kerf; alternatively, the cut may be made on one of the removed pieces, provided it was removed as an intact unit.
- C. A section may be obtained by making a thixotropic rubber impression of the molding, casting the result in fresh plaster and sawing through the cast to transfer the cross-section to a sheet metal template.
- D. With the section determined, draw the profile onto 22-gauge galvanized sheet metal, cut with tin snips and carefully file to the profile. Check the template periodically against the original profile to assure a perfect match. With the template blade complete, fasten to a plasterer's stock and slipper, ready for running replacement footage.
- E. Short lengths of new cornice are best run on a bench using gypsum and lime; the reproduction molding should be somewhat longer than the required length. Cut new footage and fit in place to match the existing cornice, then secure with countersunk-screws to studs, joists and/or blocking. Point the resulting joints with flat mitering rods, flush with adjacent members.
- F. Longer lengths of cornice may be run in place. Care should be taken that the position of the running mold engages with the existing work at either end of the run.
- G. If the damaged or missing cornice is ornamented by egg and dart, leaves, or other cast features, samples of the enrichment should be removed, making sure that whole original units are obtained. In order to insert a flat chisel behind the ornament to break the bond to sinkages, some units may have to be sacrificed. Sacrifice should be minimal. The excised enrichment should then be removed to the shop for repair, rubber molding and casting. Apply new casts to the new or original or replacement runs, using plaster as an adhesive.
- H. Sections of plain-run circular molding should be repaired by determining a section through the run and the radius from molding to pivot point. As with cornices, the run should be made on a

bench to a length greater than required, then cut and fit in place. Install circular run sections using plaster adhesives on bonded surfaces or modern construction adhesives after referring to manufacturers' instructions as to whether the adhesive is recommended for use on wet or dry materials. Coarse-threaded, galvanized screws may be countersunk to aid the bond; if possible, the screws should be inserted at points that will ultimately be covered with cast enrichments.

3.10 REPAIR OF ORNAMENTAL COFFERED CEILINGS AND OTHER CAST ORNAMENT

- A. Coffered Ceilings: Repair and/or replace all damaged coffered ceilings, medallions, brackets, dentils, acanthus or anthemion decoration, columns and other ornamental plasterwork, whatever the cause of damage. When cutting and replacement of coffered ceilings is required, shore the areas adjacent to the area to be removed and inspect the hanging apparatus for unforeseen detachment and deflection. Provide new metal channel ceiling suspension systems to supplement and stabilize the coffers to remain. An intact coffering unit should then be identified and carefully removed to a casting shop for molding and casting. Proceed in a similar manner for the replacement of other ornamental cast plaster-work.
- B. At the shop, review the original plaster ornament with the Architect in order to determine whether repairs need to be made to the original plaster fabric prior to preparation of a mold. Make such repairs if so directed.
- C. Prepare a rubber mold of the original ornament. Use urethane rubber as a liquid or thixotropic paste in order to allow the reproduction of even the finest details. Do not use latex rubber or polysulfide unless it can be demonstrated that the molds will maintain dimensional accuracy and quality of detail. Cast sufficient copies of the ornament to complete the work. Replace the mold before the quality of the cast ornament deteriorates.
- D. In most cases it is recommended that cornice work and moldings be repaired before coffers and cast ornament in order to achieve straight and level moldings. Then the damaged coffers should be replaced with the matching new coffers, secured to the suspension system above. Replace new enrichments so that they align perfectly with the original pattern. Polyvinyl acetate bonding agents may be applied to the background and ornament so that the adhesive plaster grips tightly. Point joints to create seamless finished work.

3.11 MINOR CUTTING AND PATCHING

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

3.12 CLEANING AND PROTECTING

- A. Remove temporary protection and enclosure of other work. Promptly remove plaster from door frames, windows, and other surfaces not to be plastered. Repair floors, walls, and other surfaces

stained, marred, or otherwise damaged during plastering. When plastering is completed, remove unused materials, containers, and equipment and clean floors of plaster debris.

- B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and installer, which ensure plaster work is without damage or deterioration at the time of Substantial Completion.

END OF SECTION

SECTION 09250 - GYPSUM BOARD

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Interior gypsum board.
 - 2. Tile backing panels.
- B. Related Sections include the following:
 - 1. Division 6 Section "Sheathing" for gypsum sheathing.
 - 2. Division 7 Section "Building Insulation" for insulation and vapor retarders installed in assemblies that incorporate gypsum board.
 - 3. Division 9 Section "Non-Load-Bearing Steel Framing" for non-structural framing and suspension systems that support gypsum board.
 - 4. Division 9 Section "Gypsum Shaft-Wall Assemblies" for metal shaft-wall framing, gypsum shaft liners, and other components of shaft-wall assemblies.
 - 5. Division 9 painting Sections for primers applied to gypsum board surfaces.

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 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. 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. American Gypsum Co.
- b. BPB America Inc.
- c. G-P Gypsum.
- d. Lafarge North America Inc.
- e. National Gypsum Company.
- f. PABCO Gypsum.
- g. Temple.
- h. USG Corporation.

- B. Regular Type:

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

- C. Type X:

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

2.3 TILE BACKING PANELS

- A. Cementitious Backer Units: ANSI A118.9.

- 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. Custom Building Products; Wonderboard.
- b. FinPan, Inc.; Util-A-Crete Concrete Backer Board.
- c. USG Corporation; DUROCK Cement Board.

- 2. Thickness: 1/2 inch.

2.4 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047.
 - 1. Material: Galvanized or aluminum-coated steel sheet or rolled zinc.
 - 2. Shapes:
 - a. Cornerbead.
 - b. LC-Bead: J-shaped; exposed long flange receives joint compound.
 - c. L-Bead: L-shaped; exposed long flange receives joint compound.
 - d. Expansion (control) joint.

- B. Aluminum Trim: Extruded accessories as indicated in the drawings, including picture rails and recesses at gypsum board surfaces, of profiles and dimensions indicated.
 - 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. Fry Reglet Corp.
 - 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: For each extrusion type, Class II Clear anodic finish or manufacturer's standard white finish as selected by the Architect.

2.5 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C 475/C 475M.

- B. Joint Tape:
 - 1. Interior Gypsum Wallboard: Paper.
 - 2. Tile Backing Panels: 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.
 - 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.
 - 3. Fill Coat: For second coat, use drying-type, all-purpose compound.
 - 4. Finish Coat: For third coat, use drying-type, all-purpose compound.

- D. Joint Compound for Tile Backing Panels:

1. Cementitious Backer Units: As recommended by backer unit manufacturer.

2.6 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.
 2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.

2.7 ACOUSTICAL JOINT-SEALANT

- A. Acoustical Sealant for Joints: Provide products complying with the following:
 1. Products: Provide one of the following:
 - a. AC-20 FTR Acoustical and Insulation Sealant; Pecora Corporation.
 - b. SHEETROCK Acoustical Sealant; USG Corp., United States Gypsum Co.
 - c. Tremco Acoustical Sealant
 2. Color to be selected from manufacturer's standard colors.
 3. Applications: At floor, wall and ceiling closures of gypsum drywall systems and where otherwise indicated. Apply sealant between on both sides of metal framing and adjoining construction prior to application of gypsum board panels.

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 ACOUSTICAL SEALANT APPLICATION STANDARD

- A. Comply with recommendations of ASTM C 919 for use of joint sealants in acoustical applications as applicable to materials, applications, and conditions indicated.

3.3 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.

3.4 APPLYING INTERIOR GYPSUM BOARD

- A. Install interior gypsum board in the following locations:

1. Regular Type: As indicated on Drawings.
2. Type X: As indicated on Drawings at rated assemblies.

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), unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
 - a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
 - b. At stairwells and other high walls, install panels horizontally, unless otherwise indicated or required by fire-resistance-rated assembly.
3. On Z-furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
4. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

C. Multilayer Application:

1. On ceilings, apply gypsum board indicated for base layers before applying base layers on walls/partitions; apply face layers in same sequence. Apply base layers at right angles to framing members and offset face-layer joints 1 framing member, 16 inches minimum, from parallel base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly.
2. On partitions/walls, apply gypsum board indicated for base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly. Stagger joints on opposite sides of partitions.
3. On Z-furring members, apply base layer vertically (parallel to framing) and face layer either vertically (parallel to framing) or horizontally (perpendicular to framing) with vertical joints offset at least one furring member. Locate edge joints of base layer over furring members.
4. Fastening Methods: Fasten base layers and face layers separately to supports with screws.

- D. 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.

3.5 APPLYING TILE BACKING PANELS

- A. Cementitious Backer Units: ANSI A108.11, at locations indicated to receive tile.
- B. Where tile backing panels abut other types of panels in same plane, shim surfaces to produce a uniform plane across panel surfaces.

3.6 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 at locations where indicated on Drawings according to ASTM C 840 and in specific locations approved by Architect for visual effect.
- C. Interior Trim: Install in the following locations:
 - 1. Cornerbead: Use at outside corners.
 - 2. LC-Bead: Use at exposed panel edges.
 - 3. L-Bead: Use where indicated.
- D. Exterior Trim: Install in the following locations:
 - 1. Cornerbead: Use at outside corners.
 - 2. LC-Bead: Use at exposed panel edges.
- E. Aluminum Trim: Install in locations indicated on Drawings.

3.7 FINISHING GYPSUM BOARD AND CEMENT BACKER UNITS

- A. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840. See drawing schedules for Levels of finish required for individual spaces.
- B. Level 0: No taping, finishing, or accessories required.
- C. Level 1: All joints and interior angles shall have tape set in joint compound. Surface shall be free of excess joint compound. Tool marks and ridges are acceptable.
- D. Level 2: All joints and interior angles shall have tape embedded in joint compound and wiped with a joint knife leaving a thin coating of joint compound over all joints and interior angles. Fastener heads and accessories shall be covered with a coat of joint compound. Surface shall be free of excess joint compound. Tool marks and ridges are acceptable. Joint compound applied over the body of the tape at the time of tape embedment shall be considered a separate coat of joint compound and shall satisfy the conditions of this level.
- E. Level 3: All joints and interior angles shall have tape embedded in joint compound and one additional coat of joint compound applied over all joints and interior angles. Fastener heads and accessories shall be covered with two separate coats of joint compound. All joint compound shall be smooth and free of tool marks and ridges.
- F. Level 4: All joints and interior angles shall have tape embedded in joint compound and two separate coats of joint compound applied over all flat joints and one separate coat of joint compound applied over interior angles. Fastener heads and accessories shall be covered with three separate coats of joint compound. All joint compound shall be smooth and free of tool marks and ridges.

- G. Level 5: All joints and interior angles shall have tape embedded in joint compound and two separate coats of joint compound applied over all flat joints and one separate coat of joint compound applied over interior angles. Fastener heads and accessories shall be covered with three separate coats of joint compound. A thin skim coat of joint compound or a material manufactured especially for this purpose, shall be applied to the entire surface. The surface shall be smooth and free of tool marks and ridges.
 - 1. Primer and its application to surfaces are specified in other Division 9 Sections.
- H. Cementitious Backer Units: Finish according to manufacturer's written instructions.

3.8 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

SECTION 09253 - GYPSUM SHEATHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Gypsum sheathing board.
 - 2. Cement board at base of gypsum sheathing board.
- B. Related Sections include the following:
 - 1. Division 5 Section " Cold-Formed Metal Framing" for steel framing incorporated into assemblies with gypsum sheathing on the exterior.
 - 2. Division 7 Section "Sheet Metal Flashing and Trim" for flashing installed with gypsum sheathing.
 - 3. Division 7 Section "Self Adhering Sheet Waterproofing" for sheet waterproofing applied over gypsum sheathing.

1.3 DEFINITIONS

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

1.4 SUBMITTALS

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

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store materials protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, or other causes. Stack sheathing flat on leveled supports off the ground, under cover, and fully protected from weather.

1.6 EXPOSURE

- A. Comply with the following requirements for duration of exposure to weather.

B. Glass-Mat Gypsum Sheathing Board:

1. Establish that the schedule will not require that the board will be exposed to weather for longer than 180 days. Remove material exposed for longer periods and replace with new material.

PART 2 - PRODUCTS

2.1 SHEATHING

A. Provide Glass Mat-Surfaced Gypsum Sheathing Board of the following type:

1. Water-resistant material incorporated into core and with glass mat bonded to core's face, back, and long edges. ASTM C 1177. Application standards where applicable are in accordance with Gypsum Association Publication GA-253 for gypsum sheathing or ASTM C 1280.

B. Manufacturers of Glass mat-surfaced Sheathing Board: Subject to compliance with requirements, provide the following:

1. G-P Gypsum Corporation, Dens-Glass Gold or approved equal.

C. Board Characteristics:

1. Type and Thickness: Regular, 1/2 inch thick.
2. Edge and End Configuration: Square.
3. Size: 48 by 96 inches for vertical installation.

D. Cement Board: ANSI A118.9, with coated glass-fiber mesh over aggregated portland cement core.

1. Manufacturers: Subject to compliance with requirements, provide one of the following or approved equal:

- a. American Gypsum Co.
- b. G-P Gypsum Corporation.
- c. National Gypsum Company.
- d. United States Gypsum Co.

2. Type and Thickness: Regular, 1/2 inch thick.
3. Edge and End Configuration: Square.
4. Size: Cut to 12 by 96 inches for horizontal installation.

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

2.2 ACCESSORY MATERIALS

- A. Fasteners: Steel drill screws, in length recommended by sheathing manufacturer for thickness of sheathing board to be attached, with organic-polymer corrosion-protective coating having a salt-spray resistance of more than 800 hours according to ASTM B 117.
 - 1. For steel framing from 0.033 to 0.112 inch thick, attach sheathing with drill screws complying with ASTM C 954.

PART 3 - EXECUTION

3.1 SHEATHING INSTALLATION

- A. Comply with GA-253 and manufacturer's written instructions.
- B. Apply 12" height of cement board sheathing at base of studs where sheathing abuts exposed concrete foundation walls. Butt gypsum sheathing over cement board. Locate all vertical joints over studs.
- C. Cut boards at penetrations, edges, and other obstructions of work; fit tightly against abutting construction, unless otherwise indicated.
 - 1. Install boards with a 1/4-inch setback where non-load-bearing construction abuts structural elements.
 - 2. Install boards with a 1/4-inch setback where they abut masonry or similar materials that might retain moisture, to prevent wicking.
- D. Coordinate sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed exterior wall assembly.
- E. Apply fasteners so screw heads bear tightly against face of sheathing boards but do not cut into facing.
- F. Do not bridge building expansion joints with sheathing; cut and space edges to match spacing of structural support elements.
- G. Vertical Installation: Install board vertical edges centered over flanges of steel studs. Abut ends and edges of each board with those of adjacent boards. Screw-attach boards at perimeter and within field of board to each steel stud.
 - 1. Space fasteners approximately 8 inches o.c. and set back a minimum of 3/8 inch from edges and ends of boards.

END OF SECTION

SECTION 09265 - GYPSUM BOARD SHAFT-WALL ASSEMBLIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes gypsum board shaft-wall assemblies for the following:
 - 1. Shaft-wall, chase, elevator and stair enclosures where indicated.
 - 2. Horizontal enclosures where indicated.
- B. Related Sections include the following:
 - 1. Division 7 Section "Fire-Resistive Joint Systems" for head-of-wall assemblies that incorporate gypsum board shaft-wall assemblies.

1.3 SUBMITTALS

- A. Product Data: For each gypsum board shaft-wall assembly indicated.

1.4 QUALITY ASSURANCE

- A. Fire-Resistance Ratings: Provide materials and construction identical to those of assemblies with fire-resistance ratings determined according to ASTM E 119 by a testing and inspecting agency.

1.5 DELIVERY, STORAGE, AND HANDLING

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

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Comply with ASTM C 840 requirements or with 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, moisture damaged, or mold damaged.
 - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, and 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 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. American Gypsum Company.
 - 2. BPB America Inc.
 - 3. G-P Gypsum.
 - 4. Lafarge North America Inc.
 - 5. National Gypsum Company.
 - 6. PABCO Gypsum.
 - 7. Temple-Inland Forest Products Corporation.
 - 8. USG Corporation.

2.2 GYPSUM BOARD SHAFT-WALL ASSEMBLIES, GENERAL

- A. Provide materials and components complying with requirements of fire-resistance-rated assemblies indicated.
 - 1. Provide panels in maximum lengths available to eliminate or minimize end-to-end butt joints.
 - 2. Provide auxiliary materials complying with gypsum board shaft-wall assembly manufacturer's written recommendations.

2.3 PANEL PRODUCTS

- A. Gypsum Liner Panels: Comply with ASTM C 442/C 442M.
 - 1. Type X: Manufacturer's proprietary liner panels with moisture-resistant paper faces.
 - a. Core: 1 inch thick.
 - b. Long Edges: Double bevel.

- B. Gypsum Board: As specified in Division 9 Section "Gypsum Board."
- C. Cementitious Backer Units: As specified in Division 9 Section "Gypsum Board."

2.4 NON-LOAD-BEARING STEEL FRAMING.

- A. Framing Members: Comply with ASTM C 754 for conditions indicated.
- B. Steel Sheet Components: Comply with ASTM C 645 requirements for metal, unless otherwise indicated.
 - 1. Protective Coating: ASTM A 653/A 653M, G40 or coating with equivalent corrosion resistance, hot-dip galvanized, unless otherwise indicated.

2.5 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced product standards and manufacturer's written recommendations.
- B. Trim Accessories: Cornerbead, edge trim, and control joints of material and shapes specified in Division 9 Section "Gypsum Board" that comply with gypsum board shaft-wall assembly manufacturer's written recommendations for application indicated.
- C. Gypsum Board Joint-Treatment Materials: As specified in Division 9 Section "Gypsum Board."
- D. Laminating Adhesive: Adhesive or joint compound recommended by manufacturer for directly adhering gypsum face-layer panels to backing-layer panels in multilayer construction.
 - 1. Use adhesives that have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
- E. Steel Drill Screws: ASTM C 1002, unless otherwise indicated.
 - 1. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.
- F. Track Fasteners: Power-driven fasteners of size and material required to withstand loading conditions imposed on shaft-wall assemblies without exceeding allowable design stress of track, fasteners, or structural substrates in which anchors are embedded.
 - 1. Expansion Anchors: Fabricated from corrosion-resistant materials, with capability to sustain, without failure, a load equal to 5 times design load, as determined by testing per ASTM E 488 conducted by a qualified testing agency.
- G. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing), produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.
 - 1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.

- H. Acoustical Sealant: As specified in Division 7 Section "Joint Sealants."
 - 1. Provide sealants that have a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.6 GYPSUM BOARD SHAFT-WALL ASSEMBLIES

- A. Fire-Resistance Rating: As indicated.
- B. STC Rating: 51, minimum or as indicated.
- C. Studs: Manufacturer's standard profile for repetitive members, corner and end members, and fire-resistance-rated assembly indicated.
 - 1. Depth: As indicated.
 - 2. Minimum Base-Metal Thickness: 0.0329 inch.
- D. Runner Tracks: Manufacturer's standard J-profile track with long-leg length as standard with manufacturer, but at least 2 inches long and in depth matching studs.
 - 1. Minimum Base-Metal Thickness: Matching steel studs.
- E. Firestop Tracks: Top runner manufactured to allow partition heads to expand and contract with movement of 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. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Dietrich Metal Framing; The System by Metal-Lite, Inc.
 - b. Fire Trak Corp.; Fire Trak attached to studs with Fire Trak Slip Clip.
- F. Jamb Struts: Manufacturer's standard J-profile strut with long-leg length of 3 inches, in depth matching studs, and not less than 0.0329 inch thick.
- G. Room-Side Finish: As indicated.
- H. Shaft-Side Finish: As indicated by fire-resistance-rated assembly design designation.
- I. Insulation: Sound attenuation blankets.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates to which gypsum board shaft-wall assemblies attach or abut, with Installer present, including hollow-metal frames, elevator hoistway door frames, cast-in anchors, and

structural framing. Examine for compliance with requirements for installation tolerances and other conditions affecting performance.

- B. Examine panels before installation. Reject panels that are wet, moisture damaged, or mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Sprayed Fire-Resistive Materials: Coordinate with gypsum board shaft-wall assemblies so both elements of Work remain complete and undamaged. Patch or replace sprayed fire-resistive materials removed or damaged during installation of shaft-wall assemblies to comply with requirements specified in Division 7 Section "Sprayed Fire-Resistive Materials."
 - 1. Before sprayed fire-resistive materials are applied, attach offset anchor plates or ceiling runner tracks to surfaces indicated to receive sprayed fire-resistive materials. Where offset anchor plates are required, provide continuous plates fastened to building structure not more than 24 inches o.c.
- B. After sprayed fire-resistive materials are applied, remove only to extent necessary for installation of gypsum board shaft-wall assemblies and without reducing the fire-resistive material thickness below that which is required to obtain fire-resistance rating indicated. Protect remaining fire-resistive materials from damage.

3.3 INSTALLATION

- A. General: Install gypsum board shaft-wall assemblies to comply with requirements of fire-resistance-rated assemblies indicated, manufacturer's written installation instructions, and the following:
 - 1. ASTM C 754 for installing steel framing except comply with framing spacing indicated.
 - 2. Division 9 Section "Gypsum Board" for applying and finishing panels.
 - 3. Division 9 Section "Gypsum Board" for cementitious backer units.
- B. Do not bridge architectural or building expansion joints with shaft-wall assemblies; frame both sides of expansion joints with furring and other support.
- C. Install supplementary framing in gypsum board shaft-wall assemblies around openings and as required for blocking, bracing, and support of gravity and pullout loads of fixtures, equipment, services, heavy trim, furnishings, and similar items that cannot be supported directly by shaft-wall assembly framing.
 - 1. At elevator hoistway entrance door frames, provide jamb struts on each side of door frame.
 - 2. Where handrails directly attach to gypsum board shaft-wall assemblies, provide galvanized steel reinforcing strip with 0.0312-inch minimum thickness of base (uncoated) metal, accurately positioned and secured behind at least 1 face-layer panel.

- D. Integrate stair hanger rods with gypsum board shaft-wall assemblies by locating cavity of assemblies where required to enclose rods.
- E. At penetrations in shaft wall, maintain fire-resistance rating of shaft-wall assembly by installing supplementary steel framing around perimeter of penetration and fire protection behind boxes containing wiring devices, elevator call buttons, elevator floor indicators, and similar items.
- F. Isolate perimeter of gypsum panels from building structure to prevent cracking of panels, while maintaining continuity of fire-rated construction.
- G. Firestop Tracks: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.
- H. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect, while maintaining fire-resistance rating of gypsum board shaft-wall assemblies.
- I. Seal gypsum board shaft walls with acoustical sealant at perimeter of each assembly where it abuts other work and at joints and penetrations within each assembly. Install acoustical sealant to withstand dislocation by air-pressure differential between shaft and external spaces; maintain an airtight and smoke-tight seal; and comply with ASTM C 919 requirements or with manufacturer's written instructions, whichever are more stringent.
- J. In elevator shafts where gypsum board shaft-wall assemblies cannot be positioned within 4 inches of the shaft face of structural beams, floor edges, and similar projections into shaft, install 1/2- or 5/8-inch-thick, gypsum board cants covering tops of projections. No recesses allowed (at steel beams especially).
 - 1. Slope cant panels at least 75 degrees from horizontal. Set base edge of panels in adhesive and secure top edges to shaft walls at 24 inches o.c. with screws fastened to shaft-wall framing.
 - 2. Where steel framing is required to support gypsum board cants, install framing at 24 inches o.c. and extend studs from the projection to shaft-wall framing.
- K. 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.

3.4 PROTECTION

- A. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- B. Remove and replace panels that are wet, moisture damaged, or mold damaged.
 - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, and irregular shape.
 - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

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END OF SECTION

GYPSUM BOARD SHAFT-WALL ASSEMBLIES
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SECTION 09310 – TILE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes new wall and floor tile in areas indicated to receive new tile flooring, preparation of slabs, and installation of new quarry tile flooring.

- 1. This Section includes the following:

- a. Glazed wall tile at toilet rooms for thinset application.
 - b. Ceramic mosaic tile at Room 103 toilet rooms, for thinset application.
 - c. Porcelain floor tile at other toilet rooms, elevator lobbies, stair treads and other locations where indicated, for thinset application.
 - d. Stone thresholds.

- B. Related Sections include the following:

- 1. Division 7 Section "Joint Sealants" for sealing of control, and isolation joints in tile surfaces.
 - 2. Division 9 Section "Gypsum Board Assemblies" for cementitious backer units.

1.3 DEFINITIONS

- A. Module Size: Actual tile size (minor facial dimension as measured per ASTM C 499) plus joint width indicated.
- B. Facial Dimension: Nominal tile size as defined in ANSI A137.1.

1.4 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.

1.5 SUBMITTALS

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

- B. Samples for Initial Selection: For each type of tile and grout indicated. Include Samples of accessories involving color selection.
- C. Samples for Verification:
 - 1. Full-size units of each type and composition of tile and for each color and finish required.
- D. Qualification Data: For Installer.

1.6 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.
- C. Mockups: Build mockups to verify selections made under sample Submittals and to demonstrate aesthetic effects and qualities of materials and execution. Mockups shall be approximately 24" square with tile pattern and grout proposed for the final work.
 - 1. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

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. Store liquid latexes in unopened containers and protected from freezing.

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.
 - 1. Provide tile complying with Standard grade requirements, unless otherwise indicated.
 - 2. For facial dimensions of tile, comply with requirements relating to tile sizes specified in Part 1 "Definitions" Article.
- 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 selected by Architect from manufacturer's full range.
- 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.
 - 1. Where tile is indicated for installation in wet areas, do not use back- or edge-mounted tile assemblies unless tile manufacturer specifies in writing that this type of mounting is suitable for installation indicated and has a record of successful in-service performance.

2.2 GLAZED WALL TILE PRODUCTS

- A. Manufacturers for Glazed Wall Tile:
 - 1. American Marazzi Tile, Inc.
 - 2. American Olean; Div. of Dal-Tile International Corp.
 - 3. Daltile; Div. of Dal-Tile International Inc.
 - 4. Monarch Tile, Inc.
 - 5. United States Ceramic Tile Company.
- B. Glazed Wall Tile: Flat tile for Toilet Room 103 as follows:
 - 1. American Olean MT25 Ice White tile.
 - 2. Module Size: 3 by 6 inches, as indicated on drawings.
 - 3. Thickness: 5/16 inch.
 - 4. Face: Plain with cushion edges.
 - 5. Finish: Bright, opaque glaze selected from manufacturer's full range.
 - 6. Mounting: Factory back-mounted in pattern as indicated.

- C. Glazed Wall Tile: Flat tile for all toilet rooms, except Toilet Room 103, as follows:
 - 1. Module Size: 8 by 12 inches, as indicated on drawings.
 - 2. Thickness: 5/16 inch.
 - 3. Face: Plain.
 - 4. Finish: Bright, opaque glaze selected from manufacturer's full range.
 - 5. Mounting: Factory back-mounted in pattern as indicated. Align joints with floor tile joints.

- D. Glazed Wall Tile Trim Units: Matching characteristics of adjoining flat tile and coordinated with sizes and coursing of adjoining flat tile where applicable. Provide shapes as required, selected from manufacturer's standard shapes.

2.3 CERAMIC MOSAIC FLOOR TILE PRODUCT

- A. Manufacturer of Ceramic Mosaic Floor Tile:
 - 1. Daltile; Div. of Dal-Tile International Inc.

- B. Unglazed Ceramic Mosaic Tile: Flat tile for Toilet Room 103 as follows:
 - 1. Daltile, Matte White with 21 Black Gloss Dot 6501
 - 2. Composition: Porcelain.
 - 3. Surface: Slip-resistant.
 - 4. Module Size: Matt white octagons about 2-1/4" face-to-face and gloss 3/4 by 3/4 inch gloss black squares.
 - 5. Nominal Thickness: 1/4 inch.
 - 6. Face: Plain with cushion edges.

2.4 PORCELAIN FLOOR TILE PRODUCT

- A. Manufacturer of Porcelain Floor Tile:
 - 1. Casalgrande Padana
Rep: Shep Brown Associates
24 Cummings Park, Woburn, MA 01801
(781) 935-2090.

- B. Porcelain Floor Tile: Flat tile for all tiled floors, except Toilet Room 103, as follows:
 - 1. Style: Granitogres, Matraia
 - 2. Composition: Porcelain.
 - 3. Surface: Slip-resistant.
 - 4. Floor Module Size: 12" x 18".
 - 5. Tread Module Size: "Steptread" Special Trim, 12" x 12".
 - 6. Nominal Thickness: 1/4 inch.
 - 7. Face: Plain.
 - 8. Mounting: Align tread joints with floor joints.

2.5 STONE PRODUCTS

- A. Varieties and Sources: Subject to compliance with requirements for each stone product type, provide one of the stone varieties indicated.
 - 1. Where threshold types are identical to tile types except for size or finish, provide same variety from same source for each type.
- B. Abrasion Resistance: Provide stone with a value of not less than 10, as determined per ASTM C 1353 or ASTM C 241.
- C. Provide stone products that are free of defects impairing their function for use indicated, including cracks, seams, and starts.
- D. Slate Thresholds for use at door thresholds between Tile and other finishes: ASTM C 629, Classification I Exterior, with fine, even grain and honed finish.
 - 1. Description: Uniform, black stone.

2.6 SETTING AND GROUTING MATERIALS

- A. Provide products of the following manufacturers or approved equal:
 - 1. Bonsal, W. R., Company.
 - 2. Bostik.
 - 3. DAP, Inc.
 - 4. LATICRETE International Inc.
 - 5. MAPEI Corporation.
 - 6. TEC Specialty Products Inc.
- B. Latex-Portland Cement Mortar (Thin Set) Installation Materials: ANSI A118.4, consisting of the following:
 - 1. Prepackaged dry-mortar mix combined with acrylic resin or styrene-butadiene-rubber liquid-latex additive.
 - a. For wall applications, provide nonsagging mortar that complies with Paragraph F-4.6.1 in addition to the other requirements in ANSI A118.4.
 - 2. Standard Unsanded Cement Grout: ANSI A118.6, color as selected.

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.

- C. Grout Sealer: Manufacturer's standard silicone product for sealing grout joints that does not change color or appearance of grout.
 - 1. Provide products of the following manufacturers or approved equal:
 - a. Bonsal, W. R., Company; Grout Sealer.
 - b. Bostik; CeramaSeal Grout Sealer.
 - c. MAPEI Corporation; KER 003, Silicone Sealer for Cementitious Tile Grout.
 - d. TEC Specialty Products Inc.; TA-257 Silicone Grout Sealer.

2.8 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 coatings that are incompatible with tile-setting materials including curing compounds and other substances that contain soap, wax, oil, or silicone; and comply with flatness tolerances required by ANSI A108.01 for installations indicated.
 - 2. Verify that concrete substrates for tile floors installed with bonded mortar bed or thin-set mortar comply with surface finish requirements in ANSI A108.01 for installations indicated.
 - a. Verify that surfaces that received a steel trowel finish have been mechanically scarified.
 - b. Verify that protrusions, bumps, and ridges have been removed by sanding or grinding.
 - 3. 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.
 - 4. 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. 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.
- B. 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 INSTALLATION, GENERAL

- A. 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 in ceramic tile installation schedules.
- B. TCA Installation Guidelines: TCA's "Handbook for Ceramic Tile Installation." Comply with TCA installation methods indicated in ceramic tile installation schedules.
- C. 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.
- D. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.
- E. Jointing Pattern: Lay tile in pattern as indicated. 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.
- F. Joint Widths: Unless otherwise indicated, install tile with the following joint widths:
 - 1. Ceramic Mosaic Tile: 1/16 inch.
 - 2. Glazed Wall Tile: 1/16 inch.
 - 3. Stone Tile: 1/4 inch.
- G. Expansion Joints: Extend existing expansion joints and other sealant-filled joints, including control, contraction, and isolation joints. Do not saw-cut joints after installing tiles.
 - 1. Prepare joints and apply sealants to comply with requirements in Division 7 Section "Joint Sealants."

- H. Grout tile to comply with requirements of the following tile installation standards:
 - 1. For ceramic tile grouts (sand-portland cement; dry-set, commercial portland cement; and latex-portland cement grouts), comply with ANSI A108.10.

3.4 FLOOR TILE INSTALLATION

- A. General: Install tile to comply with requirements in this Section, including those referencing TCA installation methods and ANSI A108 Series of tile installation standards.
 - 1. Joint Widths: 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.
- B. Grout Sealer: Apply grout sealer to cementitious grout joints according to grout-sealer manufacturer's written instructions. As soon as grout sealer has penetrated grout joints, remove excess sealer and sealer that has gotten on tile faces by wiping with soft cloth.

3.5 INSTALLATION TOLERANCES

- A. Variation in Surface Plane of Flooring: Do not exceed 1/8 inch in 10 feet from level indicated when tested with a 10-foot straightedge.
- B. Variation in Plane between Adjacent Units (Lipping): Do not exceed the following differences between faces of adjacent units as measured from a straightedge parallel to tiled surface:
 - 1. Units with Honed Faces: 1/64 inch.
- C. Variation in Joint Width: Do not vary joint thickness more than 1/16 inch or one-fourth of nominal joint width, whichever is less.

3.6 WALL TILE INSTALLATION

- A. Install types of tile designated for wall installations to comply with requirements in this Section, including those referencing TCA installation methods and ANSI setting-bed standards.

3.7 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.

- 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.

END OF SECTION

SECTION 09401 - MOSAIC REPAIR

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Re-grouting of existing mosaic floors where matrix is cracked.
 - 2. Repair and replacement of mosaic stone tiles that are damaged, missing or adversely affected by construction operations. Replacement of matrix.
 - 3. Regrind, polish and seal mosaic floors.
- B. Related Sections:
 - 1. Division 1 Section "Selective Demolition" for demolition work at mosaic.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Mosaic Tile Samples for Matching and Verification: Obtain examples of each type of mosaic tile requiring replacement by removing existing sample tiles and delivering them to the Architect. Submit samples of proposed matching mosaic tiles for review. Label each proposed sample with stone type and source. Where match is not judged satisfactory by the Architect, propose alternate samples until a satisfactory match is obtained.
- C. Grout Matching: Cut out sample of existing grout from a hidden location and deliver to Architect with samples of proposed matching grout. Where match is not judged satisfactory by the Architect, propose alternate samples until a satisfactory match is obtained.
- D. Remaining paragraphs are defined in Division 1 Section "Submittal Procedures" as "Informational Submittals."
- E. Qualification Data: For qualified Installer.
- F. Material Certificates: For each type of material or product, from manufacturer.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: An installer who is a contractor member of NTMA who has completed flooring restoration similar in material, design, and extent to that indicated for this Project and whose work has resulted in flooring installations with a record of successful in-service performance.
- B. Source Limitations for Aggregates: Obtain each color, grade, type, and variety of granular materials from one source with resources to provide materials of consistent quality in appearance and physical properties.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to Project site in supplier's original wrappings and containers, labeled with source's or manufacturer's name, material or product brand name, and lot number if any.
- B. Store materials in their original, undamaged packages and containers, inside a well-ventilated area protected from weather, moisture, soiling, extreme temperatures, and humidity.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Maintain temperature above 50 deg F for 48 hours before and during installation.
- B. Control and collect dust produced by grinding operations. Protect adjacent construction from detrimental effects of grinding operations.

PART 2 - PRODUCTS

2.1 PORTLAND CEMENT MATRIX

- A. Materials:
 - 1. Portland Cement: ASTM C 150, Type 1.
 - a. Color for Exposed Matrix: As required by mix to match existing grout matrix.
 - 2. Water: Potable.
 - 3. Sand: ASTM C 33.
 - 4. Matrix Pigments: Pure mineral or synthetic pigments, alkali resistant, durable under exposure to sunlight, and compatible with matrix.
 - 5. Bonding Agent: Neat portland cement or epoxy or acrylic bonding agents formulated for use with tiles.

2.2 STONE MOSAIC TILES

- A. Tiles matching existing mosaic tiles in stone variety, color, size and thickness.

2.3 MISCELLANEOUS MATERIALS

- A. Accessory Strips: Match divider strip width, material, and color of existing strips unless otherwise indicated. Use the following types of accessory strips as required to provide a complete installation:
 - 1. Edge-bead strips for exposed edges of mosaic.
- B. Floor Sealer: Colorless, slip- and stain-resistant sealer that does not affect color or physical properties of stone or grout surfaces, as recommended by stone producer for application indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.
- B. Proceed with installation only after unsatisfactory conditions, including levelness tolerances, have been corrected.

3.2 PREPARATION

- A. Protect the approaches to the work area by laying drop cloths over floors and stairs.
- B. Apply blue painter's tape to woodwork adjacent to the floor and cover apparently vulnerable areas with plastic sheeting. Cover unused electrical outlets to prevent accidental short circuits when using water on the floor.
- C. Establish proper ventilation and lighting.

3.3 TILE REPLACEMENT AND RE-GROUTING

- A. Replace missing and damaged mosaic tiles. Maintain geometric and color patterns of existing floors in order to integrate repair work with existing floor tiles. Follow recommendations of NTMA for setting tiles.
- B. Where accessory strips at mosaic work are missing or damaged, replace with new strips matching existing.
- C. Treat broken, loose and missing grout
 - 1. Examine grout. Broken, loose and missing grout may be removed and replaced before water is used on the floor to minimize the absorption of moisture by the edges of the stones.
 - 2. Remove broken or loose grout using hand tools. Only use mechanical means of grout removal when there is no risk of damage to stone tiles.

3. Install new grout, and clean up installation.
4. Allow grout to dry (cure); this may require 3 to 5 days.

3.4 MECHANICALLY RESURFACE THE FLOOR

- A. Fine Grinding: Grind with stones 120 grit or finer until all grout is removed from surface and stones and matrix are smooth, clean and without lippage. Repeat grout coat if voids exist after initial fine grinding.
- B. After the finest abrasive pad has left the floor smooth, replace the grinding wheels with an appropriate polishing pad. Working in a small area at a time, polish the floor. As soon as an area has been polished, rinse and vacuumed up the residue. Thoroughly scrub, rinse and, neutralize the chemical balance on the surface of the stone tiles and grout. Remove moisture with wet vacuum. Clean and dry the floor. The required drying time will depend on the porosity of the stone and the ambient moisture.

3.5 SEALING

- A. Apply sealer to cleaned floor according to sealer manufacturer's written instructions.

3.6 PROTECTION

- A. Prohibit traffic from floors for a minimum of 72 hours.
- B. Protect floors during construction with nonstaining kraft paper. Where adjoining areas require construction work access, cover floors with a minimum of 3/4-inch untreated plywood over nonstaining kraft paper.

END OF SECTION

SECTION 09511 - 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 1 Specification Sections, apply to this Section.

1.2 DESCRIPTION OF WORK

- A. Work furnished and installed: Provide labor, materials and equipment necessary to complete the work of this Section including, but not limited to, the following:
 - 1. Acoustical panels and exposed suspension systems for ceilings.
 - 2. Acoustical sealant between suspension system edge trim and wall or fascia surface.

1.3 SUBMITTALS

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

1.4 QUALITY ASSURANCE

- A. Source Limitations:
 - 1. Acoustical Ceiling Panel: Obtain each type 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:
- C. Seismic Standard: Provide acoustical panel ceilings designed and installed to withstand the effects of earthquake motions according to the following:

1. Standard for Ceiling Suspension Systems Requiring Seismic Restraint: Comply with ASTM E 580.

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.

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.
- B. Acoustical Panel Colors and Patterns: Match appearance characteristics indicated for each product type.

2.2 ACOUSTICAL PANEL PRODUCTS

- A. Basis-of-Design Products: Subject to compliance with requirements, provide the product indicated in the Schedule at the end of this Section, or a comparable product by one of the listed manufacturers.

- B. Panel Systems: Provide each panel system from one of the following manufacturers or approved equal:
 - 1. Armstrong World Industries
 - 2. Celotex Corporation
 - 3. USG Interiors Inc.
- C. Suspension Systems: Provide each suspension system from one of the following manufacturers or approved equal:
 - 1. Armstrong World Industries, Inc.
 - 2. BPB USA.
 - 3. Chicago Metallic Corporation.
 - 4. Fry Reglet Corporation.
 - 5. Gordon, Inc.
- D. Classification and Pattern: As indicated by manufacturer's designation.
- E. Color: White
- F. Edge Detail: Square for concealed suspension systems, reveal designed and sized to fit flange of exposed suspension system members.
- G. Thickness: 3/4 inch unless otherwise indicated
- H. Size: As indicated in the Reflected Ceiling Plans and Schedule.

2.3 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.
- C. Attachment Devices: Size for five times the design load indicated in ASTM C 635, Table 1, "Direct Hung," unless otherwise indicated.
 - 1. 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.
- 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. 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 0.135-inch- diameter wire.
- E. Hanger Rods or Flat Hangers: Mild steel, zinc coated or protected with rust-inhibitive paint.

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

2.4 METAL SUSPENSION SYSTEMS FOR ACOUSTICAL PANEL CEILINGS

- A. Wide-Face, Capped, Double-Web, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet, prepainted, electrolytically zinc coated, or hot-dip galvanized according to ASTM A 653/A 653M, not less than G30 coating designation, with prefinished metal caps on flanges.
 - 1. Structural Classification: Heavy-duty system.
 - 2. End Condition of Cross Runners: Butt-edge type.
 - 3. Face Design: As indicated in the Schedule.
 - 4. Cap Material: Steel cold-rolled sheet.
 - 5. Cap Finish: Painted white.

2.5 METAL EDGE MOLDINGS AND TRIM

- A. Roll-Formed Sheet-Metal Edge Moldings and Trim: 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. Provide "Shadow" type profile to create reveal edge.

2.6 ACOUSTICAL SEALANT

- A. Products: Subject to compliance with requirements, provide one of the following or approved equal:
 - 1. Provide the following Acoustical Sealant for Concealed Joints or approved equal:
 - a. OSI Sealants, Inc.; Pro-Series SC-175 Rubber Base Sound Sealant.
 - b. Pecora Corporation; BA-98.
 - c. Tremco, Inc.; Tremco Acoustical Sealant.

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. 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. Secure flat, angle, channel, and rod hangers to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices that are secure and appropriate for both structure to which hangers are attached and type of hanger involved. Install hangers in a manner that will not cause them to deteriorate or fail due to age, corrosion, or elevated temperatures.
 - 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. 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.
- 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. Arrange directionally patterned acoustical panels as follows:
 - a. Install panels with pattern running in one direction parallel to short axis of space.
2. For square-edged panels, install panels with edges fully hidden from view by flanges of suspension system runners and moldings.
3. For reveal-edged panels on suspension system members with box-shaped flanges, install panels with reveal surfaces in firm contact with suspension system surfaces and panel faces flush with bottom face of runners.
4. 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.

3.5 SCHEDULE OF ACOUSTICAL PANEL CEILING SYSTEMS

- A. Refer to the finish schedule and reflected ceiling plans for exact locations of system.
 1. Location: As indicated in reflected ceiling plans.
 2. Basis of Design Manufacturer: Armstrong
 3. Basis of Design Tile: "Ultima"
 4. Size: 24" x 24" and 24" x 12" as indicated
 5. Basis of Design Grid: "Interlude XL" 9/16" Dimensional Tee System
 6. Grid Size: 12" and 24" grid as indicated

END OF SECTION

SECTION 09610 - INTERIOR MASONRY RESTORATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 EXISTING CONDITIONS

- A. Existing interior stone surfaces to be restored under this Section include permanent construction materials that have been in place for approximately one hundred years. The condition of these materials, including a range of surface soiling and wear, is consistent with the building's occupancy as a public library during that period of time.
- B. Existing interior stone surfaces to be restored under this Section include the following, which are indicated on drawings and schedules:
 - 1. Slate flooring and stair treads.
 - 2. Granite wall base and other stone trim.
 - 3. Brick fireplace surrounds, hearths and trim.

1.3 SUMMARY

- A. Provide labor, materials and equipment necessary to complete the work of this Section as shown on the drawings, including but not limited to the following:
 - 1. Cleaning and stain removal from existing interior stone.
 - 2. Performing test installations are required to demonstrate adequate cleaning without damage to substrate. Modify the cleaning procedures or materials as required for each specific substrate, condition of soiling or specific stain until results acceptable to the Architect are obtained. Staining types include body oils, atmospheric soils, floor waxes and floor varnish drips onto stone surfaces.
 - 3. Installation of penetrating sealer at flooring and base after completion of cleaning. Sealer is not required at vertical surfaces or at stair treads and intermediate landings.

1.4 QUALITY ASSURANCE

- A. Personnel: Employ only a specialty subcontractor with an established record in historical restoration work and at least five years of experience to perform the work of this Section. Each mechanic shall have demonstrable experience in the careful techniques required to perform this work properly.

- B. Protect all surfaces not scheduled for cleaning including wood, metal, glass, painted finishes, plaster, paint, decorative finishes, works of art including sculptures, plaques, paintings, mechanical and electrical equipment. Provide mock-up of protection system for review by the Architect prior to commencement of the Work in each area.
 - 1. Protect all air intakes, chases, etc., to prevent spread of materials, vapors, fumes and noise.
 - 2. Prevent water penetration beyond work area. Provide adequate labor and equipment to maintain minimum moisture on floor surfaces during the execution of wet activities.
 - 3. Provide all safety equipment, respirators, protective clothing, etc., as required by governing regulations and as necessary for protection of mechanics, supervisors, etc., and for protection of the building.

- C. Cleaning Field Samples and Mock-ups:
 - 1. Field samples, General:
 - a. Demonstrate that method for application of cleaning materials and method of rinsing the surface will produce even and adequate level of cleaning/stain removal without streaks or misses. Provide additional test area installations, including the use of supplemental or additional cleaners as required, to obtain cleaning acceptable to the Architect within the base scope of this Section.
 - b. Difficult to clean areas may require second application, or application of specific stain cleaners or additional cleaning materials or concentrations which are included under the base scope of work.
 - c. Demonstrate how run-off water will be controlled and collected. Obtain Architect's approval of procedures.
 - d. Demonstrate how materials not scheduled for cleaning will be protected.

 - 2. Field samples:
 - a. Slate flooring: Two samples Provide samples that include the removal of all existing coatings and waxes. Sample shall be approximately 4' x 4', but bounded by existing stone joints.
 - b. Granite base: Two samples Provide samples that include the removal of all existing coatings and waxes. Sample shall be approximately 4' long, but bounded by existing stone joints.
 - c. Brick at fireplace: Two samples. Provide samples that include removal of all soiling. Sample shall be approximately 18" square.

- D. Keep work areas free of debris and contain cleaning or other material to keep it from spreading into adjacent areas. Remove materials to collection areas and ultimately from job site on a daily basis.

- E. Protection: Protect cleaned wall and floor surfaces with heavy non-staining paper, polyethylene or non-staining walk panels during on-going construction. Remove all construction soil, dust and protection for inspection of the substrates before final acceptance of the Work. All activities shall be phased to prevent damage to materials and finishes provided under the work of this Section.

1.5 SUBMITTALS

- A. Product Literature: Submit full literature describing products to be used to clean, polish, grout and repair stone. Submit MSDS for all products.
- B. Plan of Work: A written plan of work describing the phasing of the work and proposed work sequence including program detailing protection plan for adjoining surfaces.
- C. Provide new, unopened, labeled containers of all cleaners, and sealers in containers not larger than five (5) gallons for liquids or (5) pounds for solids for review by the Architect at the site.

1.6 ENVIRONMENTAL CONDITIONS

- A. Air Temperature: Limit cleaning to times when interior air temperatures are between 50 and 80 degrees F.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Deliver products in original unopened bags, buckets and cans bearing manufacturer's labels. No packages larger than 5 gallons, or weighing more than 100 pounds shall be permitted. Store only in designated areas in closed, labeled containers.
- B. Cleaning materials: Store products in designated and secured areas only and protected so that they remain dry.

PART 2 – PRODUCTS

2.1 GENERAL CLEANING EQUIPMENT AND MATERIALS

- A. Water for cleaning: Clean, potable.
- B. Polishing brushes: Tampico bristle.
- C. Scrubbing Brushes: Stiff natural fiber bristle brushes only.
- D. Plastic, wooden or stainless steel tools for mixing, scraping and troweling.
- E. Sponges: Best quality natural sponge.
- F. Hand pump spray equipment for application of cleaners.
- G. Applying rinse water for chemical cleaners, Low volume high pressure water pump (Airless paint sprayers).
- H. Removing rinse water, wet vacuum cleaners of adequate capacity to prevent water build-up on floors.

- I. Polyethylene sheets to damp and direct water to pick-up vacuums.
- J. Kraft paper and walkable boards for protecting completed floors. Non-staining boards, polyethylene sheet, kraft paper, tape, strapping and misc. hardware as required to protect adjoining finishes and surfaces, and completed work.

2.2 CLEANING MATERIALS

- A. General stone cleaners, preferred products: Slate and Granite: Liquid Cleaners as manufactured by SureKlean, Miracle Sealants, Marblelite, or approved equal.
- B. Special purpose cleaners for removal of wax, varnish and/or paint; additional cleaners. Acceptable products, as suitable for each purpose:
 - 1. Sure Klean products as manufactured by ProSoco, Inc., Kansas City, Kansas
 - a. 859 Stripper - Wax Removal
 - 2. Hydroclean products as manufactured by Hydrochemical Techniques, Hartford, CT.
 - a. Epoxy and Urethane Remover (350) - Wax Removal
 - b. Solvent Paint Remover (300)
 - c. Adhesive Remover (HT-40)
 - 3. Equal products as manufactured by Deidrich, Peel Away or Hillyard.

2.3 FLOOR SEALER

- A. Penetrating Floor sealer: 511 Impregnator, Miracle Sealants, Azusa, CA, or equal by Hillyard or Marbleite.

PART 3 – EXECUTION

3.1 INSPECTION AND ACCEPTANCE

- A. Examine all surfaces and contiguous elements to receive work of this section and correct, as part of the Work of this Contract, any defects affecting installation. Commencement of work will be construed as complete acceptability of surfaces and contiguous elements.

3.2 CLEANING, SPECIFIC

- A. Coating and wax removal: Test materials for wax and coating removal. Apply wax and coating remover following manufacturer's directions for the purpose of removing wax and coatings. Scrub as necessary with brushes, or floor machine on horizontal surfaces. Repeat as necessary to completely remove dirt/wax build-up. For repeat applications, ammoniated removers may be

alternated with organic remover for additional effectiveness. Pick up dirty cleaning solution with a suction wet/dry vacuum.

3.3 CLEAN-UP

- A. Remove and dispose of all masking and protective materials following completion of cleaning operations to allow final inspection by Architect. Remove all dust and residues from cleaned surfaces and protect floors after completion of stone cleaning.

END OF SECTION

SECTION 09640 - WOOD FLOORING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following: New wood strip flooring for use in Librarian Office 113, Staff Meeting Room 112, and Conference Room 109.
- B. Related Sections include the following:
 - 1. Division 6 Section "Rough Carpentry" for wood substrates, including subflooring.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Verification: For each type of wood flooring and accessory, with stain color and finish required, approximately 12 inches long and of same thickness and material indicated for the Work. Include sample sets showing the full range of normal color and texture variations expected.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed wood flooring similar in material, design, and extent to that indicated for this Project and whose work has resulted in wood flooring installations with a record of successful in-service performance.
- B. Source Limitations: Obtain each type of material and product from one source with resources to provide materials and products of consistent quality in appearance and physical properties.
- C. Hardwood Flooring: Comply with NOFMA grading rules for species, grade, and cut.
 - 1. Certification: Provide flooring that carries NOFMA grade stamp on each bundle or piece.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver wood flooring materials in unopened cartons or bundles.

- B. Protect wood flooring from exposure to moisture. Do not deliver wood flooring until after concrete, masonry, plaster, ceramic tile, and similar wet-work is complete and dry.
- C. Store wood flooring materials in a dry, warm, well-ventilated, weathertight location.
- D. Move wood flooring into spaces where it will be installed, at least seven days before installation.

1.6 PROJECT CONDITIONS

- A. Conditioning: Maintain relative humidity planned for building occupants and an ambient temperature between 65 and 75 deg F in spaces to receive wood flooring for at least seven days before installation, during installation, and for at least seven days after installation. After post-installation period, maintain relative humidity and ambient temperature planned for building occupants.
 - 1. Open sealed packages to allow wood flooring to acclimatize.
 - 2. Do not install flooring until it adjusts to the relative humidity of and is at the same temperature as the space where it is to be installed.
 - 3. Close spaces to traffic during flooring installation and for time period after installation recommended in writing by flooring and finish manufacturers.

PART 2 - PRODUCTS

2.1 SOLID-WOOD STRIP FLOORING

- A. Strip Flooring: Provide kiln-dried wood flooring as follows:
 - 1. Species and Grade: Select Red Oak (*Quercus rubra*), 100% heartwood.
 - 2. Cut: Quarter/rift sawn.
 - 3. Thickness: 3/4 inch.
 - 4. Face Width: 2-1/4 inches.
 - 5. Lengths: Random-length strips complying with applicable grading rules.

2.2 FINISHING MATERIALS

- A. Urethane Finish System: Complete water-based system of compatible components that is
 - 1. VOC Content: When calculated according to 40 CFR 59, Subpart D (EPA Method 24), as follows:
 - a. Finish Coats and Floor Sealers: Not more than 350 g/L.
 - b. Stains: Not more than 250 g/L.

2.3 ACCESSORY MATERIALS

- A. Vapor Retarder: ASTM D 4397, polyethylene sheet not less than 6.0 mils thick.

- B. Felt Underlayment: ASTM D 226, Type I, No. 15, asphalt-saturated felt.
- C. Fasteners: As recommended by manufacturer, but not less than that recommended in NOFMA's "Installing Hardwood Flooring."
- D. Cork Expansion Strip: Composition cork strip complying with FS HH-C-576, Type I-B, Class 2.
- E. Trim: In same species and grade as wood flooring, unless otherwise indicated.
 - 1. Base: 5/8 inch thick by approximately 10 inches high unless otherwise indicated. At Rooms, 109, 112, 113, 209, 212, match height of fin tube radiation enclosure. See architectural drawings.
 - 2. Threshold: Tapered on each side and routed at bottom of one side to accommodate wood flooring.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements, installation tolerances, and other conditions affecting performance of wood flooring. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF WOOD FLOORING

- A. Comply with flooring manufacturer's written instructions, but not less than recommendations in NOFMA's "Installing Hardwood Flooring," as applicable to flooring type.
- B. Pattern: Lay wood flooring perpendicular to window wall.
- C. Expansion Space: Provide expansion space matching existing.
 - 1. Unless fully concealed by trim, fill expansion space with flush cork expansion strip.
- D. Felt Underlayment: Where strip or plank flooring is nailed to solid-wood subfloor, install flooring over a layer of asphalt-saturated felt.
- E. Solid-Wood Strip Flooring: In so far as possible, blind nail or staple flooring to substrate according to NOFMA's written recommendations. Where blind nailing is not possible, set nails and fill with wood filler matching final finish.

3.3 SANDING AND FINISHING

- A. Machine-sand flooring to remove offsets, ridges, cups, and sanding-machine marks that would be noticeable after finishing. Follow NOFMA recommendations.

- B. Sweep the floor clean immediately before sanding.
- C. Vacuum and tack with a clean cloth immediately before applying finish.
- D. Apply filler according to manufacturer's written instructions.
 - 1. Fill open-grained wood.
 - 2. Fill and repair seams and defects.
- E. Apply stain to match approved Sample.
- F. Apply floor sealer according to finish manufacturer's written instructions.
- G. Apply floor finish according to finish manufacturer's written instructions. Apply in number of coats recommended by finish manufacturer for application indicated, but not less than four.

3.4 PROTECTION

- A. Cover wood flooring, to protect it from damage or deterioration, before finishing. Do not cover site-finished floors with kraft paper, or any other material, until finish reaches full cure, and not until at least seven days after applying last coat. After full cure, and during remainder of construction period, maintain heavy kraft-paper or other suitable covering. Do not use plastic sheet or film that could cause condensation.
- B. Do not move heavy and sharp objects directly over floors. Protect fully cured floor finishes and surfaces with hardboard panels to prevent damage from storing or moving objects over floors.

END OF SECTION

SECTION 09651 - RESILIENT WALL BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DESCRIPTION OF WORK

- A. Work furnished and installed: Provide labor, materials and equipment necessary to complete the work of this Section including, but not limited to, the following
 - 1. Preparation of substrates to receive new resilient finishes as indicated on drawings.
 - 2. New resilient finishes as indicated on drawings:
 - a. Resilient wall base.
 - b. Other resilient accessories as indicated.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Initial Selection: For each type of product indicated.
 - 1. Include similar Samples of installation accessories involving color selection.
- C. Samples for Verification: In manufacturer's standard size, but not less than 6-by-9-inch sections of each color and pattern required.
- D. Qualification Data: For Installer.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer who employs workers for this Project that are competent in techniques required by manufacturer for floor covering installation indicated.
 - 1. Engage an installer who employs workers for this Project that are trained or certified by floor covering manufacturer for installation techniques required.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store floor coverings 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 PROJECT CONDITIONS

- A. Maintain temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 95 deg F, in spaces to receive floor tile during the following time periods:
 - 1. 72 hours before installation.
 - 2. During installation.
 - 3. 72 hours after installation.
- B. After postinstallation period, maintain temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.
- C. Close spaces to traffic during floor covering installation.
- D. Close spaces to traffic for 72 hours after floor covering installation.
- E. Install floor coverings after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 RESILIENT WALL BASE

- A. Wall Base: ASTM F 1861. Provide products of one of the following, or approved equal:
 - 1. AFCO-USA, American Floor Products Company, Inc.;
 - 2. Armstrong World Industries, Inc.;
 - 3. Azrock Commercial Flooring, DOMCO;
 - 4. Johnsonite;
 - 5. Marley Flexco (USA), Inc.;
 - 6. Mondo Rubber International, Inc.;
- B. Type (Material Requirement): TS (rubber, vulcanized thermoset) or TP (rubber, thermoplastic).
- C. Group (Manufacturing Method): I (solid).
- D. Style: Cove (with top-set toe) at areas with hard-surface flooring, straight at carpeted areas.
- E. Minimum Thickness: 0.125 inch.
- F. Height: 4 inches unless indicated otherwise.
- G. Lengths: Coils in manufacturer's standard length.

- H. Outside Corners: Premolded.
- I. Inside Corners: Premolded.
- J. Surface: Smooth.
- K. Color: As selected from the manufacturer's standard range.

2.2 INSTALLATION MATERIALS, GENERAL

- A. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.
 - 1. Use adhesives that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
 - a. Base Adhesives: 50 g/L.

PART 3 - EXECUTION

3.1 GENERAL PREPARATION

- A. Prepare substrates according to manufacturer's written recommendations to ensure adhesion of base or accessories.
- B. Move installation materials into spaces where they will be installed at least 72 hours in advance of installation.
 - 1. Do not install materials until they are same temperature as space where they are to be installed.

3.2 RESILIENT WALL BASE INSTALLATION

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

- F. Premolded Corners: Install premolded corners before installing straight pieces.

3.3 CLEANING AND PROTECTION

- A. Perform the following operations immediately after installing floor coverings:
 - 1. Remove adhesive and other surface blemishes from surfaces.
 - 2. Protect materials against mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.

END OF SECTION

SECTION 09680 - CARPET

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Broadloom carpet at locations where carpet is indicated.
- B. Related Sections include the following:
 - 1. Division 9 Section "Resilient Tile Flooring, Wall Base and Accessories" for resilient wall base and accessories installed with carpet.

1.3 SUBMITTALS

- A. Product Data: For the following, including installation recommendations for each type of substrate:
 - 1. Carpet: For each type indicated. Include manufacturer's written data on physical characteristics, durability, and fade resistance.
- B. Shop Drawings: Show the following:
 - 1. Seam locations, types, and methods.
 - 2. 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: 12-inch-square Sample.
- D. Maintenance Data: For carpet to include in maintenance manuals. Include the following:
 - 1. Methods for maintaining carpet, 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.
- E. Warranties: Special warranties specified in this Section.

1.4 DELIVERY, STORAGE, AND HANDLING

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

1.5 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 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.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Carpets must be certified under the Green Label Plus Program. Adhesives must be within VOC limits of the South Coast Air Quality Management District (SCAQMD) Rule #1168.

2.2 BROADLOOM CARPET

- A. Provide the following products of the following manufacturers or approved equal:
 - 1. Mohawk "Intrinsic", multicolored woven level patterned loop, 32 oz./SY.
 - 2. Durkan "Karma", multicolored textured loop pile, 28 oz./SY.
 - 3. Interface "Transformation", multicolored textured loop pile.
- B. Color and pattern: As selected by Architect from manufacturer's full range.
- C. Fiber Content: 100% nylon.
- D. Width: 12 feet.

2.3 INSTALLATION ACCESSORIES

- A. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided or recommended by carpet manufacturer.
- B. Adhesives: Water-resistant, mildew-resistant, nonstaining type to suit products and subfloor conditions indicated, that complies with flammability requirements for installed carpet and is recommended or provided by carpet manufacturer.
 - 1. VOC Limits: Provide adhesives with VOC content not more than 50g/L when calculated according to 40 CFR 59, Subpart D (EPA method 24).

- C. Seam Adhesive: Hot-melt adhesive tape or similar product recommended by carpet manufacturer for sealing and taping seams and butting cut edges at backing to form secure seams and to prevent pile loss at seams.
- D. Metal Edge Strips: Extruded aluminum with mill finish, of height required to protect exposed edge of carpet, and of maximum lengths to minimize running joints.

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 performance. Examine carpet 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 manufacturer.
 - 2. Subfloor finishes comply with requirements specified in Division 3 Section "Cast-in-Place Concrete" for slabs receiving carpet.
 - 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 7.3, "Site Conditions; Floor Preparation," and with carpet manufacturer's written installation instructions for preparing substrates.
- 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 manufacturer.
- D. Broom and vacuum clean substrates to be covered immediately before installing carpet.

3.3 BROADLOOM INSTALLATION

- A. Comply with CRI 104 and carpet manufacturer's written installation instructions for the following:

1. Direct-Glue-Down Installation: Comply with CRI 104, Section 9, "Direct Glue-Down Installation."
- B. Comply with carpet manufacturer's written recommendations and Shop Drawings for seam locations and direction of carpet; maintain uniformity of carpet direction and lay of pile. At doorways, center seams under the door in closed position.
- C. Do not bridge building expansion joints with carpet.
- D. Cut and fit carpet to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings. Bind or seal cut edges as recommended by carpet manufacturer.
- E. Extend carpet 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.

3.4 CLEANING AND PROTECTING

- A. Perform the following operations immediately after installing carpet:
 1. Remove excess adhesive, seam sealer, and other surface blemishes using cleaner recommended by carpet manufacturer.
 2. Remove yarns that protrude from carpet surface.
 3. Vacuum carpet using commercial machine with face-beater element.
- B. Protect installed carpet to comply with CRI 104, Section 16, "Protection of Indoor Installations."
- C. Protect carpet 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 manufacturer and carpet adhesive manufacturer.

END OF SECTION

SECTION 09912 - PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DESCRIPTION OF WORK

- A. Work Furnished and Installed: Provide labor, materials and equipment necessary to complete the work of this Section.
- B. Work furnished and installed: Provide labor, materials and equipment necessary to complete the work of this Section including, but not limited to, surface preparation and the application of paint systems on the following substrates:
 - 1. Concrete.
 - 2. Concrete masonry units (CMU).
 - 3. Steel.
 - 4. Galvanized metal.
 - 5. Aluminum (not anodized, factory finished, or otherwise coated).
 - 6. Wood.
 - 7. Gypsum board.
 - 8. Plaster.
 - 9. Refinishing of existing clear-finished wood items, including but not limited to:
 - a. Doors.
 - b. Rails that are to remain.
 - c. Display cases and display surface trim.
 - 10. Refinishing of existing ferrous metal items, including but not limited to:
 - a. Window guards.
 - b. Railings at interior stair and at exterior ramps.
- C. Related Work: The following items are not included in this Section and will be performed under the designated Sections:
 - 1. Division 5 Sections for shop priming of metal substrates with primers specified in this Section.
 - 2. Division 6 Sections for shop priming carpentry with primers specified in this Section.

1.3 SUBMITTALS

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

- B. Samples for Initial Selection: For each type of topcoat product indicated.
- C. Samples for Verification: For each type of paint system and in each color and gloss of topcoat indicated.
 - 1. Submit Samples on rigid backing, 8 inches square.
 - 2. Step coats on Samples to show each coat required for system.
 - 3. Label each coat of each Sample.
 - 4. Label each Sample for location and application area.
- D. 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.

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. VOC Standards: Paints require one of the following standards:
 - 1. Green Seal Standard GS-11 Architectural, Gc-03 Anti Corrosive Anti Rust
 - 2. South Coast Air Quality Management District Rule 113
- C. 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 and Ceiling Surfaces: Provide samples of at least 100 sq. ft.
 - b. Other Items: Architect will designate items or areas required.
 - 2. Apply benchmark samples after permanent lighting and other environmental services have been activated.
 - 3. Final approval of color selections will be based on benchmark samples.
 - a. If preliminary color selections are not approved, apply additional benchmark samples of additional colors selected by Architect at no added cost to Owner.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

1.6 PROJECT CONDITIONS

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

1.7 EXTRA MATERIALS

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

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Provide products of the following manufacturers or approved equals:
 1. Benjamin Moore & Co.
 2. Duron, Inc.
 3. PPG Architectural Finishes, Inc.
 4. Sherwin-Williams Company (The).

2.2 PAINT, GENERAL

- A. Material Compatibility:
 1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
- B. Colors shall be as selected by Architect from manufacturer's full range.
 1. Provide up to twenty (20) colors.
 2. Provide one color per each of the following items per room, in addition to any clear-finished wood items:

- a. Wall
 - b. Wall accent or wainscot (masked line)
 - c. Trim
 - d. Door
 - e. Frame
 - f. Ceiling
 - g. Metalwork, where it occurs
3. Multi-colored wall and ceiling painting: Rooms listed below are original areas in the library building, with 1930's-era decorative molded plaster surfaces at walls and ceilings. Provide up to seven colors in each room, with separate colors for doors, frames, trim areas of wall and ceiling surfaces, exposed mechanical and electrical items. Refer to finish schedule for information about existing and new materials at wall and ceiling surfaces; in some cases existing surfaces may remain unpainted.
- a. Entry 101
 - b. First Floor Reading Room 104
 - c. Cast Iron Stacks 105
 - d. Stair 01
 - e. Reading Room Vestibule 202
 - f. Second Floor Reading Room 204
 - g. Cast Iron Stacks 205
4. Architect will issue detailed color schedule to contractor.

2.3 PRODUCTS

- A. Products are listed in the Painting Schedule at the end of this section.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
1. Concrete: 12 percent.
 2. Masonry (Clay and CMU): 12 percent.
 3. Wood: 15 percent.
 4. Gypsum Board: 12 percent.
 5. Plaster: 12 percent.
- C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

- D. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.
 - 1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" and "MPI Maintenance Repainting Manual" as applicable to substrates indicated.
- B. Protect other surfaces, whether to be painted or not, from damage during painting. Use clean, dry drop cloths. Use masking tapes that can be removed without damaging or leaving residue on substrate.
- C. Remove dust, dirt, rust, scale, grease and other surface contamination. Repair minor defects in gypsum board, plaster and concrete with Spackle or patching plaster. Repair minor defects in wood with putty that is tinted to match the stain where transparent finish is applied. Sand rough areas. Prepare other areas that the manufacturer recommends and as indicated in the paint schedule. All oil, grease, soil, dust or foreign matter deposited on the surface, after the surface preparation has been completed, shall be removed prior to painting. In the event that rusting occurs, after completion of the surface preparation, the surface shall be again prepared in accordance with the specified method.
- D. Provide vacuum-assisted power tools for removing coatings. A dirty bag or filter can significantly affect a vacuum's performance, resulting in failure of the containment system. Verify that the vacuum performance specifications meet the minimal requirements for the power tools being used. When removing coatings, always consult a safety officer to ensure proper equipment set-up as well as worker and environmental protection. See the relevant safety regulations for coating removal.
- E. Touch-up bare areas and damaged shop-applied prime coats. Touch-up with the same primer as the shop coat or as the finish paint manufacturer recommends.
- F. 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.
- G. 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.

- H. 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.
- I. 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.
- J. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
- K. Ferrous Metal Substrates: Clean using methods specified and as recommended in writing by paint manufacturer. Remove paint, rust, scale.
- L. Previously Painted Ferrous Surfaces:
 - 1. Where removal of existing metalwork is possible, as at the window guards, remove the metal to a shop for cleaning. Clean as required for Steel Structural Painting Council, SSPC-SP 6: Commercial Blast Cleaning. Shop finish metalwork. Reinstall after finishing with stainless steel fasteners.
 - 2. Where removal of existing metalwork is not feasible, as at metal handrails, clean metal with a chisel-style scraper and power wire brushing. Clean as required for SSPC-SP-11: Power Tool Cleaning to Bare Metal. Use the scraper to take off heavy rust and loose paint, then follow up by power wire brushing or sanding with aluminum oxide paper of the surface to remove as much of the rust residue as possible. After cleaning scrub the surface with a detergent-and-water solution, followed by a thorough rinsing with clean water. Dry metal with rags and air-dry before application of metal primer.
- M. Aluminum Substrates: Remove surface oxidation.
- N. Wood Substrates:
 - 1. Scrape and clean knots, and apply coat of knot sealer before applying primer.
 - 2. Sand surfaces that will be exposed to view, and dust off.
 - 3. Prime edges, ends, faces, undersides, and backsides of wood.
 - 4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.
- O. Previously Painted Wood or Plaster Surfaces: For previously painted surfaces, remove surface grime by washing with detergent, TSP or sal soda solution. Rinse thoroughly with clean water until all residue is removed. Sand glossy surfaces to improve bond for new coats of paint. Scrap to remove loose paint and blisters. Sand edges of chips and blisters. Test the first coat of paint by applying it in an inconspicuous area. Allow it to dry overnight. If the paint wrinkles or lifts, remove the existing coat. Apply primer according to the manufacturer's instructions.
- P. Gypsum Board Substrates: Do not begin paint application until finishing compound is dry and sanded smooth.
- Q. Plaster Substrates: Do not begin paint application until plaster is fully cured and dry.

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 equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 - 3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
- B. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- C. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- D. Painting Mechanical and Electrical Work: Paint items exposed in equipment rooms and occupied spaces including, but not limited to, the following:
 - 1. Mechanical Work:
 - a. Uninsulated metal piping.
 - b. Uninsulated plastic piping.
 - c. Pipe hangers and supports.
 - d. Tanks that do not have factory-applied final finishes.
 - e. Visible portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets.
 - f. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
 - g. Mechanical equipment that is indicated to have a factory-primed finish for field painting.
 - 2. Electrical Work:
 - a. Switchgear.
 - b. Panelboards.
 - c. Electrical equipment that is indicated to have a factory-primed finish for field painting.

3.4 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

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

3.5 INTERIOR PAINTING SCHEDULE

- A. Interior Steel Substrates: See "Preparation" paragraph above for preparation of "Previously Painted Ferrous Surfaces."
 - 1. Alkyd System: MPI INT 5.1L.
 - a. Prime Coat: Epoxy Primer: MPI Product 101.
 - b. Topcoat: Gloss Epoxy: MPI Product 77.
- B. Interior Galvanized-Metal Substrates:
 - 1. Alkyd System: MPI INT 5.3D.
 - a. Prime Coat: Epoxy Primer: MPI Product 101.
 - b. Topcoat: Gloss Epoxy: MPI Product 77.
- C. Aluminum (Not Anodized or Otherwise Coated) Substrates:
 - 1. Latex System: MPI INT 5.4H.
 - a. Prime Coat: Quick-drying Primer for aluminum; MPI Product 95.
 - b. Two Topcoats: Interior Latex semi-gloss finish: MPI Product 54.
- D. Dressed Lumber and Millwork Substrates for Opaque Finish: Including existing opaque finished wood and carpentry items. See "Preparation" paragraph above for preparation of "Previously Painted Wood or Plaster Surfaces."
 - 1. Institutional Low Odor / VOC System: MPI INT 6.3V.
 - a. Prime Coat: Latex Primer: MPI Product 39.
 - b. Two Topcoats: Institutional Low Odor / VOC semigloss finish: MPI Product 147.
- E. Gypsum Board and Plaster Substrates: See "Preparation" paragraph above for preparation of "Previously Painted Wood or Plaster Surfaces."
 - 1. Institutional Low Odor / VOC System: MPI INT 9.2M.
 - a. Prime Coat: Latex Primer Sealer: MPI Product 50.
 - b. Two Topcoats: Institutional Low Odor / VOC flat finish: MPI Product 143.
- F. Existing Transparent Finished Woodwork:

1. Interior Waterborne Clear Satin Varnish: Factory-formulated clear satin acrylic-based polyurethane varnish applied at spreading rate recommended by manufacturer for use over existing finishes. Do not remove existing finishes in a manner that changes wood color. See "Preparation" paragraph above for preparation of "Previously Painted Wood or Plaster Surfaces."

- a. Two Topcoats: W.B. Acrylic Satin Finish Polyurethane: MPI Product 128.

G. New Transparent Finish Woodwork:

1. Waterborne Acrylic, Clear (Over Stain): MPI INT 6.3W.

- a. Stain Coat: Pigmented Stain to match existing finished wood: MPI Product 90.
 - b. Two Topcoats: W.B. Acrylic Satin Finish Polyurethane: MPI Product 128.

3.6 EXTERIOR PAINTING SCHEDULE

A. Exterior Galvanized Metal Substrates: Provide the following finish systems over exterior zinc-coated metal surfaces:

1. Epoxy System: EXT 5.3C.

- a. Prime coat: Epoxy Primer: MPI Product 101.
 - b. Two Topcoats: Gloss Epoxy: MPI Product 77.

B. Exterior Ferrous Metal Substrates: Provide the following finish systems over exterior ferrous metal surfaces: See "Preparation" paragraph above for preparation of "Previously Painted Ferrous Surfaces."

1. Epoxy System: EXT 5.1J.
2. Full-Gloss Finish: Finish coat over epoxy primers.

- a. Epoxy Primer: MPI Product 101.
 - b. First Topcoat: High Build Epoxy: MPI Product 108.
 - c. Second Topcoat Epoxy: Gloss Epoxy: MPI Product 77.

C. Existing Opaque Painted Wood Substrates: See "Preparation" paragraph above for preparation of "Previously Painted Wood or Plaster Surfaces."

1. Waterborne Light Industrial Coating: EXT 6.3J.

- a. Prime coat: Alkyd Primer: MPI Product 5.
 - b. Topcoat: W.B. Light Industrial Semi-Gloss Coating: MPI Product 163.

END OF SECTION