

## **SECTION 09 24 23 – PORTLAND CEMENT STUCCO**

### **PART 1 - GENERAL**

#### **1.01 SUMMARY**

Location and extent of the three-coat stucco system is indicated on Contract documents.

- A. Section includes: Pre-mixed, pre-sanded, fiber-reinforced Portland cement plaster basecoat, and pre-mixed, pre-sanded, colored elastomeric acrylic polymer-based exterior finish coat. Related materials include: Metal lath, trim and accessories.
- B. Related Sections: Refer to Section 06112, "Framing and Sheathing" for wood studs and joists.
  - 1. Section: 06 11 00 Wood Framing and Sheathing
  - 2. Section: 09 29 00 Gypsum Wallboard and Sheathing

#### **1.02 REFERENCES**

- A. American Society for Testing and Materials (ASTM)
  - A653 Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
  - C150 Specification for Portland Cement
  - C206 Specification for Finishing Hydrated Lime
  - C207 Specification for Hydrated Lime for Masonry Purposes
  - C847 Specification for Metal Lath
  - C897 Specification for Aggregate for Job-Mixed Portland Cement-Based Plasters
  - C926 Specification for Application of Portland Cement-Based Plaster
  - C1063 Specification for Installation of Lathing and Furring for Portland Cement-Based Plaster
  - E119 Standard Test Methods for Fire Tests of Building Construction and Materials
- B. Gypsum Association
  - GA-600 Fire Resistance Design Manual

- C. Underwriter’s Laboratories, Inc. (UL)  
Fire Resistance Directory
- D. International Building Code (IBC)
- E. Northwest Wall and Ceiling Bureau Standards

1.03 SUBMITTALS

- A. General: Submit the following in accordance with Section: 01 33 23 Shop Drawings, Product Data, and Samples
- B. Product Data: Submit manufacturer's product data for each product, including data showing compliance with requirements.
- C. Material Certificates: Submit producer's certificate for each stucco system or component indicated evidencing that materials comply with requirements.
- D. Manufacturer’s Certifications: Submit manufacturer’s certification that the proposed products are compatible with each other, and with substrates for the intended applications.
- E. Samples: Submit one (1) 48 inch x 48 inch (1220 mm x 1220 mm) minimum moveable panels at job site, for color, texture and finish, showing application and workmanship, texture, techniques and colors. Sample panel to be approved by the Architect and noted as to color and texture ranges.  

**Do not proceed with work until the sample stucco finish is reviewed and approved.** Maintain sample panel on project site for duration of project for comparison purposes.
- F. The applicator and/or contractor must be qualified in the workmanship of plastering/ stucco. Must be able to show completed work of equal scope.

1.04 QUALITY ASSURANCE

- A. Provide installation by a company specializing in work similar to that required on this project and with not less than three (3) years of documented experience.
- B. Regulatory Requirements: At locations indicated on Contract documents, provide fire-rated assemblies tested in accordance with ASTM E119, as listed:
  - 1. Gypsum Association: GA-600, “Fire Resistance Design Manual.”
  - 2. Underwriter’s Laboratories, Inc. (UL), “Fire Resistance Directory.”
  - 3. International Building Code (IBC), as referenced by authority with jurisdiction.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in original unopened packages, containers or bundles with manufacturer's labels intact and legible.
- B. Store materials inside, under cover and in manner to keep them dry, protected from freezing and inclement weather, direct sunlight, surface contamination, aging, corrosion, and damage from construction traffic and other causes.
- C. Remove wet, frozen, or deteriorated materials from site.

1.06 PROJECT CONDITIONS

- A. Environmental Requirements (Cold Weather)
  - 1. Do not use frozen materials in cement plaster mixes.
  - 2. Do not apply cement plaster to frozen surfaces or surfaces containing frost.
  - 3. Do not apply cement plaster when ambient temperature is less than the 35 degrees or the minimum temperature recommended by manufacturer.
- B. Environmental Requirements (Hot Weather)
  - 1. Protect cement plaster from uneven and excessive evaporation during hot, dry weather. Water mist cure basecoat a minimum of twice daily for a minimum of 48 hours.
  - 2. Moist curing after each coat of cement plaster with water if ambient temperature is more than 75 degrees/24 degrees C. Moist cure for 48 hours after application of coats.
  - 3. Do not apply cement plaster when ambient temperature is above 100 degrees F (37.8 degrees C).

1.07 Control Joints

- A. Panels should be relatively square.
- B. No area should exceed 18 lineal feet in length without a control joint.
- C. Install control joints for surface areas of approximately 150 square feet.
- D. Where dissimilar backup materials join.
- E. Control joints are recommended at surface penetrations, (windows, doors, etc) and at areas of structural stress.

**PART 2 – MATERIALS / PRODUCTS**

2.02 MATERIALS

- A. Base Coat: Factory pre-mixed, pre-sanded, fiber-reinforced basecoat to comply with ASTM C926.
  - 1. Portland Cement: ASTM C150, Type I or Type II.
  - 2. Lime: ASTM C206, Type S or ASTM C207, special hydrated lime.
  - 3. Sand: ASTM C897.
  - 4. Fiber Reinforcing: Manufacturer’s standard acrylic fibers.
  - 5. Water: Potable, clean, fresh, and free from oil, acid, organic matter or other deleterious substances.
- B. Finish Coat: Factory pre-mixed, synthetic exterior elastomeric polymer-based wall finish system consisting of acrylic polymers, properly graded aggregate and colorant.
  - 1. Color: Integral color as selected at time of submittals from manufacturer’s standard color chart.
  - 2. Finish Texture: As selected at time of submittals from the following list:
    - Spray Finish
    - Sand Finish
- C. Bonding Agent: ASTM C932, Acrylic bonding agent as manufactured and as recommended by basecoat system manufacturer.
- D. Admixture: Acrylic polymer additive as manufactured by and as recommended by basecoat system manufacturer.
- E. Sealers: UV resistant, high vapor permeability, non-staining, non-yellowing, clear water repellent sealer.
- F. Metal Lath: ASTM C847.
  - 1. Diamond Mesh: Galvanized, 3.4 lbs. per square yard (1.84 kg/m<sup>2</sup>), self-furring lath or approved equal; to be used on horizontal surfaces and as reinforcing around doors and windows, where framing members are more than 16 inches (406 mm) o.c., and elsewhere as shown on Contract documents.
  - 2. Stucco Lath: Galvanized, minimum 17 gage (1.367 mm) 1 ½” self-furring stucco netting, or approved equal; to be used on framing at 16 inches (406 mm) o.c. or less and elsewhere as shown on Contract documents. 1 1/2" x 17 gauge zinc coated, galvanized woven wire Stucco Netting complying with ANSI A42.3, C1032.

- G. Weather Resistive Barrier: Two (2) layers of Grade "D," 15 pound (6.8 kg) building paper over wood substrates and one (1) layer over gypsum or fiber sheathing. Federal Specifications UU-B-790A, Style 2, Grade D, 60 minute water resistance.

### 2.03 METAL ACCESSORIES

- A. General: Manufacturer's suggested steel products, unless otherwise indicated as zinc alloy. Do not fill with plaster or cement.  

Hot dip galvanized finish, per ASTM A653, G90.
- B. Corner Beads: 1/8 inch (3.18 mm) diameter bead with expanded flanges. PVC corner beads are acceptable.
- C. Casing Beads: Expanded flange, J-shaped, square edge style, to suit application.
- D. Bull Nose Corner Bead: 3/4 inch (19.05 mm) radius with expanded flanges.
- E. Control Joints: M-shaped, with 1/4 inch (6.35 mm) slot and 1 inch (25 mm) grounds, removable tape to keep plaster out of groove, and with diamond mesh expanded flanges.
- F. Expansion Joints: Adjustable expansion joint, free floating with adjustments from 1/4 inch (6.35 mm) to 5/8 inch (15.9 mm).
- G. Weep Screeds: Foundation sill screed, with holes for drainage.
- I. Fasteners: Galvanized steel furring nails and or screws of type and length suitable for at least a 1" penetration into stud system.
- J. Drip Screed: Provide drip screed at all exterior drip edges, stucco overhangs and elsewhere as indicated on Contract documents.

## **PART 3 – EXAMINATION / EXECUTION**

### 3.01 INSPECTION

- A. Installer shall notify Contractor and Architect in writing of any conditions detrimental to proper and successful installation of stucco base coats. Do not proceed with installation until unsatisfactory conditions are corrected to satisfaction of the architect and Contractor.
- B. Base Coat
  1. Verify that surfaces to be plastered are free of dust, loose particles, oil and other deleterious materials which would affect bond or proper hydration of cement plaster.
  2. Verify that lath is tight, properly secured and overlapped, and that all accessories are properly set and secured.

3. Examine substrates, grounds and accessories to ensure that finished plaster work will be true-to-line, plane, level and plumb.
  4. Verify that masonry and concrete surfaces to receive direct bond applications of plaster base coats are rough, and otherwise properly prepared to provide adequate bond. Correct any deficiencies prior to plaster application. Test bond of cement plaster to concrete surface.
  5. Cement base coat to be applied with sufficient force to develop full adhesion between plaster and the substrate.
- C. Finish Coat
1. Verify that surfaces to receive exterior wall finish coat are free of dust, loose particles, oil and other deleterious materials which would adversely affect bond of exterior wall finish.
  2. Examine base coats, grounds and accessories to ensure that finished work will be true-to-line, plane, level and plumb.
  3. Finish coat to be applied continuously and in one operation to the entire wall area. A wet edge must be maintained.

### 3.02 PREPARATION

Coordinate work and provide protective coverings to protect adjacent surfaces from soiling and damage.

- A. Protect substrate surfaces and adjacent finished surfaces installed prior to plastering.
- B. Maintain protection in place until completion of work.
- C. Protect finished work, when stopping for the day or when completing an area, from inclement weather.

### 3.03 MIXING

- A. General: Mix factory-prepared cement plaster in accordance with manufacturer's written instructions and recommendations.
  1. Accurately proportion pre-mixed, pre-sanded base coat materials with water for each plaster batch with measuring devices of known volume.
  2. Size batches for complete use within maximum of one hour after mixing.
  3. Retemper plaster stiffened from evaporation per manufacturer's instructions, but do not use or retemper partially hydrated cement plaster.
  4. Do not use frozen, caked or lumpy materials, and remove such materials from job

site immediately.

5. Withhold 10 percent of mixing water until mixing is nearly complete, then add as needed to produce desired working consistency.
  6. Do not add non-approved admixtures to enhance the mix.
- B. Mechanical Mixing: Mix materials with machine driven paddle.
1. Clean mixer of set or hardened materials before loading new batch.
  2. Maintain mixer in continuous operation while adding materials.
  3. Conform to mixing sequence, cycle of operations, and time recommended by the manufacturer of the base coat mix materials.
- C. Hand Mixing: Do not hand mix materials.

#### 3.04 INSTALLATION OF METAL LATH

- A. Metal Lath: ASTM C1063
1. All lath should be attached to framing members at spacing of not more than 6 inches (152.4 mm) o.c., 2 inches (50.8 mm) maximum from longitudinal edges, in accordance with IBC, Section 2507.2.
  2. Wire-tie expansion joints to mesh.
  3. Provide supplementary blocking, bracing, and framing as required to support edges of lath and behind fixtures, hardware, and accessories shown to be attached to plaster construction.
- B. Grounds and Screeds: Install grounds and screeds as indicated on Contract documents, but in no case shall grounds and screeds be installed further than 8 feet (2.44 m) on center to ensure accurate rodding of plaster to true surfaces.
- C. Install lath with long edges perpendicular to supports.
- D. Install lath continuously around internal corners, avoid separate lath reinforcement accessories.
- E. Isolation: Make provisions for movement of building structure to prevent transfer of structural load or movement to the lath and plaster work. Wire tie all expansion joints. Rigid mechanical fastening of expansion joints is prohibited.

#### 3.05 INSTALLATION OF ACCESSORIES AND TRIM

- A. Comply with referenced installation standards for provision and location of plaster trim

and accessories.

1. Miter or cope trim and accessories at corners.
  2. Install trim and accessories in proper alignment and with tight joints between pieces.
- B. Install trim and accessories where indicated on Contract documents, and as follows:
1. Corner Beads: External corners.
  2. Casing Beads: At terminations of plaster which abuts windows, doors, walls or other terminations.
  3. Control Joints: At locations indicated, as recommended by plaster manufacturer, and at exterior work at spacing not to exceed 8 feet (2.44 m) on center where surface is continuous plane.
  4. Expansion Joints: At locations indicated, and as follows:
    - a. Changes of substrate construction.
    - b. Where control or movement joints occur in substrate construction.
    - c. Where wings of L-, T- or U-shaped surfaces join.

### 3.06 APPLICATION

- A. General: Apply cement plaster in accordance with manufacturer's instructions and recommendations, to comply with ASTM C926.
1. Monolithic Surfaces: Prepare monolithic surfaces to receive plaster using any of the following methods:
    - a. Sandblasting, wire-brushing, acid etching, or chipping.
    - b. Application of metal lath.
  2. Allowable Tolerances: Maximum deviation from true plane 1/8 inch (3.18 mm) in 8 feet (2.44 m) as measured by straight edge placed at any location on surface.
  3. Interrupt cement plaster only at junctions of plaster planes, at openings, or at control joints.
  4. Apply each plaster coat to an entire wall or ceiling panel (control joint to control joint) without interruption to avoid cold joints and abrupt changes in the uniform appearance of succeeding coats.
  5. Nominal Plaster Thickness:



- a. Vertical: 7/8 inch (22.2 mm)
  - b. Horizontal: 5/8 inch (15.9 mm)
- B. Scratch Coat
1. Over Lathing Base: Apply scratch coat to a minimum thickness of 3/8 inch (9.53 mm) on vertical surface, and 1/4 inch (6.35 mm) on horizontal surface, using sufficient trowel pressure to key plaster into lath or to create bond to substrates as applicable.  

Prior to initial set, scratch horizontally to provide key for bond of brown coat.
  2. Over Solid Bases: Apply first coat with sufficient pressure to insure tight contact with complete coverage of solid bases, immediately scratching to provide mechanical key for second coat.
- C. Brown Coat: Apply brown coat to a minimum thickness of 3/8 inch (9.53 mm) on vertical surface, and 1/4 inch (6.35 mm) on horizontal surface, using sufficient trowel pressure to insure tight contact with scratch coat.
1. Rod surface to screeds creating true and even plane.
  2. Trowel to a sand float finish and uniform surface to receive elastomeric acrylic polymer-based finish system.
  3. Tool brown coat to provide a V-joint at intersection of plaster with frames or other item of wood, or metal.
- D. Bonding Agent: Apply bonding agent over brown coat with brush, roller or spray for complete coverage of area to receive elastomeric acrylic polymer-based finish.
- E. Finish Coat: Apply exterior wall finish coat to thickness recommended by manufacturer, but in no case less than 1/8 inch (3.18 mm) to achieve texture indicated, using sufficient trowel pressure or spray velocity to bond finish coat to basecoat.
1. No plasticizing agents shall be added to elastomeric acrylic polymer-based finish.
  2. Apply finish to match approved sample.
- F. Sealer: Apply sealer per manufacturer's instructions and recommendations, unless noted elsewhere in Contract documents.
- G. Workmanship shall be neat and in accordance with referenced standards of workmanship. Entire coated surfaces must appear to be evenly applied and colored, without excessive lumping or surface irregularities.
- H. Curing: Comply with the following for curing and time interval between coats.
1. Maintain moist conditions by fogging mist. Do not saturate.

2. Moist cure scratch and brown coats frequently to maintain uniform moisture per schedule below.
3. Moist cure brown coat continuously for a minimum of 14 days.
4. Air cure polymer-based finish coat. Do not wet cure.

### 3.07 CUTTING AND PATCHING

Cut, patch, point-up and repair stucco as necessary to accommodate other work and to repair 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 the substrate has failed.

- A. Point-up plaster around trim and other locations where plaster meets dissimilar material.
- B. Cut out and patch stained or discolored finished plaster not scheduled to be painted.
- C. Match patch of defective or damaged plaster to existing work in form, texture and color.

### 3.08 CLEANING AND PROTECTION

- A. Remove temporary protection and enclosure of other work. Promptly remove stucco from door frames, windows, and other surfaces which are not to be stuccoed. Repair floors, walls and other surfaces which have been stained, marred or otherwise damaged during the stucco work. When stucco work is completed, remove unused materials, containers and equipment and clean grounds of stucco debris.
- B. Provide final protection and maintain conditions, in a manner suitable to Contractor that ensures that stucco work will be without damage or deterioration at time of Substantial Completion.

**\*\*\*End of Section 09 24 23\*\*\***

## **SECTION 09 29 00 – GYPSUM WALLBOARD AND SHEATHING**

### **PART 1: GENERAL**

#### **1.01: General**

- A. Conform to the general provisions of the contract, General and Supplementary Conditions of the contract, Division One of this Specification, the Drawings and this Specification Section.
- B. Should conflict arise between the Drawings and the provisions of the Specifications, the Specifications shall govern.
- C. The Contractor shall furnish all labor, materials, tools, equipment, and perform all work and services necessary for all gypsum wallboard work as shown on the drawings, and as specified in accordance with the Provisions of the Contract Documents. All work shall be completely coordinated with the work of all other trades.
- D. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to, or necessary for, a sound, secure and complete installation.
- E. Coordinate installation with work installed by other trades including all penetrations of Work by ducts and grilles, conduit and electrical openings, piping and plumbing penetrations, equipment and cabinetry supports, lighting fixture penetrations and wraps (for rated ceiling assemblies) and other work of other trades affecting installation of products of this Section.

#### **1.02: Scope of Work**

- A. General:
  - 1. Refer to the drawings for the extent of work.
  - 2. Inspect existing conditions and the work of other trades for proper conditions before beginning the work of this section.
  - 3. Coordinate the work of this section with the work of other trades.
  - 4. Protect people, property, and the work of this section, surrounding materials and the work of other trades.
  - 5. Clean up work site and dispose of waste and debris on a daily basis.
- B. Scope: Provide all material, tools, labor and equipment necessary for the installation of gypsum wallboard, but not necessarily limited to the following:
  - 1. Installation of gypsum wallboard.
  - 2. Installation of gypsum sheathing.
  - 3. Joint taping.

#### **1.03: Related Work Specified Elsewhere (includes but is not limited to the following):**

- A. Section 04 73 00, Manufactured Stone Masonry
- B. Section 06 20 00, Finish Carpentry and Millwork
- C. Section 06 41 16, Plastic Laminate-Clad Cabinets
- D. Section 06 41 00, Architectural Wood Casework

- E. Section 07 26 00, Plastic Vapor Retarder
- F. Section 07 27 19, Plastic Sheet Air Barriers
- G. Section 07 20 00, Thermal Insulation
- H. Section 08 11 13, Hollow Metal Doors and Frames
- I. Section 08 14 00, Wood Doors and Frames
- J. Section 08 31 13, Access Doors
- K. Section 08 33 23, Overhead Coiling Counter Fire Doors
- L. Section 09 22 16, Non-Structural Metal Framing
- M. Section 09 53 23, Suspended Acoustical Ceiling System
- N. Section 09 90 00, Painting

**1.04: Regulatory Codes and Agencies**

- A. Refer to Division 1.

**1.05: Standard Specifications**

- A. Conform to the recommended specifications for the application and finishing of gypsum wallboard as published by the Gypsum Association.

**1.06: References**

- A. Publications listed herein are part of this specification to the extent referenced. The criteria established within these specifications shall take precedence over the standards referenced herein.
  - 1. American Society for Testing and Materials (ASTM):
    - a. ASTM 97.1
    - b. ASTM C1002
    - c. ASTM E119

**1.07: Submittals**

- A. Make all submittals in accordance with Section 01300, Submittals.
- B. Product Data:
  - 1. Submit manufacturer's published literature for specified products and accessories as applicable, including manufacturer's specifications, physical characteristics and performance data, clearly marked and described fully.
  - 2. Submit, as a supplement, manufacturer's instructions and directions for application if not included in manufacturer's published literature.
  - 3. Samples: Submit samples of texture, minimum 12" x 12" for architect's review prior to beginning texturing operation.

**1.08: Quality Control**

- A. Obtain all materials from a single source and manufacturer unless given prior approval in writing by the Architect.
- B. Refer to Division 1 for more information on Quality Control.
- C. Fabricator qualifications:
  - 1. Fabricator shall have a minimum of 10 years experience in the highest quality fabrication of gypsum wallboard and sheathing.
  - 2. Fabricator shall have plant, facilities and personnel adequate for the production of gypsum wallboard and sheathing as required by this Section and within the construction schedule.
- D. Installer qualifications:
  - 1. Workers shall be thoroughly trained in the skills required for the installation and finishing of Gypsum wallboard and sheathing.
  - 2. Workers shall be completely familiar with all specified or approved manufacturers' most current published literature and recommendations.
  - 3. Workers shall have a minimum of two (2) years' experience on projects of similar size and construction type to this project.
  - 4. Supervisor: Provide at least one (1) person who meets the above requirements, has at least two (2) years experience directing and supervising the installation of gypsum wallboard and sheathing. The supervisor may or may not be solely a supervisor but may also be an active installer.
- E. Comply with fire-resistance ratings indicated.
  - 1. Provide materials, accessories and application procedures which have been tested in accordance with ASTM E119, and listed by UL, or other approved testing laboratory, for type of construction.
  - 2. All floor assemblies, roof assemblies, wall assemblies and beam and column protection shall comply with the hourly fire-resistance period required by the local building code having jurisdiction, whether specifically detailed or not detailed.
  - 3. Where ceilings occur that are part of a rated fire resistance assembly, it shall be the responsibility of the contractor to provide gypsum wallboard or other approved recessed light-fixture protection box for all recessed light fixtures occurring in the rated assembly and shall conform to a UL rated method, or as otherwise approved by the local building official.
- F. Coordination:
  - 1. Coordinate with work of other trades.
  - 2. Where ducts interfere with normal spacing of hangers and/or carrying channels, install additional hangers and/or necessary channels to properly fur out ceiling.
  - 3. Consult drawings indicating attachment of fixtures to, or provisions for, support of fixtures through gypsum board, plaster walls or furring. Cooperate in coordinating locations of fixture hanging devices and install board around fixture hangers with accurate cutting and fitting. Improper cutting or fitting that will weaken wall or support of fixtures is to be removed and reinstalled or properly reinforced and patched at direction and discretion of Architect.

4. Stops, other than casings, where shown or required around lighting fixtures, air diffusers, etc., shall be furnished to, and installed by this contractor. Type of stop, if shown, shall be approved by the Architect before installation.

### **1.09: Delivery, Handling, and Storage**

- A. Delivery:
  1. Deliver materials to the site without defects, damage or deterioration.
  2. Deliver all materials in the original unopened packages, containers, or bundles with manufacturer original label intact and legible. Do not remove labels.
  3. Do not deliver to the site more than one week prior to installation. Coordinate with the Construction manager for proper delivery time.
  4. Do not deliver to the building until the building is enclosed, dry and heated to a minimum temperature of 60 degrees Fahrenheit. Relative humidity shall be within 15% of the mechanical engineer's design relative humidity.
- B. Handling
  1. Handle all materials so as to prevent damage.
  2. Do not apply any damaged gypsum wallboard materials or accessories.
  3. Until final acceptance is received, replace any and all damaged work at no cost to the owner.
- C. Storage:
  1. Store all materials flat and a minimum of three inches (3') off of the ground, uniformly supported so as to prevent bending and deformation in any direction.
  2. Do not store long lengths on top of short lengths.
  3. Do not stack gypsum wallboard and sheathing panels with their long dimension vertical or at an angle greater than horizontal to the floor.
  4. Keep all materials dry by storing inside an enclosed heated building.
  5. Do not store in or near patient, staff, pedestrian or vehicular traffic areas.

### **1.11: Project Conditions**

- A. Temporary Lighting: Minimum one hundred watt (100 W) bulb per room for each one hundred square feet of area (100 s. f.) by others.
- B. Dry enclosed working conditions with no standing water.
- C. Temporary Heat: Minimum sixty (60) degrees Fahrenheit.

### **1.12: Protection**

- A. Protect people from injury and adjacent property, structures and the work of other trades from damage.
- B. The Contractor or Subcontractor shall repair or replace, as directed by the Architect, all work or property damaged by the Contractor or Subcontractor at no additional cost to the owner.
- C. Protect the work of this section from damage, deterioration and defects until final acceptance is given by the Architect or Owner.

### **1.13: Guarantees and Warranties**

- A. Submittal:
  - 1. Upon completion of work and after the manufacturer's representative has signed an acceptance of work statement, the manufacturer shall issue a written guarantee against defective materials and workmanship for five (5) years commencing on date of Substantial Completion.
  - 2. Submit guarantee in writing per Division 1.

## **PART 2: PRODUCTS**

### **2.1 Performance Requirements**

- A. **Moisture- and Mold-Resistant Assemblies:** Provide and install moisture- and mold-resistant glass-mat gypsum wallboard products with moisture-resistant surfaces complying with ASTM C 1658 and ASTM C 1177 where indicated on Drawings and in all locations which might be subject to moisture exposure during construction.
- B. **Fire-Resistance-Rated Assemblies:** For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.
- C. **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.
- D. **Low Emitting Materials:** For ceiling and wall assemblies, provide materials and construction identical to those tested in assembly and complying with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

### **2.02: Materials**

- A. **Gypsum Board, Type X: ASTM C 1396/C 1396M.**
  - 1. **Basis-of-Design Product:** Georgia-Pacific Gypsum LLC; DensArmor Plus Fireguard High-Performance Interior Panel.
  - 2. **Thickness:** 5/8 inch (15.9 mm).
  - 3. **Long Edges:** Tapered.
- B. **Gypsum Board, Type C: ASTM C 1396/C 1396M.**
  - 1. **Basis-of-Design Product:** Georgia-Pacific Gypsum LLC; DensArmor Plus Fireguard C High-Performance Interior Panel.
  - 2. **Thickness:** 5/8 inch (15.9 mm).

3. Long Edges: Tapered.
- C. Tile Backer Boards: Glass-Mat, Water-Resistant Backing Board with Water-Resistant Coating: ASTM C 1178/C 1178M.
1. Basis-of-Design Product: Subject to compliance with requirements, provide Georgia-Pacific Gypsum LLC; "DensShield Tile Backer".
  2. Core: 5/8 inch, Type X.
  3. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.
- D. Glass-Mat Gypsum Sheathing Board: ASTM C 1177/C 1177M, with fiberglass mat laminated to both sides and with manufacturer's standard edges.
1. Basis-of-Design Product: Subject to compliance with requirements, provide Georgia-Pacific Gypsum; "DensGlass Sheathing".
  2. Core: 5/8 inch, Type X.
  3. long Edges: Square.
- E. Adhesive for Laminating Wallboard or adhering to Substrate: As recommended by Wallboard Manufacturer.
- F. Screws:
1. ASTM C1002.
  2. Type S-12 for use on 20-gauge or heavier framing. 1" for single layer or for base layer, 1-5/8 inch for face layer in double-layer construction.
  3. Ensure self-tapping and of sufficient length to penetrate framing members or stud not less than 3/8 inch.
- G. Trim and other fastenings, as recommended by the manufacturer.
- H. Accessories: Galvanized for general use; zinc for wet areas.
1. Corner bead: Standard type, with perforated flanges. U.S. Gypsum 800 Accessory or approved equal.
  2. Casing and Trim Bead: Where bead abuts exterior windows, window frames or other metal components, separate from other material by use of foam tape. No. 66VB type. Trim similar to U.S. Gypsum 200 Series.
  3. Control Joints: U.S. Gypsum No. 093 or equal.
  4. Expansion Joint: USG No. 40 or equal.
  5. Foamed PVC Tape: 1/2-inch (W) x 1/4 inch (TH), pressure sensitive Norseal V720 by Norton Sealants.
  6. Resilient Channel: U.S. Gypsum RC-1 or Donn DG8.
  7. Carrying Channels: 1-1/2 inch galvanized; or Chicago Metallic Fire Front 650, U/L rated, suspension system, similar system by Flangeklamp may be used. Use Chicago Metallic 640 Furring System for non-rated ceilings.
  8. Texturing materials: Sheetrock Wall & Ceiling Texture, Sheetrock Wall & Ceiling Spray Texture, Sheetrock Tuf-Tex or approved equal.
- I. Joint Treatment Materials



1. All materials shall meet ASTM C475.
2. Taping or Embedding Compound: Specifically formulated and manufactured for use in embedding tape at gypsum board joints and completely compatible with tape substrate.
3. Finishing or Topping Compound: Specifically formulated and manufactured for use as a finishing compound.
4. All-Purpose Compound: Specifically formulated and manufactured to serve as both a taping and a finishing compound and compatible with tape and substrate.
5. Joint Tape: Perforated, cross-laminated, glass fiber tapered edge, reinforced paper, with pressure-sensitive adhesive backing or special tape recommended by the manufacturer.
6. Use clean, fresh, and potable water.

### **PART 3: EXECUTION**

#### **3.01: Environmental and Surface Conditions**

- A. Building must be enclosed, dry and heated to a minimum temperature of 60 degrees F.
- B. Interior humidity may not exceed 75% relative humidity.

#### **3.02: Inspection**

- A. Inspect the work of other trades to ascertain if the proper conditions exist for the gypsum wallboard to be erected as required by this section.
- B. In the event of any discrepancies or unsuitable conditions, stop work. Do not proceed until unsuitable conditions are corrected. Beginning work constitutes acceptance of underlying conditions.

#### **3.03: Coordination**

- A. Coordinate all work involving material, labor, and equipment of other trades penetrating or attaching to the work of this section so that each trades' work can be installed, erected or fabricated as required and that the work space be maintained and left clean and safe.

#### **3.04: Application of Gypsum Wallboard**

- A. Refer to drawings for construction of all walls and partitions. In case of discrepancy with these specifications, notify architect.
- B. Apply gypsum board to framing and furring members in accordance with ASTM C 840 and the requirements specified herein. Apply board to ceilings before applying to walls. Apply gypsum wallboard with separate boards in moderate contact; do not force in place.
- C. Apply gypsum wallboard with ends firmly supported over wall framing members. Stagger end joints of adjoining boards. Neatly fit abutting end and edge joints. Use gypsum board of maximum practical length. Cut out gypsum as required to make neat close joints around openings. In vertical application of gypsum board, panels shall be of length required to reach full height of vertical surfaces in one continuous piece. Leave a space approximately 1/4 inch at bottom of gypsum.

- D. Floating Interior Angles for Ceilings and Walls: Locate the attachment of fasteners adjacent to ceiling and wall intersections in accordance with ASTM C 840, System XII, for single-ply and two-ply applications of gypsum board to framing.
- E. Control Joints: Install expansion and contraction joints in ceilings and walls in accordance with ASTM C 840, System XIII, unless indicated otherwise.
- F. Attachment: Use specified screws at 12" o.c. in field of board and 8" o.c. staggered along vertical edges.
- G. Ensure that insulation is properly placed in partitions. See drawings for insulation locations. (Note: all partitions typically include insulation.)
- H. Recessed Light Fixture Protection at Rated Ceilings:
  - 1. Cut pieces from 5/8" type "X" gypsum wallboard.
  - 2. Provide 1/2" clearance around light fixture.
  - 3. Tape all joints.
  - 4. Provide trapezoidal shape at fluorescent fixtures and box shape at rectangular and conical light fixtures.
- I. In areas having wallboard ceilings and walls, install ceiling first.
- J. Stagger edge joints on opposite side of a partition so they occur on different framing members.
- K. Hold wallboard in firm contact with support while fasteners are being driven. Proceed with attachment from center of board toward ends and edges.
- L. When necessary to cut board, scribe and make cuts neatly.
- M. Where indicated, install sound insulation in walls so that coverage required for sound rating is achieved. Pack spaces around electric boxes and other penetrations to maintain full sound reduction.
- N. Where sound rated walls are indicated, provide sound caulking material for rating required.
- O. In fire-rated ceiling assemblies, install minimum 4 inch wide drywall strip continuous over all joints. Fasten in place.
- P. Installation of Single-Layer System
  - 1. Set screws between 3/8 inch and 1/2 inch from edges. Space a maximum of 12 inches o.c. at edges and in field of board. Where drywall butts at wall/ceiling juncture, hold screws back 6 inches from edges. For 1 hour rated partitions, space screws 8 inches o.c. around perimeter of board and 12 inches o.c. in field of board.
  - 2. Drive Screws so that head rests in a slight dimple without cutting face paper or fracturing core.
- Q. Installation of Multi-Ply System
  - 1. Space screws in base layer a maximum of 12 inches o.c. at edges and in field of board.
  - 2. Screw apply finish layer. Stagger joints not less than one support from first layer.
- R. Installation of Single Layer Sound Insulation Partition
  - 1. Refer to drawings for construction of all partition types. In case of discrepancy with these specifications, notify Architect.
  - 2. Install layer of 5/8 inch, Type "X" gypsum wallboard applied at right angles to each side of metal studs 16 inches o.c. with 1 inch, Type "S", drywall screws 8 inches o.c. to ends and 12 inches o.c. to intermediate studs. Stagger joints 16 inches o.c.

3. In stud space staple 3-inch thickness of sound attenuation blanket to one side. Pack spaces around electrical boxes and other penetrations with insulation to maintain full sound reduction.
  4. Cut gypsum boards to allow approximately 1/8 inch wide groove around perimeter. Caulk all wall, floor and ceiling perimeters and other penetrations with minimum 1/4-inch round bead of acoustical sealant to completely seal joint.
- S. Installation of Double Layer Sound Insulation Partition
1. Refer to drawings for construction of all partition types. In case of discrepancy with these specifications, notify Architect.
  2. Install base layer of 5/8 inch, Type "X" gypsum wallboard vertically to each side of metal studs 16 inches o.c. with 1 inch, Type "S" drywall screws 12 inches o.c.
  3. Attach outer layers to studs and tracks with 1-5/8 inch Type "S" drywall screws spaced 12 inches o.c.
  4. Stagger joints 16 inches o.c.
  5. In stud space, place 3-inch thickness of sound attenuation blanket to one side. Pack spaces around electrical boxes and other penetrations with insulation to maintain full sound reduction.
  6. Cut gypsum board to allow approximately 1/8 inch wide groove around wall perimeters. Caulk all wall, floor and ceiling perimeters and other penetrations with minimum 1/4-inch round bead of acoustical sealant to completely seal joint.
- T. Other Sound Insulated Partitions
1. Refer to drawings for construction of all partition types. In case of discrepancy with these specifications, notify Architect.
  2. Over separated stud partitions, install single or double layer of 5/8 inch Type "X", gypsum wallboard as indicated on drawings. Install gypsum wallboard as herein before described for single or double layer systems.
  3. Install 3-inch thickness of sound attenuation blanket insulation. Install acoustical sealant at partition perimeters and penetrations as herein before described. Install gypsum wallboard over horizontal resilient channel on vertical studs as per manufacturer's recommendations as indicated on drawings.
- U. Installation of Shaftwall
1. Install shaftwalls in compliance with listed UL or Gypsum Association description. Provide and install shaftwall systems that permit entire erection procedure from outside shaft.
  2. Provide special metal runner angles and channels, and studs or splines spaced 16 inches o.c.
  3. Provide number, type and thickness of drywall layers, including air spaces and insulation as required to achieve indicated ratings for fire resistance and sound reduction.
  4. Comply with requirements for gauge of metal and thickness of wall, for heights of walls indicated.

### 3.04: Finishing of Gypsum Board

- A. Utilize gypsum wallboard with special round edge configuration (SW Type) and required joint finishing techniques to eliminate ridging. If special edge configuration and techniques are not

used, contractor shall issue guarantee to repair all joint ridging and repairing of walls where joint ridging occurs for one year from date of project completion.

- B. Securely attach continuous corner beads to all external corners in accordance with manufacturer's directions. After installation, apply joint treatment to a smooth, even finish.
- C. Apply joint treatment compound to accordance with manufacturer's directions. Fill joints and internal corners with compound. Embed tape in compound. After minimum 24 hours drying time, apply additional compound to joint. Feather out on each side of joint until a smooth, even surface, free of defects, is obtained. Install other accessories in like manner.
- D. Apply joint treatment compound over heads of fasteners. Allow to dry, then lightly sand. Apply second layer and sand. Apply third layer and sand.
- E. Sand all coats as necessary after each application of compound has dried. Do not scuff paper. Repair all blemishes and ridges as directed by Architect. Leave all areas uniformly smooth and ready to receive decoration.
- F. If wallboard is damaged or surfaces are excessively roughened, repair or remove and replace, to the satisfaction of Architect, at no additional cost to Owner.
- G. After painter has applied primer to wallboard surfaces, repair and refinish any areas that show defects.
- H. Provide metal corner beads at external corners, and metal casings, beads, trims, and expansion joints wherever detailed. Install metal casings wherever gypsum wallboard abuts a dissimilar material. Provide joint compound and reinforcing tape at intersections of all gypsum wallboard surfaces and/or concrete walls or ceilings, unless otherwise detailed. Consult drawings for special conditions relating to expansion joints and ventilation requirements on exterior soffits.
- I. All walls to be smooth finish.

### 3.05: Control Joints

- A. Install control or expansion joints at following locations:
  - 1. Where a partition or furring run exceeds 30 ft., install sufficient joints to limit unbroken runs to 30 feet. If door openings occur within a 30-ft. run, locate a joint at lock side of jamb from head of each door to top of partition.
  - 2. Where ceiling exceeds 50 ft. in one direction.
  - 3. Where ceiling area exceeds 2,500 sq. ft.
  - 4. Where ceiling has wings which form L, V, T, or other irregular shape. Install at change of direction.
- B. Caulk control joints with material specified in Section 07900. Use color to match wall color as closely as possible.
- C. Where control joints occur in fire or sound rated assemblies, install suitable backing material to maintain required rating.
- D. Where a partition, ceiling, or furring run abuts a structural element or dissimilar wall or ceiling, install corner bead.

### 3.05: Acoustical Sealant

- A. Apply continuous bead of sealant to wallboard edges and seal joints between wallboard and abutting material in partitions with acoustical insulation.

**3.06: Joint Treatment**

- A. All work shall conform to the applicable requirements of Standard Specifications and to the recommendations of the wallboard manufacturer. All exposed work shall be smooth and free from defects.
- B. Tape and cement all joints; reinforce all corners; fill all exposed fasteners heads.
- C. Fill all cracks at electrical outlets and similar for fireproofing. Repeat process as many times as necessary for appearance.
- D. All exposed joints and fasteners heads shall be smooth and flush with surface of board. Fire tape at attic spaces and behind ceramic tile.

**3.07: Repair**

- A. After installation of drywall assemblies and before application of finish painting or other scheduled finish, inspect work for any deficiencies and correct same; leave drywall assemblies complete with trim as indicated, ready for finish plastering or other finish treatment as scheduled.

**3.08: Clean-Up**

- A. At the end of each day's work and at final completion, the site shall be free of all waste materials and equipment used by the Contractor. Remove all waste materials and debris and dispose of in a legal and safe manner.
- B. The Contractor shall be responsible for maintaining a clean work place and shall pay for all costs, at no additional expense to the Owner, should outside labor and equipment be used to clean up the work site.
- C. Prevent waste materials from entering and accumulating in the storm drainage system and on adjacent property.

**\*\*\*End of Section 09 29 00\*\*\***

## **SECTION 09 30 13 – CERAMIC TILE**

### **PART 1: GENERAL**

#### **1.01: Description**

- A. Furnish all labor, materials, tools, equipment, and services necessary for and incidental to complete the work of this section as shown on the drawings and as specified.
- B. Related documents, drawings, and general provisions of the contract, including General and Supplementary Conditions and Division 1 Specification Sections apply to the work of this section.

#### **1.02: Related Work Specified Elsewhere**

Section 07 92 00: Joint Sealants

Division 3: Concrete

#### **1.03: Reference Standards**

- A. Comply with current editions and applicable specifications of the following:
  - 1. American Society for Testing and Materials (ASTM)
  - 2. American National Standards Institute (ANSI)
  - 3. Tile Council of America (TCA) Handbook for Ceramic Tile Installation

#### **1.04: Quality Assurance**

- A. Provide tile materials of each type, color and finish from Crossville Porcelain Stone/USA, Crossville, Tennessee. Provide setting, grouting and related materials of each type, color, and finish obtained from one source.
- B. Deliver, store, and handle materials in accordance with manufacturer's instructions.
- C. Tile Contractor, by commencing the work of this section, assumes overall responsibility to assure that all assemblies, components, and parts shown or required within the work of this section comply with contract documents and are compatible with each other and with the conditions and expected use.
- D. Installer Qualifications: Installer is to have a minimum of five (5) commercial tile installations similar in material, design, and scope so indicated.
- E. Extra Stock: Furnish extra stock of quantity equal to 10% of amount installed, in full-size units, for each type, color, size, and finish of tile.

#### **1.05: Submittals**

- A. Verification Samples: Submit the following for each type, color, size and finish indicated in the work:
  - 1. Full size tile and trim shapes
  - 2. Grout color samples
  - 3. Sealant color samples

4. Joint/transition strip samples
- B. Product and Installation Data:
  1. Porcelain tile manufacturer's product and technical data indicating compliance with applicable standards.
  2. Master Grade Certificates for each type of tile, issued by the manufacturer and signed by the installer.
  3. Mortar and grout manufacturer's technical data sheets indicating suitability for the installation specified and compliance with applicable standards.
  4. Sealant and prefabricated joint manufacturers' product and technical data.

### **1.06: Environmental**

- A. Comply with requirements of referenced standards and recommendations of material manufacturers for environmental conditions before, during, and after installation.
- B. Maintain environmental conditions and protect work during and after installation to comply with referenced standards and manufacturer's printed recommendations.
- C. Maintain minimum and maximum temperature limits as recommended by manufacturers.
- D. Protect adjacent surfaces during progress of the work in this section.
- E. Illuminate the work area during installation providing the same level and angle of illumination as will be available for final inspection.

## **PART 2: PRODUCTS**

### **2.01: General Requirements**

- A. Furnish tile complying with "standard grade" requirements per ANSI A137.1-1988 for types of tile indicated.
- B. Comply with ANSI standard for Tile Installation Material and current Tile Council of America handbook for products and materials indicated for setting and grouting.

### **2.02: Tile**

- A. Unglazed and glazed porcelain tile shall be standard grade quality.
- B. Manufacturer, color, texture, and size as indicated on the drawings.
- C. Product Test Data:
  - a. Water Absorption (ASTM C373): 0.06%
  - b. Abrasive Wear Resistance (ASTM C501): 270-330
  - c. Breaking Strength (ASTM C648): 350-420 lbs.
  - d. Bond Strength: (ASTM C482): >200 psi.
  - e. Coefficient of Friction (ASTM C1028) >0.6 dry/70.6 wet
- D. According to availability, provide matching trim shapes such as bullnose, corner, borders, and cove base when specified or called for on drawings.

### **2.03: Setting and Grouting Materials**

- A. Use appropriate installation mortars according to ANSI A118-1999 series or A136.1-1999.
- B. Use grout per ANSI A118.3, A118.5, A118.6, A118.7, or A118.8-1999.
- C. Use waterproofing/Anti Fracture Membrane as required according to ANSI A118.10-1999.

#### **2.04: Expansion Joints, Control, Contraction, and Isolation Joints**

- A. Refer to TCA handbook, Method EJ171 (most current) for recommendations on locating, treating and detailing various types of construction joints. See drawings for expansion joint locations.
- B. Use sealant complying with ASTM C920 according to Type, Grade, Class, and Uses required.
- C. Provide metal transition strips, Schluter-Schiene or approved equal.
- D. Prefabricated expansion joints may be used when suitable for the application.

### **PART 3: EXECUTION**

#### **3.01: Examination**

- A. Examine substrates where tile will be installed for compliance with requirements for installation tolerances and other conditions affecting performance or appearance of installed tile. Verify that substrates for setting tile are well cured, structurally sound, dry, clean, and free from oil or waxy films, curing compounds, or other coatings and surface treatments.
- B. Do not proceed with installation until unsatisfactory conditions have been corrected. Commencement of work indicates acceptance of substrate and installation conditions.

#### **3.02: Preparation**

- A. Substrate Preparation: Prepare and clean substrate in accordance with installation standards and manufacturer's instructions, and as follows:
  - 1. Remove protrusions, bumps, and ridges by grinding or chipping.
  - 2. Repair, fill, and level cracks, holes, depressions and rough or chipped areas in substrate using patching material recommended by setting materials manufacturer.
  - 3. Concrete slab to have light broom finish when tile is installed by the thin-set method.
  - 4. Ensure that the substrate is within the following tolerances:
    - a. Horizontal surfaces (floors) – Maximum variation in substrate shall not exceed ¼” in ten feet from required plane. For tile larger than 12” x 12” and grout joint smaller than ¼”, do not exceed 1/8” in 10’.
    - b. Vertical surfaces (walls) – Maximum variation in substrate shall not exceed ¼” in ten feet from the required plane.
- B. Jobsite Blending: Blend tiles before installing in accordance with reference standards to produce an even range and distribution of color and finish.

#### **3.03: Installation**

- A. Manufacturers' Instructions: Perform work in compliance with standard accepted installation guidelines, Crossville Porcelain Stone/USA instructions and setting materials manufacturers' instructions.



- B. General Installation Standards: Install tile in accordance with ANSI A108 standards, appropriate TCA methods, and written instructions of the specified manufacturers for thinset floor and wall installations.
- C. Installing Tile:
1. Install tile in pattern indicated. Align joints when adjoining tiles on floor, base, walls, and trim are same size. Adjust to minimize tile cutting and to avoid tiles less than one-half size.
  2. When possible, smooth cut edges of tile and/or use appropriate cutter or wet saw to produce smooth cuts. Provide straight cuts which align with adjacent materials.
  3. Extend tile into recesses and under equipment and fixtures to form a complete covering without interruption.
  4. Terminate tile neatly at obstructions, edges, and corners, without disruption of pattern or joint alignment.
  5. Provide tile joints uniform in width, subject to variation in tolerance allowed in tile size. Make joints smooth and even, without voids, cracks, or excess mortar or grout.
  6. Mix mortar in strict accordance with manufacturer's recommendations.
  7. Apply setting material in accordance with manufacturer's directions and install tile before mortar has started initial cure. For thinset mortar application, use a notch trowel that will achieve the recommended coverage of mortar after tiles have been installed. Reference standard coverage information and follow manufacturer's recommendations for trowel size when using mortars.
  8. Do not spread more material than can be covered within 10 to 15 minutes. If "skinning" occurs, remove mortar and spread fresh material. Spread mortar with notches running in one direction that shall be perpendicular to the pressing, pushing, and pulling of tile during placement.
  9. Place tile in fresh mortar, press, push, and pull the tile slightly to achieve as near 100% coverage and contact of tile with setting material and substrate as possible. The coverage shall be no less than 85% and be sufficiently distributed to give full support to the tile. Make sure that all corners and edges are well supported with mortar. Leave no hollow corners or edges. Note: 95 – 100% coverage is mandatory for wet or exterior areas. A skim coat ("back-butter") of mortar can be placed onto the entire back of the tile using a trowel in order to assist in optimum adhesion and coverage of the mortar being used.
  10. Ensure there is a minimum 1/8" of mortar between tile and substrate after proper bedding. Installer must periodically remove sheet or individual tiles to ensure proper bond coverage consistent with industry specifications. If coverage is found to be insufficient, use a larger notch size trowel.
  11. Use a beating block and hammer or rubber mallet so that faces and edges of individual tiles are flush and level with faces and edges of adjacent tiles and to reduce lippage.
- D. Grouting:
1. Install grout in accordance with ANSI A108.10, A108.6, A108.8, A108.9-1999 correlating to grout type chosen and manufacturer's recommendations.
  2. Mix grout material in strict accordance with manufacturer's directions.
  3. Apply grout to produce full, smooth grout joints of uniform width, free of voids and gaps.
  4. Before grouting entire area, do a test area to assure there will be no permanent staining or discoloration of the tile and to verify that the grout is easily removed from the surface. If

necessary, pre-coat exposed surfaces of tile with a grout release as recommended by the manufacturer, as this will facilitate removal of the grout.

5. Cure all setting and grouting materials in accordance with manufacturer's recommendations.

E. Cleaning and Protection:

1. If one has been used, remove grout release and clean tile surfaces so they are free of grout residue and foreign matter, in accordance with manufacturer's instructions. If a grout haze or residue remains, use a suitable grout haze remover or cleaner and contact grout manufacturer for recommendations. Flush surface with clean water before and after cleaning. Do not use harsh hydrochloric, muriatic or sulfuric acid or acid-based cleaners to clean glazed tiles or tiles grouted with latex modified grout.
2. When a heavy residue of Portland cement grout is present, acceptable tile cleaning acids may be used. However, the grout should be allowed to cure a minimum of 10 days before this aggressive cleaning method is employed. Tile and grout shall be soaked with water before cleaning. In the absence of a recommendation from the grout manufacturer, acid cleaning may be done with a saturated solution of phosphoric acid, mixed in accordance with manufacturer's recommendations.
3. After cleaning, provide protective covering and maintain conditions to protect tile work from damage or deterioration. Where tiled surfaces will be subject to equipment or wheel traffic or heavy construction traffic, and during move-in of furniture and equipment, cover protective covering with ¼" hardboard, plywood, or similar material.
4. Leave finished installation clean and free of cracked, chipped, broken, unbonded, and otherwise defective tile work.
5. Consult most current Crossville brochure "How to Care for Porcelain Tile" for information on post-installation cleanup and routine maintenance.

**\*\*\*End of Section 09 30 13\*\*\***

## **SECTION 09 53 23 – SUSPENDED ACOUSTICAL CEILING SYSTEM**

### **PART 1: GENERAL**

#### **1.01: General**

- A. Conform to the provisions of the Contract, General and Supplementary Conditions of the contract, the drawings and Division 1 of the specifications.
- B. The contractor shall furnish all labor, materials, tools, and equipment, and perform all work and services for all acoustic suspension systems as shown on drawings and as specified. Work shall be done in accordance with the Provisions of the Contract Documents, and completely coordinated with work of all other trades.
- C. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to, or necessary for, a sound, secure and complete installation.
- D. Suspended ceiling system contractor and acoustical panel and insulation (ceiling) installer shall be one and the same.
- E. Coordinate work of this section with acoustical ceiling panels and insulation, light fixture, mechanical grilles, and sprinkler system installations.
- F. Coordinate placement of grid system with required installation of draftstops in ceiling spaces to provide proper closures.

#### **1.02: Scope of Work (includes but is not limited to the following):**

- A. General:
  - 1. Refer to the drawings for the extent of work to be done.
  - 2. Inspect existing conditions and the work of other trades for proper conditions before the work of this section begins.
  - 3. Coordinate the work of this section with the work of other trades.
  - 4. Protect people, property and the work of this section and other trades.
  - 5. Clean up work site and dispose of waste and debris on a daily basis.
- B. Scope: Provide all materials, accessories, labor, tools and equipment required for the installation of all suspended acoustical lay-in ceiling system shown on the drawings and directed by this specification, including but not limited to the following:
  - 1. Suspended "T" bar ceiling grid.
  - 2. Lay-in acoustical ceiling panels

#### **1.03: Related Work Specified Elsewhere**

- A. Section 07 20 00, Thermal Insulation.
- B. Section 09 22 16, Non-Structural Metal Framing
- C. Section 09 29 00, Gypsum Wallboard and Sheathing (including ceilings)
- D. Section 09 90 00, Painting.

- E. Division 23, HVAC (including Fire Protection Systems)
- F. Division 26, Electrical

#### **1.04: Protection**

- A. Protect people from injury and the work of other trades, adjacent property, and structures from damage.
- B. The Contractor or Subcontractor responsible shall repair or replace, as directed by the Architect, all work or property damaged by the Contractor or Subcontractor no additional cost to the Owner.
- C. Protect the acoustical ceiling system from damage, deterioration and defects until final acceptance is given by the Architect or Owner.

#### **1.05: Quality Control**

- A. Single Source: Supply materials for each type specified from a single source, unless approved, prior to order, by the Architect.
- B. Installer Qualifications:
  - 1. Use installers who are thoroughly trained and experienced in the skills required to install work of this section and who are completely familiar with the manufacturer's current method of installation as well as the requirements of this work.
  - 2. Installers must have a minimum of two years experience in the installation of suspended acoustical ceiling systems.
  - 3. Provide at least one person who shall be present at all times during the execution of the work of this section and who shall be thoroughly trained and experienced in the materials and methods required and who shall direct the entire installation of all suspended ceilings.

#### **1.06: Regulatory Codes and Agencies**

- A. Refer to Division 1

#### **1.07: Submittals**

- A. Submit all items required in this section in conformance with Section 01300 of this specification.
- B. Product Data:
  - 1. Submit manufacturer's published literature for specified products and accessories as applicable, including manufacturer's specifications, physical characteristics and performance data, clearly marked and described fully.
  - 2. Submit, as a supplement, manufacturer's instructions and directions for application if not included in the manufacturer's published literature.
  - 3. Submit a list of all materials and accessories to be used on the job showing:
    - a. Manufacturer
    - b. Model Number
    - c. Size.
    - d. Color and Finish.

- C. Shop and Layout Drawings:
  - 1. Submit shop and layout drawings for approval, showing complete ceiling layouts including "T" bar arrangements, location of main runners, light track location, struts, cross runner intersections, details of attachments and lateral bracing to existing structure.
  - 2. Show plans of all the above items relating to the work of other trades, including Section 15000, Mechanical and Section 16000, Electrical.
  - 3. Samples: Submit samples of suspension system including runners, anchors, and ties, and each type of acoustic material specified, including size, texture and finish. Obtain approval from the Architect prior to ordering or installing any material.
  - 4. Certification of Suspension System: Submit written statement certifying that ceiling suspension system members, hangers, and spacing will safely support the entire system, including the work of other trades, and result in no deflection where supporting the specified loading.

### **1.08: Delivery, Handling, and Storage**

- A. Delivery:
  - 1. Deliver materials to the site without defects, damage or deterioration.
  - 2. Deliver all materials in the original unopened packages, containers, or bundles with manufacturer original label intact and legible. Do not remove labels.
  - 3. Do not deliver to the site more than one week prior to installation. Coordinate with the General Contractor for proper delivery time.
  - 4. Do not Deliver to the building until the building is enclosed, dry, and heated to a minimum temperature of 60 degrees Fahrenheit. Relative humidity shall be within 15% of the mechanical engineer's design relative humidity.
  - 5. Panels with gouged faces, chipped or marred edges, defacing stains or discolorations shall not be accepted for installation. Suspension members with dents, bends out of plumb, scratches or signs of rust or mistreatment shall not be accepted for installation. Materials not accepted for installation will be replaced with new material at no additional cost to the Owner.
- B. Handling
  - 1. Handle all materials so as to prevent damage.
  - 2. Do not apply any damaged materials or accessories.
  - 3. Until final acceptance is received, replace any and all damaged work of this section at no cost to the owner.
- C. Storage:
  - 1. Neatly stack materials flat and fully supported to prevent sagging in any dimension or damage to the edges, ends, and surfaces.
  - 2. Store all materials a minimum of 3' above the floor.
  - 3. Do not store long lengths on top of short lengths.
  - 4. Do not store in or near heavy traffic areas or patient areas.

### **1.09: Extra Stock**

- A. Provide a total of 5% of extra stock for each tile type for the Owner's future use. Deliver to the Owner in the manufacturer's original unopened containers with original labels intact, secured, and legible.

### **1.10: Colors**

- A. Exposed suspension members for panel, color to match tile, low gloss.
- B. Ceiling panels: See drawings for styles.

## **PART 2: PRODUCTS**

### **2.01: Materials**

- A. Suspension System - Acoustical Ceiling Panel (Type 1)
  - 1. Reference Standards
    - a. Suspension Systems: ASTM C635 Intermediate Duty
    - b. Installation: ASTM C636
  - 2. Hangers: Use soft annealed, galvanized, 12 gauge minimum steel wire for suspended acoustical panel ceilings. Wire lengths shall be as required for a level ceiling at the specified height.
  - 3. Exposed Grid:
    - a. Size: 1" wide.
    - b. All suspension members shall be cold rolled, electro-coated zinc, steel.
    - c. Surfaces exposed to view shall be a uniform width and shall be steel with a factory applied baked enamel finish.
  - 4. Include all wall and corner moldings, hold down clips where required, and edges.
  - 5. Approved Manufacturers:
    - a. Armstrong.
    - b. Chicago Metals Inc.
    - c. Donn Products DX Exposed Tee System.
    - d. USG Interiors, Inc.
    - e. National Rolling Mills (NRM)
- B. Suspension System: Acoustical Ceiling Panel (Type 2) - Clean Areas
  - 1. Hangers: Use soft annealed, galvanized, 12 gauge minimum steel wire for suspended acoustical panel ceilings. Wire lengths shall be as required for a level ceiling at the specified height.
  - 2. Exposed Grid:
    - a. Size: 1" wide.
    - b. All suspension members shall be extruded aluminum gasketed.
    - c. Surfaces exposed to view shall be a uniform width and shall be steel with a factory applied baked polyester paint or anodized.
    - d. Conform to ASTM C635 for intermediate duty systems.

- e. Include all wall and corner moldings, hold down clips where required, and edges.
- 3. Approved Manufacturers:
  - a. Armstrong
  - b. Chicago Metals Inc.
  - c. Donn Products DX Exposed Tee System.
  - d. USG Interiors, Inc.
- C. Acoustical Ceiling Panels
  - 1. Colors, styles and sizes as indicated on drawings
  - 2. Approved Manufacturers
    - a. Armstrong
    - b. Celotex
    - c. USG

### **2.03: Other Materials**

- A. Provide other accessories and materials as indicated or required for a complete installation of indicated suspended and acoustical ceiling systems, including hold down clips.
- B. Wall Moldings: Provide matching metal and fiberglass wall moldings as appropriate.

## **PART 3: EXECUTION**

### **3.01: Inspection**

- A. Inspect the work of other trades for proper conditions to install all suspended ceilings as specified and directed in this section.
- B. In the event of any unsuitable conditions, do not proceed until those conditions have been corrected. Proceeding indicates acceptance of underlying conditions.

### **3.02: Coordination**

- A. Coordinate the layout and installation of suspended acoustical ceilings and components with other work support by or penetrating through ceilings, including light fixtures, HVAC equipment and fire suppression system components and the work of other trades.

### **3.03: Tolerances**

- A. Variances from level or specified slopes in ceiling, grids and panels, horizontal grooves and other conspicuous lines:
  - 1. One-eighth of an inch (1/8") in any ten feet (10'-0") of length.
  - 2. One quarter of an inch (1/4") for the entire length.
- B. Variance from building lines established in plan:
  - 1. One-quarter of an inch (1/4") in any twenty feet (20'-0") of length.
  - 2. One-half (1/2") over the entire building length.

### **3.04: Installation**

- A. Refer to reflected ceiling plan for layout.
- B. Joints shall be continuous. Broken jointing shall not be accepted.
- C. Joints shall be parallel to rooms unless noted otherwise on drawings.
- D. Perimeter panels shall not be less than ½ width of length of field units in that direction in so far as possible, unless otherwise approved or indicated.
- E. Consult other trades involved before start of ceiling work to determine areas of potential interference. Do not start installation until interferences have been resolved.
- F. Install in accordance with ASTM C636 and manufacturer's instructions. Do not use defective or damaged materials.
- G. Provide all hangers and inserts necessary to support acoustical ceilings. Provide in time to avoid delay in progress of work. Locate and align hangers and inserts correctly. Coordinate location and alignment with work of other trades.
- H. Provide supplementary rough suspension system and trapezing where necessary to support acoustical ceilings beneath pipes, ducts, equipment, etc. Do not suspend any part of rough suspension system or acoustical ceilings from ducts, pipes, conduit, equipment, etc. Provide structural members sized as required to span ducts, etc.
- I. Suspend suspension systems from structural support, framing members, floor deck, or rough suspension system. Locate hangers to avoid contact with insulation covering ducts and pipes. Splay hangers only where obstructions or other conditions preclude plumb, vertical installation. Offset horizontal forces of splayed hangers by countersplaying, bracing or other approved methods.
- J. Space hangers to prevent loads from items in or on ceiling from causing eccentric deflection and rotation exceeding specified limits. Provide additional hangers to support lighting fixtures (including seismic loading of fixtures). Provide hangers not more than 6 inches from ends of main runners. Support main runners directly from hangers. Do not bear on walls or partitions.
- K. Space main runners to support ceiling units and other work resting in or on ceiling. Deflections of grid system with all superimposed loads shall not exceed 1/360 of length of span.
- L. Tightly secure supporting members to hangers to prevent vertical displacement and rotating of main runners. Level after installation to a surface deviation tolerance not more than 1/8 inch in 12 feet, and 1/4 inch total, with hangers taut, to prevent subsequent downward movement under ceiling loads.
- M. Install moldings where ceilings meet walls, partitions or other vertical elements. Support runners and border units on moldings. Secure moldings to wall construction by fastening through holes drilled in web. Space holes not more than 3 inches from each end and not more than 16 inches o.c. Draw up fasteners for tight set against vertical surfaces. Miter cut inside and outside corners. Level to a tolerance not more than 1 in 360. Install moldings with exposed leg supporting bottom face of tegular acoustical panels with ends of runners and cross tees supported above molding depth of panel reveal by appropriate means.
- N. Leave suspension system ready to accept installation of acoustic materials.
- O. Install bracing to conform with seismic requirements. If not specifically noted, or required otherwise by jurisdictional authorities, provide at twelve (12) feet on centers minimally diagonal bracing of sets of four hanging wires attached at one point of main runners and attached at 90 degrees to each other to structure above.



- P. Install rigid supports as necessary to resist uplift forces at grids at exterior areas complete with hold down clips for panels.

**3.05: Correction of Work**

- A. Make corrections from whatever cause until acceptance of project. Correct defects thereafter which are the result of faulty materials and workmanship. Correct all work that does not meet performance requirements of this specification.

**3.06: Clean Up**

- A. At the end of each day's work and at final completion, the site shall be free of all waste materials and equipment used by the Contractor.
- B. Remove all waste materials and debris and dispose of in a legal and safe manner.
- C. The Contractor shall be responsible for maintaining a clean work place and shall pay for all costs, at no additional cost to the Owner, should outside labor and equipment be used to clean up the work site.
- D. Prevent waste materials from entering and accumulating in the storm drainage system and on adjacent property.

\*\*\*End of Section 09 53 23\*\*\*

## **SECTION 09 65 00 – RESILIENT FLOORING**

### **PART 1: GENERAL**

#### **1.01: General Requirements**

- A. Conform to the general provisions of the Contract, General and Supplementary Conditions to the contract, Division One of this Specification, the Drawings and this Specification Section.
- B. Should conflict arise between the Drawings and the provisions of the Specifications, the Specifications shall govern.

#### **1.02: Scope of Work (includes but is not necessarily limited to the following):**

- A. General
  - 1. Refer to the drawings and the Room Finish Schedule for the extent of work covered under this section.
  - 2. Inspect existing conditions and the work of other trades for proper conditions before the work of this section begins.
  - 3. Protect people, property, the work of the Section, and the work of other trades from injury and damage.
  - 4. Coordinate the work of this section with work of other trades.
- B. Work included:
  - 1. Provide all material, tools, labor, and equipment necessary for the fabrication and installation of all resilient flooring and base.

#### **1.03: Related Work Specified Elsewhere (includes but is not necessarily limited to the following):**

- A. Section 03 30 00, Cast-in-Place Concrete.
- B. Section 09 29 00, Gypsum Wallboard and Sheathing.
- C. Section 09 68 00, Carpeting.
- D. Section 09 90 00, Painting.

#### **1.04: Regulatory Codes and Agencies**

- A. Refer to Divisions 0 and 1.

#### **1.05: References**

- A. Publications listed herein are part of this specification to the extent referenced. The criteria established within these specifications shall take precedence over the standards referenced herein.
  - 1. American Society for Testing and Materials (ASTM):
    - a. ASTM E 648, Critical Radiant Flux.
    - b. ASTM E 662, Smoke Generation.

**1.06: Submittals**

- A. Make all submittals in accordance with Specification Section: 01 33 23
- B. Product Data:
  - 1. Submit manufacturer's published literature for specified products and accessories as applicable, including manufacturer's specifications, physical characteristics and performance data.
  - 2. Submit, as a supplement, manufacturer's technical data, installation and maintenance instructions for flooring and accessories, if not included in manufacturer's published literature.
- C. Submit shop drawings for approval, including, but not limited to, the following:
  - 1. Seaming plan and coving details.
- D. Samples: Submit three (3) of the following:
  - 1. Six inch (6") by nine inch (9") samples of each specified resilient sheet and tile flooring.
  - 2. Minimum six inch long (6") of each color for resilient base and accessories.
  - 3. Obtain approval before proceeding.
- E. Mock ups:
  - 1. Submit two mock-ups for approval of welded seams.
  - 2. Mock up shall consist of minimum 24" long welded seam applied between two pieces of resilient sheet flooring.
  - 3. One approved mock up shall be stored on site protected from elements, deterioration and damage.
  - 4. Approved mock-ups shall serve as examples of color and installation to field applied products.

**1.07: Quality Control**

- A. Obtain all materials from a single source and manufacturer unless given prior approval in writing by the Architect.
- B. Fabricator qualifications:
  - 1. Fabricator shall have a minimum of 10 years of experience in the fabrication of resilient flooring of the highest quality.
  - 2. Fabricator shall have plant, facilities and personnel adequate for the production of tile as required by this Section and within the construction schedule.
- C. Installer qualifications:
  - 1. Workers shall be thoroughly trained in the skills required for the installation of resilient flooring.
  - 2. Workers shall be completely familiar with all specified or approved manufacturers' most current published literature and recommendations.
  - 3. Installer shall be certified by floor covering manufacturer as competent in the technique of heat welded seams.
  - 4. Workers shall have a minimum of two (2) years of experience on projects of similar size and construction type to this project.

- D. Fire Test Response Characteristics:
  - 1. ASTM E 648 Critical Radiant Flux of .45 watts per sq. cm. Or greater, Class I or Class II.
  - 2. ASTM E 662 (Smoke Generation) Maximum Specific Optical Density of 450 or less.

### **1.08: Workmanship**

- A. Level of skill: In the acceptance or rejection of installed product, no allowance will be made for a lack of skill.
- B. Indication of a lack of skill from the worker shall be sufficient grounds for the Architect to reject the applied coating and to require its complete removal and complete (re-application, re-installation) at no additional cost to the Owner.

### **1.09: Delivery, Storage, and Handling**

- A. Delivery:
  - 1. Deliver materials to the site without defects, damage or deterioration.
  - 2. Deliver all materials in the original unopened packages, containers, or bundles with manufacturer original label intact and legible. Do not remove labels.
  - 3. Do not deliver to the site more than one week prior to installation. Coordinate with the General Contractor for proper delivery time.
  - 4. Do not Deliver to the building until the building is enclosed, dry and heated to a minimum temperature of 60 degrees Fahrenheit. Relative humidity shall be within 15% of the mechanical engineer's design relative humidity.
  - 5. Store all resilient flooring materials as necessary to protect from sunlight, heat, moisture, dirt, rust, mud, temperature change, open flames and contaminants which may damage the flooring's appearance and specified characteristics.
- B. Handling
  - 1. Handle all materials so as to prevent damage.
  - 2. Do not apply any damaged resilient flooring, base or associated products and accessories.
  - 3. Until final acceptance is received, replace any and all damaged resilient flooring, bases and associated products and accessories at no cost to the owner.
- C. Storage:
  - 1. Store the resilient flooring to be protected from the elements with a waterproof covering, ventilated to avoid condensation.
  - 2. Store materials indoors.
  - 3. Precautions: Maintain temperature of resilient base materials at not less than 70 degrees F. for 48 hours just prior to laying, during laying, and for 48 hours after laying.

### **1.10: Protection**

- A. Protect people from injury and adjacent property, structures, and the work of other trades from damage.
- B. The Contractor or Subcontractor shall repair or replace, as directed by the Architect, all work or property damaged by the Contractor or Subcontractor at no additional cost to the owner.

- C. Protect the work of this section from damage until final acceptance is given by the Architect or Owner.

### **1.11: Guarantees and Warranties**

- A. Submittal: In accordance with requirements of Division 1, submit guarantee in writing.
- B. Upon completion of work and after the manufacturer's representative has signed an acceptance of work statement, the manufacturer shall issue a written guarantee against defective materials and workmanship for five (5) years from completion of work.

## **PART 2: PRODUCTS**

### **2.01: Products**

- A. Provide resilient flooring by manufacturer as scheduled in the finish schedule located on the drawings

### **2.02: Abbreviations**

- A. Refer to the following abbreviations when referencing material type, color and finish.
  - 1. SV: Resilient sheet flooring (often referred to as sheet vinyl)
  - 2. VCT: Resilient Tile flooring (often revered to as Vinyl Composition Tile)
  - 3. RB: Resilient Base
  - 4. VP: Vinyl Plank
  - 5. T: Transition floor strip

### **2.03: Materials**

- A. See drawings for manufacturer, color, and style.
- B. Resilient Sheet Flooring, Homogeneous:
  - 1. Provide 0.080 in. thick non-layered and non-backed homogeneous vinyl sheet flooring with a polyurethane-coated wear surface.
- C. Resilient Sheet Flooring, Heterogeneous:
  - 1. Provide heterogeneous sheet vinyl having a nominal total thickness of 0.080 in. (2.0 mm). The smooth, polyurethane-coated wear surface shall be composed of polyvinyl chloride resin, plasticizers, stabilizers, fillers, and pigments with a nominal thickness of 0.060 in. (1.52 mm) consisting of through-grain vinyl chips with color and pattern detail dispersed uniformly throughout the wear layer thickness. Vinyl sheet flooring shall conform to the requirements of ASTM F 1303, Type II, Grade 1, Class A backing.
- D. Resilient Tile Flooring:
  - 1. Provide 12" x 12" x 1/8" gauge vinyl composition tile.
- E. Resilient Base and Accessories:
  - 1. Types:
    - a. Coved base
    - b. Reducer strips

- c. Carpet Top Sets
    - d. Subfloor leveler system
  - 2. Height:
    - a. Coved base: Six inches high (6")
    - b. Carpet Top Set Base: Four inches high (4")
- E. Accessory Materials:
  - 1. Adhesives: Adhesives shall be waterproof and stabilized type as recommended by the manufacturer of each product to be adhered.
  - 2. Concrete Slab Primers: Use a non-staining type as recommended by the resilient flooring manufacturer.
  - 3. Floor levelers: Refer to Section 03300 for information on levelers required over concrete surfaces.
  - 4. Welding Rods and Sealers:
    - a. Use types made or recommended by the resilient flooring manufacturer.
    - b. Color to match field base color.
    - c. Submit samples showing actual applied material between two full pieces of specified flooring
  - 5. Stringer Material: Flexco Type STR
  - 6. Carpet Stair Nosing: Flexco #71
  - 7. Cove Stick: Flexco #95

#### **2.04: Fabrication of Products**

- A. Field verify all dimensions and clearances prior to fabrication.
- B. Fabricate per manufacturer's recommendations.

### **PART 3: EXECUTION**

#### **3.01: Inspection of Other Trades' Work**

- A. Inspect the work of other trades prior to commencing work of this section. Inspect concrete floor for the following:
  - 1. Discrepancies
  - 2. Substandard conditions such as cracks, bulges, or depressions
  - 3. Improper floor slope or out-of-level condition.
  - 4. Any other conditions detrimental to the work of this section.
- B. In the event of any unsuitable conditions, do not proceed until those conditions have been resolved. Beginning work equals acceptance of underlying conditions.
- C. Perform mat moisture and bonding test as per flooring manufacturer's recommendations to ensure proper conditions for installing resilient flooring.
- D. Allow 72 hours before inspection of test. Do not install resilient flooring until proper conditions exist as per flooring manufacturer's recommendations.

### **3.02: Coordination**

- A. Coordinate all work involving material, labor and equipment of other trades penetrating or attaching to the work of this section so that each trade's work can be installed, erected or fabricated as designed and required in the drawings and that the work space is maintained and left clean and safe.

### **3.03: Environmental Conditions**

- A. Maintain a minimum temperature in the spaces to receive the flooring and accessories of 65 degree Fahrenheit and a maximum temperature of 100 degrees Fahrenheit for at least 48 hours before, during, and for not less than 48 hours after installation.
- B. Thereafter, maintain a minimum temperature of 55 degree Fahrenheit in areas where work is completed. Protect all materials from the direct flow of heat from hot-air registers, radiators, or other heating fixtures and appliances.

### **3.04: Preparation**

- A. Grind all bumps and bulges so that they are smooth and even with adjacent concrete, matching degree of slope or level.
- B. Patch and cover all cracks, depressions, control joints, and expansion joints with latex patching compound. Apply compound as per manufacturer's recommendations. Smooth surface of compound to adjacent finished surfaces for a uniform surface.
- C. Remove coatings and other substances that are incompatible with adhesives from concrete substrates. Use mechanical methods recommended by manufacturer; avoid organic solvents.
- D. Vacuum or broom-clean surfaces to be covered immediately before the application of flooring. Make subfloor free from dust, dirt, grease, and all foreign materials.

### **3.05: Installation**

- A. General: Install in strict accordance with manufacturer's direction. Install only after all finishing operations, including painting, have been completed and permanent heating system is operating. Moisture content of concrete slabs, building air temperature and relative humidity must be within limits recommended by tile manufacturer.
- B. Installation of Resilient Sheet Flooring
  - 1. Install flooring in strict accordance with the manufacturer's written instructions.
  - 2. Install flooring wall-to-wall before the installation of floor-set cabinets, casework, furniture, equipment, movable partitions, etc. Extend flooring into toe spaces, door recesses, closets, and similar openings as shown on the drawings
  - 3. If required, install flooring on pan-type floor access covers. Maintain continuity of color and pattern within pieces of flooring installed on these covers. Adhere flooring to the subfloor around covers and to covers.
  - 4. Scribe, cut, and fit to permanent fixtures, columns, walls, partitions, pipes, outlets, and built-in furniture and cabinets.
  - 5. Adhere flooring to the subfloor without cracks, voids, raising and puckering at the seams. Roll with a 100-pound roller in the field areas. Hand-roll flooring at the perimeter and the seams to assure adhesion. Refer to specific rolling instructions of the flooring manufacturer.

6. Lay flooring to provide a minimum number of seams. Avoid cross seams, filler pieces, and strips. Match edges for color shading and pattern at the seams in compliance with the manufacturer's recommendations.
7. Install flooring with adhesives, tools, and procedures in strict accordance with the manufacturer's written instructions. Observe the recommended adhesive trowel notching, open times, and working times.
8. Prepare heat-welded seams with special routing tool supplied for this purpose and heat weld with vinyl welding rod in seams. Use methods and sequence of work in conformance with written instructions of the flooring manufacturer. Finish all seams flush and free from voids, recesses, and raised areas.
9. Provide integral cove wall base where shown on the drawings, including cove fillet support strip and top edge cap trim. Construct flash cove base in accordance with the flooring manufacturer's instructions. Heat-weld seams as specified for those on the floor.

**C. Installation of Resilient Tile Flooring**

1. Install flooring in strict accordance with the manufacturer's written instructions.
2. Install flooring wall-to-wall before the installation of floor-set cabinets, casework, furniture, equipment, movable partitions, etc. Extend flooring into toe spaces, door recesses, closets, and similar openings and as shown on the drawings.
3. If required, install flooring on pan-type floor access covers. Maintain continuity of color and pattern within pieces of flooring installed on these covers. Adhere flooring to the subfloor around covers and to covers.
4. Scribe, cut, and fit to permanent fixtures, columns, walls, partitions, pipes outlets, and built-in furniture and cabinets.
5. Install flooring with adhesives, tools and procedures in strict accordance with the manufacturer's written instructions. Observe the recommended adhesive trowel notching, open times, and working times.

**D. Installation of Resilient Base and Accessories**

1. Apply top set wall base to walls, columns, casework, and other permanent fixtures in areas where top-set base is required.
2. Install base in lengths as long as practical, without gaps at seams and with tops of adjacent pieces aligned.
3. Tightly adhere wall base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates. Do not stretch base during installation.
4. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient wall base with manufacturer's recommended adhesive filler material.
5. Install pre-molded outside corners before installing straight pieces. Job-cut outside corner will not be accepted.
6. Form inside corners on job, from straight pieces of maximum lengths possible. Cut an inverted V-shaped notch in toe of wall base at the point where corner is formed. Shave back of base where necessary to produce a snug fit to substrate.
7. Scribe and fit to door frames and other obstructions.
8. Install straight and level to variation of plus or minus 1/8 inch over 10 feet.



9. Fill voids with plastic filler along the top edge of the resilient wall base or integral cove cap on masonry surfaces or other similar irregular substrates.
10. Place resilient edge strips tightly butted to flooring, and secure with adhesive recommended by the edge strip manufacturer. Install edge strips at edges of flooring that would otherwise be exposed.
11. Apply overlap metal edge strips where shown on the drawings, after flooring installation. Secure units to the substrate, complying with the edge strip manufacturer's recommendations.

### **3.06: Protection**

- A. Protect resilient flooring against damage from rolling loads by covering with plywood or hardboard. Transport loads using dollies.
- B. Cover resilient flooring with undyed, untreated building paper until final inspection.
- C. Apply protective floor polish to resilient floor surfaces.

### **3.07: Installation of Work Elsewhere**

- A. Coordinate all work involving material, labor and equipment of other trades penetrating or attaching to the work of this Section, so that each trade's work can be installed, erected or fabricated as required and that the work space be maintained and left clean and safe.

### **3.08: Adjust and Repair**

- A. Replace or repair damaged resilient flooring and base.
- B. Clean resilient flooring and base. Comply with manufacturer's instructions for cleaning and touch up of minor finish damage. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

### **3.09: Inspection**

- A. Inspect system components for proper fit. Adjust, repair or replace components not conforming to requirements. Repair or replacement of an individual unit shall be as approved by the Architect.

### **3.10: Clean Up**

- A. At the end of each day's work and at final completion, the site shall be free of all waste materials and equipment used by the contractor. Remove all waste materials and debris and dispose of in a legal and safe manner off of site.
- B. The contractor shall be responsible for maintaining a clean work place and shall pay for all costs, at no additional cost to the Owner, should outside labor and equipment be used to clean up the work site.
- C. Immediately after installation has been completed:
  1. Sweep or vacuum floor thoroughly.
  2. Damp mop floor, being careful to remove black marks and excessive soil.

3. Do not wash floor until time period recommended by resilient flooring manufacturer has elapsed to allow resilient flooring to become well sealed in adhesive.
4. Remove excess adhesive or other surface blemishes from resilient flooring, using neutral type cleaners recommended by the resilient flooring manufacturer.
5. Prevent waste materials from entering and accumulating in the storm drainage system and on adjacent property.

**3.11: Extra Stock**

- A. Furnish extra stock of quantity equal to 5% of amount installed, in full-size units, for each type, color, size and finish of tile for the Owner's future use in replacement of damaged tile. Store tile in unopened factory cartons clearly marked to identify contents.

**\*\*\*End of Section 09 65 00\*\*\***

## **SECTION 09 68 00 - CARPETING**

### **PART 1 GENERAL**

#### **1.1 WORK INCLUDED**

- A. Inspect and approve surfaces to receive carpet.
- B. Install edge strips where carpet terminates at other floor finishes.

#### **1.2 STANDARDS**

- A. The following associated standards (and all latest revisions thereto) shall apply to this work in their full content except as may be noted herein. The Contractor is responsible for application to the specific items found herein.
  - 1. Carpet and Rug Institute.

#### **1.3 CODES**

- A. Carpet shall meet the following Specification Standards, including current revisions thereto apply to this work in their full content except as may be noted herein. The Contractor is responsible for their application to the specific items found herein.
  - 1. Certified to pass the Methenamine Tablet Test for Flammability (DOC FF-1-70 or ASTM D2859).
  - 2. Flooring Radiant Panel Test (ASTM E-648 or NFPA 253) with Class 1 rating of .45/cm<sup>2</sup>.

#### **1.4 QUALITY ASSURANCE**

- A. Installer: A firm with not less than 5 years experience in installation of commercial carpet, by methods similar to those required for this project.
- B. All materials shall be installed by workmen skilled in the carpet trade, and shall meet or exceed the highest standards of the carpet.

#### **1.5 SUBMITTALS**

- A. Shop Drawings; Submit in accordance with Section 01300. Indicate layout and details of installation and location of edge strips, method of joining seams, type of adhesive to be used, method of integrating edge strips with carpet.
- B. Maintenance Data: Manufacturer's complete recommended cleaning and maintenance instruction, including identification of maintenance products and instructions, for repair of minor carpet damage.

#### **1.6 EXTRA STOCK AND REMNANTS**

- A. Refer to section 3.4 of this specification.

#### **1.7 DELIVERY AND STORAGE**

- A. Deliver carpet in rolls covered with original mill protective wrapping and in sealed cartons with register number tags attached to each roll or carton. Deliver tags to the Architect along with a sample of carpet cut from each roll.
- B. Store flat in dry protected, well ventilated areas.

**1.8 JOB CONDITIONS**

- A. Environmental Conditions: Building and carpet materials shall be heated at a minimum of 68 degrees F for at least 72 hours prior to installation with the relative humidity not more than 65%. Keep temperatures at same level night and day during installation for at least 40 hours after completion of installation. A minimum temperature of 50 degrees F shall be maintained thereafter.

**1.9 GUARANTEE**

- A. Provide owner with installer's written guarantee that shall guarantee completed installation be free of defects in materials and workmanship for a period of one year after final acceptance. Guarantee shall provide for replacement of defective work at no cost to Owner.
- B. Provide Owner with manufacturer's written guarantee signed by an officer of the firm, that warrants carpet against delamination edge ravel and tuft bind for a period of fifteen (15) years. Warranty shall provide for replacement of defective material on a non-prorated basis at no cost to Owner.
- C. Provide Owner with manufacturers' written guarantee, signed by an office or the corporation, that warrants carpet against excessive wear (loss over 10% of face yarn by weight) within a period of fifteen (15) years. Warranty shall provide for replacement of worn areas at no cost to Owner.

**PART 2 PRODUCTS**

**2.1 PRODUCTS**

- A. Carpet: Provide carpet by manufacturer listed in the Room Finish Schedule on the drawings.

**2.2 ACCESSORIES**

- A. Carpet to Porcelain Tile flooring transition: Transitions by Schluter Systems, style and finish per interior list of finishes. Float flooring as required for smooth transitions.
- B. Carpet to Vinyl: Jonhsonite as indicated in the interior list of finishes. Float flooring as required for smooth transitions.
- C. Metal Edge Strip; Tamp down metal edge strip to Trim Edge, color as selected by Architect from manufacturer's standards.
- D. Carpet Pad: As recommended by carpet manufacturer.
- E. Tack strips.

**PART 3 EXECUTION**

3.1 INSPECTION AND PREPARATION

- A. Prior to installation, inspect sub-flooring for cracks, holes, abrasions, rough spots and ridges and be sure floor has been cleaned of dust, dirt, solvents, oil, grease, paint, plaster, wax and other substances detrimental to proper performance of adhesive and carpet, or other conditions that will adversely affect execution and quality of work. Report discrepancies in writing to Construction Manager with copies to Architect.
- B. Concrete slabs shall be aged 60 days minimum. If directed, perform moisture test and obtain acceptable results. See manufacturer's specifications for porosity of floor.
- C. Fill depressions, holes, and cracks with latex underlayment. Do not use water base "floor stone" product. Trowel and featheredge underlayment to a smooth and level surface. Grind down high spots and finish with underlayment. Finish floor level to within 1/8"; in 10 feet. Do not proceed until defects are corrected.
- D. Carefully check dimensions and other conditions in facilities and be responsible for proper fitting of carpet in areas designated.
- E. Do not proceed until defects are entirely corrected. Application or installation of carpet shall constitute acceptance of substrates.

3.2 INSTALLATION

- A. All materials shall be installed by qualified carpet mechanics under proper supervision. Prior to installation, all floor irregularities shall be repaired and the floor shall be thoroughly clean with all grit and dirt removed before carpet is laid.
- B. Lay carpet on floors with the run of the pile in same direction as anticipated traffic flow.
- C. Do not change run of pile on any one room or from one room to next where a continuous through a wall opening exists. If multiple wall openings exist, lay carpet with run of pile continuous through openings with heaviest anticipated traffic flow.
- D. Use mill's recommended seam sealer at all seams. (NOTE: The carpet installer should be a qualified experienced professional, using all proper equipment as recommended by manufacturer.
- E. At columns and other penetrations, cut carpet with maximum possible overage. Position the seams made by these cuts first.
- F. Neatly trim edgings of carpet for tight fit to walls and base; cut and fit evenly around projection and into trim strips.
- G. Fit closely and evenly to, in and through doorways, terminating carpet under doors.
- H. Lay carpet with a minimum of seams in accordance with approved Shop Drawings. Do not place seams perpendicular to doors or entries. Minimize seams in traffic lanes. Do not install carpet from different dye lots adjacent to or abutting each other in the same areas. Materials abutting one another shall have no noticeable variation in color.
- I. Cross joints necessary due to layout of areas shall be at absolute minimum.

- J. Cross joints necessary due to length of rolls received shall be placed in cutting to avoid occurrence at conspicuous locations, near doors or at pivot points.
- K. Install edge strip where carpet meets other flooring materials, including door opening locations. Trim toe of reducer to same thickness as adjacent flooring material. Use full length pieces only. Butt tight to vertical surfaces. Where splicing cannot be avoided, butt end and flush.
- L. Neatly cut carpet around floor openings, electrical outlets and other projections.
- M. Leave finished installation smooth and free of ripples, puckers or other defects.

**3.3 PROTECTION AND CLEANING**

- A. After carpet installation is completed, remove remnants, wrapping paper and debris.
- B. Remove loose pieces of yarn with sharp scissors.
- C. Remove soiled spots from carpet using proper spot remover.
- D. Clean carpet with commercial beater bar type vacuum cleaner.
- E. Repair any damages or stains to adjacent materials, caused by installer or his workmen.
- F. Do not place heavy objects such as furniture on carpet surface for minimum of 24 hours.

**3.4 REPLACEMENT CARPET**

- A. Upon completion of the current installation, the carpet contractor shall deliver to the Owner an amount of each type or pattern of carpet used equal to 5% of the net area laid about not to exceed ten (10) square yards. Trim strips and cutouts suitable for patching purposes shall be delivered to Owner.

**3.5 PRECAUTIONS**

- A. Precautions shall be taken to protect work performed or completed by other trades.
- B. The carpet installer shall be responsible for his damages to work of other trades.
- C. The carpet subcontractor shall inspect all surfaces to receive carpet prior to the beginning of any carpet installation and shall notify the Construction Manager in writing of any surfaces not properly prepared.
- D. Appropriate equipment will be used during the installation per manufacturer's recommendation.
- E. Upon completion of the total installation of carpeting, the carpet shall be smooth, uniform, pattern-matched. All remnants and scraps smaller than 3'x3' shall be removed from the job site.
- F. Maintenance Manuals: The carpet manufacturer shall furnish the Owner a minimum of three printed copies of the manufacturer's recommendation for the care, cleaning and maintenance for the carpet furnished. After installation is completed, the carpet installer shall instruct the Owner's maintenance personnel in the care, cleaning, and maintenance of the installed carpet.

**\*\*\*End of Section 09 68 00\*\*\***

## **SECTION 09 90 00 – PAINTING AND COATINGS**

### **PART 1: GENERAL**

#### **1.01: General**

- A. Conform to the general provisions of the contract, General and Supplementary Conditions to the contract, Division One of this Specification, the Drawings and this Specification Section.
- B. Should conflict arise between the Drawings and the provisions of the Specifications, the Specifications shall govern.
- C. The Contractor shall furnish all labor, materials, tools, equipment, and perform all Work and services necessary for, or incidental to, the furnishing and installation, complete, of all interior painting, staining, and sealing as shown on Drawings and as specified, in accordance with Provisions of the Contract Documents, and completely coordinated with Work of all other trades.
- D. Although such Work is not specifically shown or specified, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to, or necessary for, a sound, secure and complete installation.

#### **1.02: Scope of Work**

- A. Refer to the drawings and Room Finish Schedule for the extent of the painting covered under this section.
- B. Inspect underlying conditions and related work of other trades to ascertain that conditions are suitable for the application of finishes as specified in this section. If conditions are not satisfactory, do not proceed until unsatisfactory conditions have been resolved. Beginning work indicates acceptance of underlying conditions.
- C. Provide all materials, labor and equipment required for the painting of all exposed surfaces, including the painting of all areas cut and patched by others in the pursuit of work, unless specifically scheduled or specified otherwise, as shown on the drawings and directed by this specification.
- D. Protection of other trades' work from unwanted paint.

#### **1.03: Surfaces Not to be Painted**

- A. Unless specifically specified otherwise, the following surfaces are not to be painted:
  - 1. Exposed finish metals (aluminum, brass, bronze, stainless steel, copper, chrome not previously painted)
  - 2. Sealant, interior and exterior.
  - 3. Ceramic tile.
  - 4. Concrete walking surfaces and horizontal site concrete. (See Section 02517 for pavement markings.)
  - 5. Resilient base.
  - 6. Glass and mirrors, including frames.
  - 7. Plastic laminate.

8. Carpet.
9. Tree grates.
10. Sprayed fireproofing.
11. Items specified as having a complete factory finish, except items built into surfaces which have painted finish or were previously painted.
12. Permanently concealed surfaces need not be painted, except for prime coats on metal and millwork.
13. Furnishings, except as noted.
14. Lockers.
15. Exposed concrete masonry units, except as noted.

**1.04: Related Work Specified Elsewhere**

- A. Section 32 17 23: Pavement Markings.
- B. Section 05 50 00: Metal Fabrications.
- C. Section 08 11 13: Hollow Metal Doors and Frames.
- D. Section 08 14 00: Wood Doors and Frames
- E. Section 09 29 00: Gypsum Wallboard and Sheathing.
- F. Section 09 53 23: Suspended Acoustical Ceiling Systems.

**1.05: Protection**

- A. Protect people from injury. Protect the work of other trades, adjacent property, and structures from damage and undesired paint.
- B. The Contractor or Subcontractor responsible shall repair or replace, as directed by the Architect, all work, injuries or property damaged by the Contractor or Subcontractor at no additional cost to the Owner.

**1.06: Quality Control**

- A. Source: Use a single source for each type and color of paint specified for uniformity of color and finish.
- B. Applicator Qualifications: Use applicators who are thoroughly apprenticed and trained. Applicators shall have a minimum of 3 years experience in the skills required to apply the paint as specified in this section and shall be completely familiar with the manufacturer's current method of application.
- C. Provide at least one person who shall be present at all times during the execution of the work of this section and who shall be thoroughly trained and experienced in the materials and methods required and who shall direct the entire application of all paint specified in this section.
- D. The Owner reserves the right to conduct inspections and/or tests of products, surfaces and finished coatings at any time. The Owner shall have the right to contract with an independent testing service to verify that all specifications for this project are being met.



- E. Indication of a lack of skill on the part of the painting applicators shall be sufficient grounds for the Architect to reject the applied paint and require it to be completely repaired, removed, or repainted as directed by the Architect at no additional cost to the Owner.
- F. Visual Standards: The following visual tests shall be applicable to all paint, stain and varnish finishes as viewed in their normal lighting environment.
  - 1. Variations in color: See Submittals.
  - 2. Orange Peel (Slight depressions in surface, similar to the skin of an orange): None visible.
  - 3. Runs (Running of wet finish film in rivulets): None visible.
  - 4. Sags (Partial slipping of finish film creating a "curtain" effect): None visible.
  - 5. Finish sanding scratches: None visible.
  - 6. Blistering (Small, swelled areas like a water blister on human skin): None visible.
  - 7. Glue spots: None.
  - 8. Checking, grazing, or cracking: Crowfoot separations (check), irregular line separations (alligator check), and formations like dried mud (cracking): None.
  - 9. Filled holes and blemishes: Not noticeable beyond 3'-0".
  - 10. Surface reflectance: There shall be no variations in surface reflectance.

### **1.07: Standard Specifications**

- A. Architectural Specifications Manual--Paint, Wallcovering and Gypsum Wallboard Finishing, latest edition, published by Specification Services, 27606 Pacific Highway South, Kent, Washington, 98032. Telephone: (206) 941-8823. The words "Specifying Authority," as used in the Standard Specifications Section, shall mean the Architect.

### **1.08: Colors**

- A. Colors: As indicated on all finish schedules

### **1.09: Submittals**

- A. Make all submittals in accordance with Section 01 33 23 – Shop Drawings, Product Data, and Samples.
- B. Product Data: For each paint system indicated, including.
  - 1. Product characteristics.
  - 2. Surface preparation instructions and recommendations.
  - 3. Primer requirements and finish specification.
  - 4. Storage and handling requirements and recommendations.
  - 5. Application methods.
  - 6. Cautions for storage, handling and installation.
- C. Manufacturer's Specification, Directions and Recommendations: Conform to manufacturer's specifications, directions and recommendations for the use of each of their products for each condition. Should they be at a variance with these specifications, report discrepancy to Architect for decision.
- D. Material Lists:

1. Submit list of all products proposed for use for Architect's approval.
  2. Submit 3 copies before commencing painting, complete with name of manufacturer, trade name or number, and purpose for which material is proposed.
  3. Obtain Architect's approval before ordering.
- E. Samples:
1. Submit 3 dry samples of each type of stain and paint finish and color specified, indicated, or scheduled, on 8-1/2" x 11" (or other size if specified elsewhere) sheet of substrate to which it is to be applied. Label paint type, application specified, and manufacturer in accordance with Section 01300 of the Specifications. Furnish additional samples as required until colors, finishes, and textures are approved.
  2. Apply concrete/masonry sealers to sample panel at the site for architect's approval.
  3. If, in the judgment of the painter, the wood species or finish method selected indicates that color variations may be inevitable, the painter may elect to submit samples in sets of 3 or more illustrating the possible range of these variations.
  4. The approved finished sample or sample sets shall become the final criteria for evaluating color and finish appearance conformity.
  5. Timing for Submittal of Samples: Submit after material list is approved and colors are selected; before materials are delivered to job; and in ample time to permit consideration without delaying construction schedule.
  6. Verification Samples: For each finish product specified, submit samples that represent actual product, color, and sheen.
  7. Record Paint Sample: In accordance with Section 01700, Project Closeout, submit in triplicate 4" x 4" paint sample of each paint and color used, including paint manufacturer and formula number.

### **1.10: Delivery, Storage, and Handling**

- A. Delivery: Deliver paint materials to the job site in sealed, unopened containers with manufacturer's original labels intact and legible, each bearing manufacturer's name, type of paint, brand name, color designation, and instructions for mixing and/or reducing. Do not remove labels.
- B. Storage Materials: Adequate storage facilities are to be made available at the job site. Store paint materials at a minimum ambient temperature of 50 degrees F, in a well ventilated and heat designated area or areas.
- C. Fire Hazard and Safety: Take all necessary precautionary measures to prevent fire hazards and spontaneous combustion and conform to the requirements of the applicable regulatory agencies.
- D. Handling: Open cans of paint and varnish only as needed. Keep rubbing cloths, oily rags and other fire hazard materials in tightly closed metal containers or remove from building at close of each day's work.
- E. Toxic Materials: Where toxic materials and both toxic and explosive solvents are used, take appropriate precautions, as a regular procedure, conforming to the manufacturer's recommendations and to the requirements of the applicable safety regulatory agencies.

### **1.11: Environmental Conditions**

- A. Weather Conditions: Do no exterior work on unprotected surfaces when raining, or moisture from any other source is present or expected before applied paints can dry or attain proper cure without damage. Allow surfaces wetted by rain or other moisture source to dry and to attain temperatures

and conditions specified by manufacturer and these specifications before proceeding with work or continuing of previously started work.

- B. Temperature: Except as noted, do no painting work when temperatures on the surface or of the air in the vicinity of the painting work are below plus 40 degrees F for interior work and plus 50 degrees F for exterior work. Comply with manufacturer's instructions if range is narrower than these specifications.
- C. Lighting: Do not proceed with work under this Section unless a lighting level of a minimum of 15 candlepower per square foot is provided on the surfaces to be painted or finished.
- D. Ventilation: Provide adequate continuous ventilation as required for the various specified materials used in the spaces scheduled, but in no case for a time less than that recommended by the paint manufacturer for drying.
- E. Measure moisture content of all surfaces using an electronic moisture meter. Do not apply finishes unless the moisture meter reading on the wood scale is 17 or below.

### **1.12: Extra Stock**

- A. Leave on premises, where directed by the Owner, not less than one gallon of each coating product used on the job. A coating product is a specific color, gloss texture and type of base. Paints and stains are to be in the manufacturer's original unopened containers with the manufacturer's original labels intact and legible.

## **PART 2: PRODUCTS**

### **2.01: General**

- A. Unless otherwise specified, furnish paint, varnish, stain, enamel, lacquer, fillers and related products for prime and intermediate and finish coats, of a type, brand and manufacture listed in Chapter 7 of the "Architectural Specification Manual", published by Specification Services, Painting and Decorating Contractors of American and Northwest Drywall Association, Seattle, Washington, latest edition, factory-labeled for positive identification.
- B. Materials not specifically noted in the "Architectural Specification Manual", latest edition, and required for the work such as linseed oil, shellac, thinners or other materials required for the work, shall be of quality not less than required by applicable published Federal or State Specification Standards, and as manufactured by approved firms.
- C. Comply with requirements of Division 1 for substitutions.

### **2.02: Mixing and Thinning**

- A. Furnish paints ready-mixed unless otherwise specified, except field-mix coatings that are in paste or powder form, or to be field-catalyzed, in accordance with the directions of its manufacturer.
- B. Fully grind pigments to maintain a soft paste consistency in the vehicle during storage that can and shall be dispersed readily and uniformly by paddle to a completely homogeneous mixture ready for use to have good flowing and brushing properties, to dry to cure free of streaks or sags and to yield the desired finish specified.

### **2.03: Sheen**

- A. Where gloss or sheen is specified or is listed as a standard for approval for the project, the terms refer to tested luster, shine or sheen of the dry film and for purposes of this specification are defined as follows, when tested with a 60-degree gloss meter:
  - 1. Flat: 10-gloss or less.
  - 2. Eggshell: 11 to 19 gloss.
  - 3. Satin: 20 to 30 gloss.
  - 4. Semi-gloss: 31 to 74 gloss.
  - 5. Gloss: 75-gloss or more.

### **2.03: Materials**

- A. General
  - 1. Use same manufacturer's products for all coats of each individual finish unless otherwise approved by Architect.
  - 2. Contractor's option to use any one of the named manufacturers for each separate finish provided exact colors selected by Architect are available.
- B. Approved paint and stain manufacturers:
  - 1. Cowman-Campbell
  - 2. Devoe
  - 3. Dupont
  - 4. Fuller
  - 5. Benjamin Moore
  - 6. National Lead Co.
  - 7. Pratt and Lambert
  - 8. Preservative Paint
  - 9. Olympic Stain Products Co.
  - 10. Parker
  - 11. Pittsburg
  - 12. Rez Woodtones, Inc.
  - 13. Sherwin Williams.
- D. Shop paint primer:
  - 1. Federal Specification TT-P-86 Types II or III, TT-P-645, or TT-P-57 Type II.
- E. Where epoxy paint is indicated on drawings
  - 1. Primer: Series 201 Epoxoprime or approved equal
  - 2. Finish: Series 280 Tneme Glaze or approved equal
  - 3. Primer and finish to be products of the same manufacturer.

## **PART 3: EXECUTION**

### **3.01: Inspection**

- A. All painting shall conform to the Field Quality Control requirements specified hereinafter. Except as noted hereinafter, starting work under this Section implies acceptance of surfaces. Unless otherwise specified hereinafter, the following surfaces are considered, under this Section, as the responsibility of other trades:
  - 1. Omit prime coats of shop primed structural steel, miscellaneous metal, sheet metal, and other shop prime coated metal items except for minimal spot touch-up painting at field welds and surfaces abraded during their installation.
  - 2. Gypsum wall board finishing of joints, moldings and fastenings.

### **3.02: Coordination**

- A. Coordinate the work of this section with the installation of work of other trades in order that all materials and products are installed and the work place of each trade shall be free from interference from another trade.
- B. General Contractor to provide a dry dust-free heated space available for priming and storage of primed material while drying. Apply prime coats prior to installation except as noted.

### **3.03: Protection**

- A. Adequately protect concrete walls, carpet, prefinished surfaces and other similar items from paint and damage caused by this work.
- B. Provide sufficient drop cloths, shields and protective equipment to prevent spray or dripping from fouling surfaces not being painted and surfaces within the paint storage and preparation areas.
- C. Place cotton waste, cloths, and material which may constitute a fire hazard in closed metal containers and daily remove from the site.
- D. Removal of Hardware and Miscellaneous Items: Carefully remove electrical outlet and switch plates, mechanical diffusers, escutcheons, surface hardware, fittings and fastenings prior to starting work under this Section. Carefully store, clean and replace these items upon completion of work in each area. Use no solvent or abrasives to clean hardware that will remove the permanent lacquer finish normally used on some of these items.

### **3.04: Preparation**

- A. Before applying paint or other finish, remove or provide ample protection for hardware, accessories, plates, factory-finished mechanical work, lighting fixtures and similar items; replace upon completion. Remove doors to paint or seal, as applicable, two coats, top and bottom edges after doors and their hardware are fitted. Use only skilled mechanics for removing and reinstalling above items. Put surfaces in proper condition for application of finishes.
- B. New work, General: Prepare surfaces to receive scheduled work under this Section as hereinafter set forth, and as supplemented by the "Architectural Specification Manual", latest edition, for surfaces not noted herein.
- C. All surfaces must be smooth, dry, uniform in texture, clean and free of all greases, dust, dirt and other detrimental substances. Remove or protect all hardware, lighting fixtures and similar finished items; return same to their original state on completion of painting. Determine that proper temperatures have been attained and will be maintained.
- D. Concrete Surfaces: Remove all traces of form oil, release agent, curing compound, efflorescence, laitance and other residue from surfaces by abrasive grit blasting to a minimum profile of 1-1/2

mils or by an approved alternate method. Apply no finishes unless the moisture meter reading is 17 or below. Apply paint to fully cured concrete only. Check surfaces for alkalinity and neutralize with zinc sulfate solution before applying paint. Remove efflorescence from surfaces by washing in a 10% solution of muriatic acid; rinse thoroughly and allow to dry before proceeding. Where surfaces are smooth, the equivalent of a steel trowel finish, etch to provide a bondable surface; obtain approval of surface before applying paint.

- E. Concrete Masonry Unit Surfaces: Remove loose particles and other unsound material; cut out and repair defective mortar, cracks, and other defects in surface. Clean laitance and residue from surfaces; check surfaces for alkalinity and neutralize before applying any paint. Remove efflorescence from surfaces by scrubbing with 10% solution of muriatic acid; rinse thoroughly and allow to dry before applying paint. Obtain approval of surface where concrete masonry unit surface is scheduled to be painted.
- F. Ferrous Metal Surfaces (General): Remove all rust and scale; wash with appropriate solvent; wire brush all unpainted welds; touch up all bare metal and scratched and abraded surfaces with metal conditioner; re-coat all wire brushed and surfaces with rust inhibiting primer that is compatible with finish coats.
- G. Steel and Iron Surfaces Shop Primed by Others: At field welded or abraded spots, apply a phosphoric acid etch solution and let set for a time recommended by the acid etch manufacturer, rinse with potable water and, when thoroughly dry, immediately apply a prime coat. Wash previously primed surfaces free of any remaining minor areas of oil and grease. Touch up damaged prime painted surfaces.
- H. Steel and Iron Surfaces Not Previously Shop Primed: Remove rust and scale by wire brushing, sandblasting, or by other methods and means to clean surface. Remove dust, dirt, oil, grease; clean surface by solvent wash; apply phosphoric acid solution and let set the time recommended by the acid etch manufacturer, rinse off with potable water and, when thoroughly dry, immediately apply prime coat. Any defects showing in primed surface to be repaired by other trades, then re-prime over repaired defects.
- I. Galvanized Metal Surfaces: Prepare in accordance with paragraph 3.7.12 of Standard Specifications and herein. Remove surface contamination, wash metal with phosphoric acid or approved solution, (or) apply one coat of etching type primer.
- J. Aluminum: Remove surface contamination by steam, high-pressure water, or solvent washing. Apply etching type primer, (or) acid etch, let dry, then immediately prime paint.
- K. Anodized Aluminum: No work required.
- L. Wood Products to Receive Stain Finish: Remove dust, grit, oil, and other contaminants prior to prime coat. After installation by other trades, fill over all exposed finish nail heads with matching color filler after prime coat is applied. Sand as necessary to obtain perfectly smooth surfaces.
- M. Wood Products to Receive Paint Finish: Remove dust, grit, oil, and other contaminants prior to prime coat. After installation by other trades, fill over all exposed finish nail heads with matching color filler and as necessary to obtain perfectly smooth surfaces.
- N. Mechanical and Electrical Work: Prepare metal surfaces as specified in this section for "Miscellaneous Steel and Iron" and "Non-Ferrous Metals" as applicable to type of material scheduled to be painted. Remove dirt, grease, oil and other contaminants from surface to be painted.

### **3.05: Application**

- A. General: Apply paint or finish by methods generally accepted by the trade to achieve approved finishes. Sand lightly between coats to achieve required finish. Do not apply finishes on surfaces that are not sufficiently dry. Make sure each coat of finish is dry and hard before a following coat is applied unless the manufacturer's directions state otherwise. Tint filler to match stain when clear finishes are specified; work filler well into grain and, before it« has set, working perpendicularly to the grain, wipe the excess from the surface. Back prime all interior wood paneling prior to installation.
- B. Patching surfaces damaged by other trades requiring touch-up or refinishing after painting and finishing is completed shall be done under this Section.
- C. Number of Coats: As specified hereinafter for each type of finish. On shop primed work, an additional prime coat is not intended, except touch-up. If necessary to obtain uniform color or sheen, apply additional coats.
- D. Thickness of Coats: Use ample undiluted materials; apply in uniform thickness over entire areas; do not exceed manufacturer's recommended spreading rate per gallon. Conform to Standard Specifications. Dry film thickness shall be measured using a Tooke dry film gauge.
- E. Colors of Coats: Tint prime coats if necessary to obtain uniform finish coats. Vary color between coats; final coat to exactly match samples.
- F. Approval of Successive Coats: Obtain Architect's approval of each coat before succeeding is applied; without this approval, Architect reserves right to require an additional coat.
- G. Workmanship: Spread material evenly without runs, sags, thin spots and skips. Cut sharp lines against unpainted surfaces and other colors. Allow sufficient time between coats to permit thorough drying. Finish surfaces shall be uniform, free from streaks, blotches and other defects. Retouch damaged painting before applying succeeding coats of paint.
- H. Doors: Finish all edges same as faces of doors. Apply paint to metal doors and frames by spraying.

### **3.06: Exterior Work – Painting Schedule**

- A. Paint all ferrous, galvanized and shop-primed metal surfaces, except items specified not to be painted. Paint all metal surfaces of mechanical and electrical items. Paint all items as specified hereinafter.
  - 1. Iron and Steel Surfaces:
    - a. One (1) coat rust-inhibitive metal primer.
    - b. Two (2) coats exterior alkyd satin enamel.
  - 2. Galvanized Metal Surfaces:
    - a. One (1) coat pretreatment primer.
    - b. One (1) coat rust-inhibitive primer.
    - c. One (2) coats exterior alkyd satin enamel.
  - 3. Wood Surfaces - (Includes trim, doors, door frames, window sash and frames):
    - a. One (1) coat alkyd primer.
    - b. Two (2) coats exterior acrylic Eggshell latex.

### **3.07: Interior Work – Painting Schedule**

- A. Finish all interior surfaces as indicated and as specified hereinafter.
  - 1. Gypsum wall board, walls and ceilings (Paint):
    - a. One (1) coat latex primer sealer.
    - b. Two (2) coats interior satin latex
  - 2. Gypsum wall board (Enamel):
    - a. One (1) coat interior primer sealer.
    - b. Two (2) coats interior alkyd.
  - 3. Wood Millwork, Casework, Doors, Frames, Wainscot - Natural Finish (Closed Grain):
    - a. Sand: 150 grit finish
    - b. One (1) coat: wood satin, Match Architect's sample
    - c. Sand (while wet): 400 grit wet or dry paper
    - d. One (1) coat lacquer sanding sealer
    - e. Sand (as required): 220 grit paper.
    - f. Second coat lacquer sanding sealer.
    - g. Sand (as required).
    - h. One coat clear urethane varnish.
    - i. Sand: 220 grit paper.
    - j. One (1) coat clear urethane varnish.
  - 4. Galvanized Metal
    - a. One (1) coat pre-treatment primer.
    - b. One (1) coat rust-inhibitive alkyd primer.
    - c. Two (2) coats interior alkyd satin enamel.

**3.08: Clean Up**

- A. As the work proceeds and on completion of the work, promptly remove all sealers, primers, paints and finishes where spilled, splashed or splattered in a manner not to damage the surface from which it is removed. Replace or repair damaged surfaces which are not satisfactory cleaned as directed by the Architect at no additional cost to the Owner.
- B. At the end of each day's work and at final completion, the site shall be free of all waste materials and equipment used by the Contractor. Remove all waste materials and debris and dispose of in a legal and safe manner.
- C. The Contractor shall be responsible for maintaining a clean work place and shall pay for all costs, at no additional cost to the Owner, should outside labor and equipment be used to clean up the work site.
- D. Prevent waste materials from entering and accumulating in the storm drainage system and on adjacent property.

**\*\*\*End of Section 09 90 00\*\*\***