

DIVISION

9

FINISHES

SECTION 09120

METAL SUSPENSION SYSTEMS

PART 1 - GENERAL

SUMMARY

Section Includes:

Suspension System Framing and Furring for Gypsum Board Assemblies and Plaster Assemblies.

Wire hangers, fasteners, main runners, cross tees, and wall angle moldings.

Related Sections:

Section 09215 – Plaster (When applicable to job)

Section 09260 – Gypsum Wallboard

Division 15 Sections - Mechanical Work

Division 16 Sections - Electrical Work

REFERENCES

American Society for Testing and Materials (ASTM):

ASTM A641 Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.

ASTM A653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.

ASTM A1008 Standard Specification for Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability"

ASTM B117 Standard Practice for Operating Salt Spray (Fog) Apparatus

ASTM C635 Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings.

ASTM C636 Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.

ASTM C645 Standard Specification for Nonstructural Steel Framing Members

ASTM C754 Installation of Steel Framing Members to Receive Screw-Attached Gypsum Board

ASTM C1002 Standard Specification for Steel Drill Screws for the Application of Gypsum Board or Metal Plaster Bases.

ASTM E119 Standard Test Method for Fire Tests of Building Construction and Material (if applicable).

SUBMITTALS

Product Data: Submit manufacturer's technical literature. Standard drawing showing details of system components with project conditions clearly indicated and manufacturer's recommended installation instructions.

Shop Drawings: Submit drawings showing ceiling suspension system layout (reflected ceiling plan) indicating dimensions, lighting fixture locations, and related mechanical components. Submit drawings indicating the assembly of components, accessories, attachment and installation of related lighting fixtures and mechanical system components to ceiling suspension system.

Samples: 8 inch long samples of suspension system components, including main runner, cross tees and angle molding.

Certifications: Manufacturer's certifications that products comply with specified requirements, including laboratory reports showing compliance with specified tests and standards.

QUALITY ASSURANCE

Single-Source Responsibility: To ensure proper interface, all drywall furring components shall be produced or supplied by a single manufacturer.

All accessory components from other manufacturers shall conform to ASTM standards.

Fire Resistance Ratings: As indicated by reference to design designations in UL Fire Resistance Directory, for types of assemblies in which drywall ceilings function as a fire protective membrane and tested per ASTM E 119. Installation in accordance with the UL Design being referenced.

Coordination of Work:

Coordinate furring work with installers of related work including, but not limited to acoustical ceilings, building insulation, gypsum board, plaster, light fixtures, mechanical systems, electrical systems, and sprinklers.

All work above the ceiling line should be completed prior to installing the drywall sheet goods and/ or plaster system. There should be no materials resting against or wrapped around the suspension system, hanger wires or ties.

DELIVERY, STORAGE, AND HANDLING

Deliver materials to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.

WARRANTY

Suspensions System: Submit a written limited warranty executed by the manufacturer, agreeing to repair or replace grid components that are supplied with a hot-dipped galvanized coating or aluminum base material. Failures include, but are not limited to:

The occurrence of 50% red rust as defined by ASTM B117 test procedures as a result of defects in materials or factory workmanship.

Warranty Period:

Grid: Ten years from date of installation.

The Warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under the requirements of the Contract Documents.

PART 2 - PRODUCTS

MANUFACTURERS

Suspension Systems: System specified herein is based upon products manufactured by Armstrong World Industries, Inc. Other acceptable manufacturers may include USG Corporation or prior approved equal.

SUSPENSION SYSTEMS

Components:

Main Beam: Shall be double-web construction (minimum 0.0179 inch prior to protective coating), hot dipped galvanized (per ASTM A653).

HD8906: 1-11/16 inch web height, 1-1/2 inch flange, available with G40 or G90 hot dipped galvanization.

HD8901: 1-1/2 inch web height, prefinished 15/16 inch flange with minimum G40 hot dipped galvanization.

HD8906F08: 1-11/16 inch web height with pre-cut facets (8 inches on center) for radius installations, 1-1/2 inch flange.

HD8906F16: 1-11/16 inch web height with pre-cut facets (8 inches from ends, then 16 inches on center) for radius installations, 1-1/2 inch flange.

Primary Cross Tees: Shall be double-web steel construction (minimum 0.0179 inch prior to protective coating), hot dipped galvanized (minimum G40 per ASTM A653), web height 1-1/2 inch with rectangular bulb and pre-finished 1-1/2" knurled flange.

XL8965, XL8947P, XL8945P, XL8925, XL8926, XL7918

Secondary Framing Cross Tees: Shall be double web steel construction (minimum 0.0179 inch prior to protective coating), hot dipped galvanized (minimum G40 per ASTM A653), web height 1-1/2 inch rectangular bulb and 15/16 inch flange.

XL7341, XL8341

Wall Molding:

KAM -12, 12 foot Knurled Angle molding, 1-1/4 inch x 1-1/4 inch, knurled surface, screw stop hem, pre-punched holes in top flange, hot dipped galvanized (minimum G90 per ASTM A653).

KAM-10, 10 foot Knurled Angle molding, 1-1/4 inch x 1-1/4 inch, knurled surface, screw stop hem, pre-punched holes in top flange.

HD7859, 10 foot Knurled Angle molding, 1-1/4 inch x 1-1/4 inch, knurled surface, screw stop hem, pre-punched holes in top flange.

Clips & Accessories:

Provide and install all components as required for job specific application for a secure, sound and complete installation. Follow manufacturer's details and specifications.

Hanger Wires:

Nickel/ Copper (63%/ 70% nickel/ copper balance) alloy wire, ASTM B 164, but not less than 12 gauge (0.106") (exterior application, when applicable).

Galvanized carbon steel, ASTM A 641, Class 1 zinc coating, soft temper, pre-stretched, with a yield-stress load of at least 3 times design load, but not less than 12 gauge (0.106").

Screws for wallboard application shall be bugle head screws in accordance with thickness of material used.

Screws for securing plaster lath shall be wafer head self-drilling type as recommended by plaster system manufacturer.

Structural Classification:

Main Beam shall be heavy duty per ASTM C 635.

Classification can require wires to be closer together for additional loading when used to support double layer gypsum, verticals, slopes, domes, half barrels, circles, soffits, canopies, and step conditions which call for loading or unusual designs and shapes in drywall construction. Using cross tees in the construction of circles, barrels, etc. is common in order to hold the radius.

Deflection of fastening suspension system supporting light fixtures, ceiling grilles, access doors, verticals and horizontal loads shall have a maximum deflection of 1/360 of the span.

PART 3 - EXECUTION

INSTALLATION - GENERAL

Install suspension system and panels in accordance with the manufacturer's instructions, in compliance with ASTM installation standard, and with applicable codes as required by the authorities having jurisdiction.

To secure to metal clips, concrete inserts, steel bar joist or steel deck, use power actuated fastener, or insert. Coordinate placement for hanger wire spaced as required for expected ceiling loads and layout.

Install hanger wire as required with necessary on center spacing (minimum of 4'-0" o.c.) to support expected ceiling load requirements, following local practices, codes and regulations. Provide additional wires at light fixtures, grilles, and access doors where necessary. A pigtail knot shall be used with three tight wraps at top and bottom fastening locations.

Add additional wire as needed when using compatible clips and accessories.

Control Joints: Roll formed zinc alloy, aluminum, or plastic as required for expansion and contraction. Coordinate with Architect for locations.

Expansion Joints: Roll formed zinc alloy, aluminum, or plastic as required for expansion and contraction. Coordinate with Architect for locations.

Main beams shall be suspended from the overhead construction with hanger wire, spaced as required (minimum of 4'-0" o.c.) for expected ceiling loads, along the length of the main beams.

Install cross tees at on center spacing as specified by the drywall manufacturer. Typical drywall cross tee spacing:

24 inches on center with one (1) layer of 5/8 inch gypsum board

24 inches on center with two (2) layers of 5/8 inch gypsum board

Install cross tees at on center spacing as specified by the plaster manufacturer for interior applications, exterior applications, and/ or wind load applications.

Other items such as wood, sheet metal, plastic panels, and plaster systems should be screwed to comply with deflection limit equivalent to that of the ceiling installation.

Use angle molding to interface with Drywall Grid System to provide perimeter attachment or to obtain drop soffits, verticals, slopes, etc.

For recessed light fixtures and other penetrations, use additional framing cross tees as required to frame opening.

Single cross tees in a route hole to be secured by 7/16 inch framing screw or alternative methods.

INSTALLATION - EXTERIOR APPLICATIONS (WHEN APPLICABLE TO JOB)

Use G90 components for exterior applications.

Use vertical bracing as required by codes and standards in accordance with local jurisdiction (non-fire rated installations).

Install main beams as required according to Wind Uplift Design or local codes and standards.

Install cross tees as required according to Wind Uplift Design or local codes and standards, with additional tees when point loading (vertical), and with additional hanger at midspan of cross tee, as needed.

INSTALLATION - INTERIOR APPLICATIONS

Install main beams and cross tees at the on center spacing required for ceiling loading, and location of in-ceiling services.

Provide and install additional bracing as required by code.

INSTALLATION – RADII APPLICATIONS (WHEN APPLICABLE TO JOB)

Determine the bow or camber (Convex or Concave) in a main runner.

Establish a jig or pattern on a flat surface; mark locations to cut main beam; and use four pan head screws to fasten a Radius Clip flat to the web between the bulb and the flange, per the manufacturer's instructions.

Install main beams with on center spacing and wire spacing, as needed, to support expected ceiling load.

Provide and install additional bracing may be required by code.

Install cross tees at on center spacing as specified by the manufacturer.

INSTALLATION – PLASTER SYSTEMS (WHEN APPLICABLE TO JOB)

Install suspension system and panels in accordance with the manufacturer's instructions, in compliance with ASTM installation standard, and with applicable codes as required by the authorities having jurisdiction.

Fasteners/ Upper Attachment: Attach hanger wire directly tied to structure, or with proper fasteners (such as galvanized steel clips) sized and spaced to carry expected ceiling load. A pigtail knot with three tight wraps shall be used at all wire supporting locations and at top and bottom fastening conditions.

Use additional hanger wire at all perimeter locations, as required.

Provide additional components, as necessary, to frame openings for light fixtures, access doors, sprinkler systems, etc. Coordinate support framing with other trades.

Install access doors as needed.

Main beams shall be suspended from the overhead construction with hanger wire, spaced as required along the length of the main beams for interior applications, exterior applications, or wind load applications.

Install cross tees spaced as required for interior applications, exterior applications, or wind load applications.

Install diamond mesh or flat ribbed lath with wafer head self-drilling screws spaced as required to cross tees.

Install perimeter hot dipped galvanized channel molding or angle at wall/ ceiling junctures to support main runners and cross tees in an isolation manner. Isolation is mandatory when installing any stucco system.

Isolation:

Do not fasten main runners or cross tees to perimeter masonry or concrete construction. Allow clearance between such construction at the ends of main runners and cross tees.

Channel molding is permitted when screws are attached to main runner flange for isolation.

Expansion Joints: Provide expansion joints where shown on drawings.

Control Joints: Install as shown on drawings, provide discontinuous laps over joints. Do not bridge joints.

Plaster stops, grounds, and corner pieces are attached to system with wafer head screws and/ or #18 gauge tie wire.

Stucco/ plaster mixture and thickness to be in accordance with manufacturer's recommendations and applied in the same manner as when using channel iron for suspension, per American National Standards Institute (ANSI) Specifications.

END OF SECTION

SECTION 09205

METAL LATH AND FURRING

PART 1 - GENERAL

SUMMARY

The extent of Metal lath and supports for portland cement plaster and plastering accessories as shown on drawings and specified herein.

Related Sections:

- Section 05400 -Cold-Formed Metal Framing.
- Section 06100 – Rough Carpentry.
- Section 09120 – Metal Suspension System (where applicable).
- Section 09220 -Portland Cement Plaster.

SUBMITTALS

Product Data: Submit product data and installation instructions for each type of metal lath and steel stud furring required, including inserts, hangers, clips, brackets, channels, and accessories specified.

QUALITY ASSURANCE

Fire-Resistance Ratings: Where plaster systems constructed with metal lath and furring are indicated, provide materials and installations tested per ASTM E 119 by fire testing laboratories acceptable to authorities having jurisdiction.

Coordination of Work: Coordinate layout and installation of suspension system components for suspended ceilings with other work supported by or penetrating ceiling.

Single-Source Responsibility: Obtain metal lath and furring materials, including steel studs, from a single manufacturer. Coordinate with manufacturer of metal suspension system, where applicable on project, for job responsibility.

DELIVERY, STORAGE, AND HANDLING

Protect metal lath, furring, suspension system, etc. from rusting and damage. Deliver in manufacturer's unopened containers or bundles fully identified with name, brand, type, and grade. Store inside a dry ventilated space.

PART 2 - PRODUCTS

MANUFACTURERS

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

Metal Supports:

Gold Bond Building Products Div., National Gypsum Co.
Unimast, Inc.
Or prior approved equal.

Expanded Metal Lath:

Alabama Metal Industries Corp. (Amico)
Gold Bond Building Products Div., National Gypsum Co.
Unimast, Inc.
Or prior approved equal.

Metal Trims/ Plaster Stop:

Fry Reglet Corp.
Or prior approved equal.

METAL SUPPORTS FOR SUSPENDED AND FURRED PORTLAND CEMENT PLASTER (where applicable)

General: Size metal ceiling supports to comply with the following, unless otherwise indicated.

Portland Cement Plaster Installation: ASTM C 1063.

Wire for Hangers and Ties: ASTM A 641, Class 1 zinc coating, soft temper.

Rod Hangers: Mild steel, zinc or cadmium coated.

Flat Hangers: Mild steel, zinc or cadmium coated.

Channels: Cold-rolled steel, 0.0598 inch minimum thickness of base metal (uncoated), allowable bending stress of 18,000 psi, galvanized complying with ASTM A 525 for G 60 coating designation, and as follows:

Carrying Channels: 1 1/2 inch deep by 7/16 inch wide flanges, 475 lbs. per 1000 feet painted, 508 lbs. per 1000 feet galvanized.

Furring Channels: 3/4 inch deep by 7/16 inch wide flanges, 300 lbs. per 1000 feet painted, 316 lbs. per 1000 feet galvanized.

Hanger Anchorage Devices: Screws, cast-in-place concrete inserts, or other devices appropriate for anchorage to the form of structural framing indicated and whose suitability for use intended have been proven through standard construction practices or certified test data.

Size devices to develop full strength of hanger but not less than 3 times calculated hanger loading.

PLASTER ACCESSORIES FOR PORTLAND CEMENT PLASTER

General: Comply with material provisions of ASTM C 1063 and the requirements indicated below; coordinate depth of accessories with thicknesses and number of plaster coats required.

Aluminum Components: Alloy, temper, and finish recommended by manufacturer with not less than the strength and durability properties of aluminum extrusions complying with ASTM B 221 (ASTM B 221M) for alloy and temper 6063-T5. Finish color as selected by Architect.

Galvanized Steel Components: Fabricated from zinc-coated (galvanized) steel sheet complying with ASTM A 653, G 40 (ASTM A 653M, Z90) minimum coating designation.

Zinc-Alloy Components: ASTM B 69, 99 percent pure zinc.

Plastic Components: ASTM D 4216, high-impact polyvinyl chloride (PVC) for building products.

Metal Corner Reinforcement: Expanded, large-mesh, diamond metal lath fabricated from zinc-alloy or welded-wire mesh fabricated from 0.0475 inch (1.2 mm) diameter, zinc-coated (galvanized) wire and specially formed to reinforce external corners of portland cement plaster on exterior exposures while allowing full plaster encasement.

Corner beads: Small nose corner beads fabricated from zinc alloy, minimum 0.0207 inch (0.53 mm) thick, with expanded flanges of large-mesh diamond metal lath allowing full plaster encasement.

Casing Beads: Square-edged style, fabricated from zinc alloy, minimum 0.0207 inch (0.53 mm) thick, with expanded flanges.

Reveal Moldings, Corner Moldings, Expansion Joints, Drip Screeds, Soffit Vents, etc.: Prefabricated, extruded aluminum, as manufactured by Fry Reglet as applicable to project.

Lath Attachment Devices: Material and type required by ASTM C 1063 for installations indicated.

PART 3 - EXECUTION

INSTALLATION, GENERAL

Metal Lathing and Furring Standards: Comply with M L/SFA "Guide Specifications for Metal Lathing and Furring" and with requirements of the following:

Interior Lathing and Furring Installations: ASTM C 841.

Lathing and Furring Installations for Portland Cement Plaster: ASTM C 1063.

Install supplementary framing, blocking, and bracing at terminations in the work and as necessary for attachment of other work to comply with details indicated and with recommendations of "Gypsum Construction Handbook" published by United States Gypsum Co.

Isolation: Where lathing and metal support system abuts building structure horizontally and where partition/ wall work abuts overhead structure, isolate the work from structural movement sufficiently to prevent transfer of loading into the work from the building structure. Install slip-type or cushion-type joints to absorb deflections but maintain lateral support.

Expansion Joints: Frame both sides of expansion joints independently, and do not bridge joints with furring and lathing or accessories.

Install additional framing, furring, runners, lath, and beads, as required to form openings and frames for other work as indicated. Coordinate support system for proper support of framed work that is not indicated to be supported independently of metal furring and lathing system.

INSTALLATION OF CEILING SUSPENSION SYSTEMS (where applicable)

Preparation and Coordination: Coordinate installation of ceiling suspension system with installation of overhead structural systems to ensure that inserts and other structural anchorage provisions have been installed to receive ceiling hangers in a manner that will develop their full strength and at spacings required to support ceiling.

Hanger Installation: Attach hangers to structure above ceiling to comply with referenced standards.

Install ceiling suspension system components of sizes and spacings indicated but not in smaller sizes or greater spacings than that required by referenced lathing and furring installation standards.

Wire Hangers: Space 8 gage (0.16 inch diameter) wire hangers not over 4'-0" o.c. parallel with and not over 3'-0" perpendicular to direction of carrying channels, unless otherwise indicated, and within 6" of carrying channel ends.

Carrying Channels: Space carrying channels not over 3'-0" o.c. with 4'-0" o.c. hanger spacing.

Furring Channels to Receive Metal Lath: Space furring channels not over 16 inches o.c. for 3.4 lb. diamond mesh lath or 24 inches o.c. for 3.4 flat rib lath.

LATHING

Install expanded metal lath for the following applications where plaster base coats are required. Provide appropriate type, configuration, and weight of metal lath selected from materials indicated that comply with referenced M L/SFA specifications and ASTM lathing installation standards.

Vertical and horizontal metal framing and furring.

Suspended and furred ceilings using 3.4 lbs. per sq. yd. minimum weight diamond mesh lath.

INSTALLATION OF PLASTERING ACCESSORIES

General: Comply with referenced lathing and furring installation standards for provision and location of plaster accessories of type indicated. Miter or cope accessories at corners; install with tight joints and in alignment. Attach accessories securely to plaster bases to hold accessories in place and alignment during plastering.

Accessories for Portland Cement Plaster: Provide the following to comply with requirements indicated for location:

Corner Reinforcement: Install at external corners.

Corner Bead: Install at external corners.

Casing Beads: Install at terminations of plaster work unless otherwise indicated.

Control Joints: Install control joints at locations indicated or, if not indicated, at locations complying with the following criteria and approved by Architect.

Where an expansion or control joint occurs in surface of construction directly behind plaster membrane.

Where plaster panel sizes or dimensions change, extend joints full width or height of plaster membrane.

For Portland Cement Plaster: Where, in surfaces of soffits and walls, distances between and areas within control joints exceed, respectively; 10 feet in either direction and 100 sq. ft.

END OF SECTION

SECTION 09220

PORTLAND CEMENT PLASTER

PART 1 - GENERAL

SUMMARY

The extent of plaster work is shown on the drawings and as specified herein.

Related Sections:

- Section 06100 – Rough Carpentry.
- Section 07900 - Sealants.
- Section 09120 – Metal Suspension System (where applicable).
- Section 09205 –Metal Lath and Furring.
- Section 09260 – Metal Studs and Gypsum Wallboard Systems.
- Section 09900 - Paint.

SUBMITTALS

Product Data: Submit product data consisting of manufacturer's product specifications and installation instructions for each product, including data showing compliance with the requirements specified.

Material Certificates: Submit producer's certificate for each kind of plaster aggregate indicated evidencing that materials comply with requirements.

Sample Panels: Submit sample panels of each specified finish, on movable frames not less than 2 foot square for review of texture, finish and workmanship.

QUALITY ASSURANCE

Fire-Resistance Ratings: Where plaster systems with fire-resistance ratings are indicated, provide materials and installations identical to those of applicable assemblies tested per ASTM E 119 by fire testing laboratories acceptable to authorities having jurisdiction.

Single-Source Responsibility: Obtain materials for portland cement plaster from a single source for each type of material required to ensure consistency in quality of performance and appearance.

PRE-INSTALLATION CONFERENCE

Prior to commencing work, at Contractor's direction, meet with Architect at site to review materials, installation procedures, details, and coordination with other work.

DELIVERY, STORAGE, AND HANDLING

Deliver cementitious materials in original packages, containers, or bundles bearing brand name and identification of manufacturer.

Store materials inside, undercover, and in manner to keep them dry, protected from weather, direct sunlight, surface contamination, aging, corrosion, and damage from construction traffic and other causes.

PROJECT CONDITIONS

Protect contiguous work from moisture deterioration and soiling that might result from plastering operations. Provide temporary covering and whatever other provisions may be necessary to minimize harmful spattering of plaster on other work.

Cold Weather Requirements: Provide heat and protection (temporary or permanent) as required to protect each coat of plaster from freezing for a period of not less than 24 hours after application. Distribute heat uniformly to prevent concentration of heat on plaster near heat sources; provide deflection or protective screens.

Exterior Plaster Work: Do not apply plaster when ambient temperature is less than 32 deg F (0 deg C) or when 40 deg F (4 deg C) or less and falling.

Warm Weather Requirements: Protect plaster against uneven and excessive evaporation and from strong flows of dry air, both natural and artificial. Apply and cure plaster as required by climatic and job conditions to prevent dryout during cure period. Provide suitable coverings, moist curing, barriers to deflect sunlight and wind, or combinations of these, as required.

PART 2 - PRODUCTS

PORTLAND CEMENT PLASTER MATERIALS

Cement for Base and Finish Coats: Portland cement, ASTM C 150, Type I or III, gray.

Factory-Prepared Finish Coat: Manufacturer's standard packaged blend of portland cement, ASTM C 150, Type I or III; hydrated lime, Type S, ASTM C 206 or ASTM C 207; aggregate, ASTM C 897; and compatible with base coat and finish texture indicated; in color natural gray color.

Lime: Special hydrated lime for finishing purposes, ASTM C 206, Type S, or special hydrated lime for masonry purposes, ASTM C 207, Type S.

Sand Aggregate for Base Coats: ASTM C 897.

Aggregate for Finish Coats: ASTM C 897.

Fiber for Base Coat: Alkaline-resistant (AR) glass or polypropylene fibers, 1/2 inch long, free of contaminants, manufactured for use in portland cement plaster.

Water for Mixing and Finishing Plaster: Drinkable and free of substances capable of affecting plaster set or of damaging plaster, lath, or accessories.

MISCELLANEOUS MATERIALS

Bonding Agent: ASTM C 932.

Asphalt-Saturated Felt: ASTM D 226, Type I(N o. 15), nonperforated.

PORTLAND CEMENT PLASTER MIXES AND COMPOSITIONS

General: Comply with ASTM C 926 for base and finish coat mixes as applicable to plaster bases, materials, and other requirements indicated.

Base Coat Mixes and Compositions: Proportion materials for respective base coats in parts by volume per sum of cementitious materials for aggregates to comply with the following requirements for each method of application and plaster base indicated. Adjust mix proportions below within limits specified to attain workability.

Fiber Content: Add fiber to following mixes after ingredients have mixed at least 2 minutes. Comply with fiber manufacturer's directions but do not to exceed 2 lbs. per cu. ft. of cementitious materials. Reduce aggregate quantities accordingly to maintain workability.

Three-Coat Work Over Metal Lath: Base coats as indicated below:

Scratch Coat: 1 part portland cement, 3/4 to 1-1/2 parts lime, 2-1/2 to 4 parts aggregate.

Brown Coat: 1 part portland cement, 3/4 to 1-1/2 parts lime, 3 to 5 parts aggregate.

Job-Mixed Finish Coats: Proportion materials for finish coats in parts by volume for cementitious materials and parts by volume per sum of cementitious materials to comply with the following requirements:

1 part portland cement, 1-1/2 to 2 parts lime, 3 parts sand.

MIXING

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

PART 3 - EXECUTION

PREPARATIONS FOR PLASTERING

Clean plaster bases and substrates for direct application of portland cement plaster, removing loose material and substances that might impair the work.

Install temporary grounds and screeds as necessary to ensure accurate rodding of plaster to true surfaces; coordinate with scratch-coat work.

Surface Conditioning: Immediately before plastering, dampen the surfaces of concrete and masonry that are indicated for direct application of plaster. Experiment with moisture application to determine degree of saturation that will result in optimum suction for plastering.

PLASTER APPLICATION

Portland Cement Application Standard: Apply portland cement plaster materials, compositions, and mixes to comply with ASTM C 926.

Sequence plaster application with the installation and protection of other work so that neither will be damaged by the installation of the other.

Do not use materials that are frozen, caked, lumpy, dirty, or contaminated by foreign materials.

Do not use excessive water in the mixing and application of plaster materials.

Tolerances: Do not deviate more than 1/8 inch in 10'-0" from a true plane in finished plaster surfaces, as measured by a 10'-0" straightedge placed at any location on surface.

Plaster flush with metal frames and other built-in metal items or accessories that act as a plaster ground, unless otherwise indicated. Where interior plaster is not terminated at metal by casing beads, cut basecoat free from metal before plaster sets and groove finish coat at the junctures with metal.

Corners: Make internal corners and angles square; finish external corners flush with corner beads on interior work, square and true with plaster faces on exterior work.

Number of Coats: Provide three-coat work over metal lath.

Finish Coats: Apply finish coats to comply with the following requirements:

Float Finish: Apply finish coat to a minimum thickness of 1/8 inch to completely cover base coat, uniformly floated to a true even plane with a fine-textured finish matching Architect's sample.

Moist-cure plaster base and finish coats to comply with ASTM C 926, including recommendations for time between coats and curing in "Annex A2 Design Considerations."

CUTTING AND PATCHING

Cut, patch, repair, and point-up portland cement plaster as necessary to accommodate other work. Repair cracks and indented surfaces. Point-up finish plaster surfaces around items that are built into or penetrate plaster surfaces. Repair or replace the work to eliminate blisters, buckles, check cracking, dry outs, efflorescence, excessive pinholes, and similar imperfections. Repair or replace the work as necessary to comply with required visual effects.

CLEANING AND PROTECTION

Remove temporary covering and whatever other provisions were made to minimize spattering of plaster on other work. Promptly remove plaster from door frames, windows, and other surfaces that are not to be plastered. Repair surfaces that have been stained, marred or otherwise damaged during the plastering work. When plastering work is completed, remove unused materials, containers, equipment, and plaster debris.

Provide final protection and maintain conditions in a manner suitable to Installer that ensures plaster work's being without damage or deterioration.

END OF SECTION

SECTION 09260

METAL STUD & GYPSUM WALLBOARD SYSTEMS

PART 1 - GENERAL

SCOPE:

The extent of the load-bearing and non-load-bearing metal stud work and gypsum drywall system work is shown on the drawings. Work of this Section to include, but not be limited to, the following:

- Non-load-bearing steel framing and furring.
- Gypsum (and other composition) board assemblies attached to framing and furring.

Related Work Specified Elsewhere:

- Cold Formed Metal Framing: Section 05400.
- Rough Carpentry: Section 06100 (for plywood sheathing)
- Metal Suspension System: Section 09120
- Tile: Section 9300
- Painting: Section 09900

QUALITY ASSURANCE:

Industry Standard: Comply with applicable requirements of GA-216 "Application and Finishing of Gypsum Board" by the Gypsum Association, except where more detailed or more stringent requirements are indicated including the recommendations of the manufacturer.

Fire-Resistance Ratings:

Where indicated, provide materials and construction identical to assemblies tested for fire resistance per ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.

Provide indicated fire-resistance rated assemblies identified in UL "Fire Resistance Directory" or in the listing of another testing and inspecting agency acceptable to authorities having jurisdiction.

Allowable Tolerances: 1/8" offsets between planes of board faces, and 1/4" in 8'-0" for plumb, level; warp and bow.

Manufacturer: Provide gypsum/ composition board produced by one of the following:

- Celotex Corp.
- Georgia-Pacific Corp.
- Johns-Manville

National gypsum Co.
U.S. Gypsum Company

Manufacturer: Provide steel framing for gypsum/ composition wall board work and other metal framing as detailed by one of the following:

Inryco/ Milnor
Bostwick Steel Latch Co.
Dale Industries, Inc.
National Rolling Mills/Bundy Corp.

PART 2 - PRODUCTS

METAL FRAMING:

Lightweight Metal Framing:

Studs: Light gauge zinc coated steel screw-type "Cee" shaped studs of the depth indicated on the drawings. Unless noted otherwise, 20 gauge for non-load-bearing interior walls. Studs shall comply with standards of C 645.

Runners: Match studs; type recommended by stud manufacturer for floor and ceiling support of studs, and for vertical abutment of drywall work at other work.

Wall Braces: Match studs, and space at 4'-0" from top of walls to structure above (and elsewhere as required) to insure wall rigidity.

Stud System Accessories: Provide stud manufacturer's standard clips, shoes, ties, reinforcement, fasteners and other accessories as needed for a complete stud system.

Furring members: No. 26 MSG galv. steel resilient channels, secured to structure at 16" o.c. with Type S, 1-1/4" long steel screws.

Fasteners: Type and size recommended by manufacturer for the substrate and application indicated.

Structural Metal Framing: Heavy gauge (ie.- 14 ga. to 18 ga.) metal stud framing shall be used where shown and in all load bearing conditions where light gauge framing is not adequate to carry imposed loads. Also see Section 05400.

BOARD PRODUCTS:

Exposed Gypsum Board: Comply with ASTM C 36 for exposed gypsum board, hereby defined to include work indicated for painted finish and similar forms of decoration as well as unfinished work.

Thickness: 5/8" thick, unless otherwise shown, Type X where required for fire-resistive-rated assemblies.

Sheet Size: 4' wide x maximum length available which will minimize number of end joints in work.

Water-Resistant Gypsum Board: ASTM C 1278 and physical property requirements of ASTM C 1396 and ASTM C 1178, 5/8 inch thick, and as follows:

Thickness: 5/8" thick, unless otherwise shown, Type X where required for fire-resistive-rated assemblies, water-resistant, impact resistant.

ACCESSORY PRODUCTS (GYPSUM BOARD):

Trim Accessories: Provide manufacturer's standard trim accessories of types indicated for drywall work, formed of galvanized steel with either knurled and perforated or expanded flanges for screwing and beaded for concealment of flanges in joint compound. Provide corner beads, one-piece control joint beads and other accessories indicated.

Fasteners: Screws complying with GA-216 and with gypsum board manufacturer's recommendations. Comply with UL Assembly fastener requirements in fire rated walls and ceilings.

Joint Treatment Materials:

Joint Tapes: Perforated; Comply with ASTM C 475.

Joint Compound: Adhesive with or without fillers complying with ASTM C 475. Provide pre-mixed ready for application and as follows: Single Compound Treatment - Provide manufacturer's single component compound for both bedding and finishing joints.

PART 3 - EXECUTION

UL RATED ASSEMBLIES:

Contractor shall be responsible for complying with all installation requirements of applicable UL Assemblies for rated walls and/ or ceilings as shown in drawings to be provided. This shall include layout and spacing of studs and/ or furring members, type and spacing of fasteners, and application and fastening of gypsum board. UL Assembly (with installation standards) for each rated wall and/ or ceiling may be obtained from Architect prior to bidding.

INSTALLATION OF METAL SUPPORT SYSTEMS:

General:

For framing/ partitions, comply with ASTM C754 & C840 as applicable to the type of substrate and drywall support system indicated and comply with the Gypsum Association GA-203 for installation of furring members.

Supplemental Framing: Install supplementary framing, blocking, and bracing at terminations in gypsum/ composition board assemblies and to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction. Comply with details indicated and with recommendations of board manufacturer or if none available, with "Gypsum Construction Handbook" published by United States Gypsum CO.

Level main runners to a tolerance of 1/4" in 12'-0", measured both lengthwise on each runner and transversely between parallel runners.

Space furring members at 16" o.c.

Wall/ Partition Support Systems:

Install runner tracks at floors, ceilings and structural walls and columns where stud system abuts other work, except as otherwise indicated.

Secure jamb studs to frames of openings and install runner track sections (for jack studs) above and below openings, secured to jamb studs.

Space jack studs same as partition studs and screw to runner tracks above and below.
Install two (2) 20 gauge studs at each jamb of each opening 2'-8" wide or more.

Space studs at 16" o.c., unless otherwise shown. Space furring members 16" o.c.

Install extra furring members and angle runners at terminations of wall work and at openings and where required for support of other work occurring in the drywall work.

For walls in which studs are not continuous to floor or roof deck above, brace from top track to structure above with angled studs at 4'-0" on center, and in other locations as required for wall stability and rigidity.

DRAFTSTOPS:

Draftstops shall be located in attics and above ceilings to enclose areas no greater in size or maximum dimension as allowed by any and all Codes having jurisdiction over this project (Life Safety Code, Building Codes, etc.). Coverage shall be complete, within profile of attic area (including overhangs, offsets, etc.), to form a smoke-tight barrier, creating smoke-tight compartments.

INSTALLATION OF GYPSUM BOARD:

Standards: Comply with ASTM C 840 and "Recommended Specifications for the Application and Finishing of Gypsum Board," (GA-216, by the Gypsum Association), except where more detailed or more stringent requirements are indicated here or by the manufacturer's instructions and recommendations.

Locate exposed end-butt joints as far from center of walls and ceilings as possible and stagger not less than 1'-0" in alternate courses of board.

Install exposed gypsum board with face side out. Do not install imperfect, damaged or damp boards. Butt boards together for a light contact at edges and ends without more than 1/16" open space between boards. Do not force into place.

Locate either edge or end joints over supports, except in horizontal applications or where intermediate supports or gypsum board back-blocking is provided behind end joints. Position boards so that both tapered edge joints abut and mill-cut or field-cut end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints over different studs on opposite sides of partitions. Gypsum board shall be held off structural floor slab 1/4".

Attach gypsum board to framing and blocking as required for additional support at openings and cut-outs.

Cutting: After scoring face paper and breaking core, cut back paper; do not tear or snap.

INSTALLATION OF DRYWALL TRIM ACCESSORIES:

General: Coordinate and integrate the installation of trim accessories with the installation of gypsum board. Use the same fasteners to anchor trim accessory flanges as required to fasten gypsum board to the supports.

Install metal corner beads at external corners of drywall work.

Install metal edge trim wherever edge of gypsum board would otherwise be exposed or semi-exposed.

Install L-type trim-beads (for joint compound) where edge is shown to be tightly fitted to abutting work (without reveal or sealant pocket) and where edge is not tightly fitted to abutting work (exposed, revealed, sealant pocket, gasketed or other separation).

DRYWALL FINISHING:

Finish exposed drywall surfaces with joints, corners and exposed edges reinforced or trimmed as specified and with all joints, fastener heads, trim accessory flanges and surface defects filled with joint compound in accordance with manufacturer's recommendations for a smooth, flush surface. Form true, level or plumb lines, without joints, fastener heads, flanges of trim accessories or defects visible after application of field-applied decoration.

Use joint tape to reinforce joints formed by tapered edges or butt ends of drywall units and at interior corners and angles. Set tape in joint compound then apply skim coat over tape in one application.

Where open spaces of more than 1/16" width occur between abutting drywall units (except at

control joints), pre-fill joints with joint compound and allow pre-fill to dry before application of joint tape.

Application of Joint Compounds: After mixing, do not use joint compounds if recommended pot-life time has expired. Allow drying time between applications of joint compound in accordance with manufacturer's recommendations for the relative humidity and temperature levels at the time of application. In no case, allow less than 24 hours drying time between applications of joint compound. Apply not less than three (3) separate coats of joint compound over joints, fastener heads and metal flanges.

Levels of Gypsum Board Finish: Provide the following levels of gypsum board finish per GA-214.

Level 1 for ceiling plenum areas, concealed areas, and where indicated, unless a higher level of finish is required for fire-resistive-rated assemblies and sound-rated assemblies.

Level 4 for gypsum board surfaces indicated to receive wallcoverings.

Level 5 for gypsum board surfaces indicated to receive gloss and semigloss enamels, flat paints, and where indicated.

BACKING PLATES:

Provide galvanized sheet-metal backing plates at required locations for securing all wall-hung cabinets, lavatories, grab bars, railings, etc. Plates shall be 20 gauge at cabinets, railings and other conditions; 16 gauge at lavatories. Secure to at least two adjacent studs.

CLEANING AND PROTECTION:

Cleaning: Promptly remove any residual joint compound from adjacent surfaces.

Protection: Provide final protection and maintain conditions that ensures gypsum board assemblies remain without damage or deterioration at the time of Substantial Completion.

END OF SECTION

SECTION 09300

TILE

PART 1 - GENERAL

SUMMARY

Section Includes:

Porcelain tile for floors and walls, porcelain tile for walls; latex-portland cement mortar, and epoxy grout; thin-set applications.

Porcelain tile base.

Marble thresholds.

Mortar, grout, and accessories.

Related Sections:

Section 07900 - Sealants.

Section 09260 - Metal Studs and Gypsum Board Systems.

Division 15: Plumbing fixtures and floor drains.

REFERENCES

Industry Standards: The Industry Standards listed below refer to the latest date of issue or editions, unless otherwise indicated.

ANSI A108/A118/A136.1 - Specifications for the Installation of Ceramic Tile.

ANSI A137.1 - Specifications for Ceramic Tile.

ASTM C144 - Standard Specification for Aggregate for Masonry Mortar.

ASTM C150 - Standard Specification for Portland Cement.

ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes.

ASTM C503 - Specification for Marble Building Stone (Exterior).

ASTM C615 - Specification for Granite Dimension Stone.

ASTM C629 - Specification for Slate Dimension Stone.

ASTM C847 - Standard Specification for Metal Lath.

ASTM C1028 - Standard Test Method for Determining the Static Coefficient of Friction or Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer Pull-Meter Method.

ASTM D4397 - Specification for Polyethylene Sheeting for Construction, Industrial, and Agricultural Applications.

Tile Council of North America (TCNA): TCA Handbook for Ceramic Tile Installation.

PERFORMANCE REQUIREMENTS

Static Coefficient of Friction: For tile installed on walkway surfaces, only provide products with the following values as determined by testing identical products per ASTM C1028:

Level Surfaces: 0.6 (wet).
Step Treads: 0.6 (wet).
Ramp Surfaces: 0.8 (wet).

SUBMITTALS

Product Data: Submit manufacturer's specifications and installation recommendations for each type of product proposed.

Shop Drawings: Indicate tile patterns and locations and widths of expansion, contraction, control, and isolation joints in tile substrates and finished tile surfaces.

Locate precisely each joint and crack in tile substrates by measuring, record measurements on shop drawings, and coordinate them with tile joint locations, in consultation with Architect.

Samples for Initial Selection: Actual tile samples of tile showing full range of colors, textures, and patterns available for each type and composition of tile indicated. Include samples of grout and accessories involving color selection.

Samples for Verification: Sets showing full range of color and texture variations, in sets showing full range of variations expected.

Each type and composition of tile and for each color and texture required, at least 12 inches square, mounted on plywood or water-resistant gypsum board and grouted.

Full-size units of each type of trim and accessory for each color required.

Marble thresholds in 6 inch lengths.

QUALITY ASSURANCE

Single-Source Responsibility for Tile: For tile to be used throughout the project select a single source, which matches color, grade, finish, type, composition and variety of tile such as America Olean as specified herein.

Single-Source Responsibility for Setting and Grouting Materials: Obtain ingredients of a uniform quality from one manufacturer for each cementitious and admixture component and from one source or producer for each aggregate. Grouting materials shall include coloring agents to match grout to tiles included in the project.

Installer Qualifications: Engage an experienced Installer who has successfully completed tile installations similar in material, design, and extent to that indicated for Project.

Regulatory Requirements: All specifications for tile installation must conform to local building codes, ordinances, trade practices and climatic conditions.

Mock-up: Submit mock-up of each tile with corresponding colored mortar and grout for approval before installation.

Tile mock-ups shall be submitted on 24 inch by 24 inch plywood or water-resistant gypsum board backing.

Acceptance: When accepted, mock-up will demonstrate minimum standard for the Work.

DELIVERY, STORAGE, AND HANDLING

Delivery and Storage: Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirement of ANSI A137.1 for labeling sealed tile packages.

Protection: Prevent damage or contamination to materials by water, freezing, foreign matter, and other causes.

PROJECT CONDITIONS

Environmental Conditions: Maintain environmental conditions and protect work during and after installation to comply with referenced standards and manufacturer's printed recommendations.

Ventilation: Vent temporary heaters to exterior to prevent damage to tile work from carbon dioxide buildup.

Temperature: Maintain temperatures at 50 deg F (10 deg C) or more in tiled areas during installation and for 7 days after completion, unless higher temperatures are required by referenced installation standard or manufacturer's instructions.

EXTRA MATERIALS

Deliver extra materials to Owner. Furnish extra materials that match products installed as described below, packaged with protective covering for storage and identified with labels clearly describing contents.

Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed, for each type, composition, color, pattern, and size.

PART 2 - PRODUCTS

MANUFACTURERS

Approved Products/ Manufacturers: Ceramic and porcelain tile products and manufacturers as listed below.

Porcelain Tile: Flat tile as follows:
Series: Porte Leona.

Composition: Porcelain.

Surface: Meet Static Coefficient of Friction minimum of 0.6 (wet).

Module Size: 2 inch by 2 inch, 3 inch by 12-1/2 inch, 13 inch by 13 inch, and 3 inch by 13 inch bullnose. See drawing plans and interior elevations for locations and sizes.

Nominal Thickness: 5/16 inch.

Face: Plain.

Manufacturer: American Olean or prior approved equal.

Color: As selected by Architect from full color selection.

Approved Manufacturers for Tile Accessories: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include the following:

Acrylic Emulsion for Latex Portland Cement Mortars and Grouts:

Bostik Construction Products Div.

C-Cure Chemical Co.

Laticrete International, Inc.

Mapei, Inc.

PRODUCTS, GENERAL

ANSI Standard for Ceramic Tile: Comply with ANSI A137.1 "Specifications for Ceramic Tile" for types, compositions, and grades of tile indicated.

ANSI Standard for Tile Installation Materials: Comply with ANSI standard referenced with products and materials indicated for setting and grouting.

Colors, Textures, and Patterns: Provide selections as indicated within Manufacturers Section and as indicated within drawings.

Provide tile trim and accessories that match color and finish of adjoining flat tile unless otherwise indicated.

Factory Blending: For tile exhibiting color variations within the ranges selected during sample submittals, blend tile in factory and package accordingly so that tile units taken from one package show the same range in colors as those taken from other packages and match approved samples.

Mounting: Where factory-mounted tile is required, provide back or edge-mounted tile assemblies as standard with manufacturer unless another mounting method is indicated.

TILE PRODUCTS

Tile Products: Refer to the Manufacturer Section and Drawings for manufacturer, size, shape, color selections and additional information.

Trim Units: Provide tile trim units to match characteristics of adjoining flat tile and to comply with following requirements:

Size: As indicated, coordinated with sizes and coursing of adjoining flat tile where applicable.

Shapes: As follows, selected from manufacturer's standard shapes:

Shapes: All special shapes and sizes as required to complete installation.

Wainscot Cap: Surface Bullnose.

External Corners: Bullnose shape with a radius of at least 1/2 inch unless otherwise indicated.

Internal Corners: Coved (round-in) styled; use bullnose base and cap angle pieces designed to member with stretcher shapes.

Base: Surface Bullnose.

MARBLE THRESHOLDS

Marble Thresholds (Provide at all door openings): Provide marble thresholds complying with ASTM C503 requirements for exterior use and for abrasive resistance where exposed to foot traffic, a minimum hardness of 10 per ASTM C241.

Provide honed marble complying with MIA Group "A" requirements for soundness. Colors to be selected by Architect.

MORTAR FOR TILE

Portland Cement Mortar Bed Method: Mortar consisting of ASTM C150 Portland Cement with latex additive, ASTM C144 sand and potable water complying with quality established by ANSI A108.5.

Thin-Set Method: ANSI A118.4, Latex Portland Cement Mortar.

SETTING BED MATERIALS FOR TILE (FLOORS AND WALLS)

Thin-Set Latex-Portland Cement Mortar: ANSI A118.4, composed as follows:

Manufacturer: Mapei Corp.

Product: Kerabond Premium White Mortar Powder Dry Mortar with Keralastic Polymer Additive.

Manufacturer: Laticrete International Inc.

Product: 211Crete Filler Powder, White, with 4237 Latex Mortar Additive.

GROUT

Water-Cleanable, Tile-Setting and Grouting Epoxy (ALL FLOORS): ANSI A118.3, grout color as selected by Architect from manufacturer's full range of colors.

Manufacturer: Mapei Corp.

Product: Kerapoxy

Manufacturer: Laticrete International Inc.

Product: SpectraLOCK

Latex Portland Cement Grout (ALL WALLS): ANSI A118.6, Latex Portland Cement Mortar, manufacturer's standard latex additive, grout color as selected by Architect.

Use sanded grout for tile joints 1/8" and wider.

Use unsanded grout for tile joints less than 1/8" wide.

GROUT AND TILE SEALERS

Silicone Sealers: Colorless, penetrating, highly polymerized resin for use on grout joints and unglazed tile.

Approved Products/ Manufacturers:

"Magic Seal"; Bostik Hydromet.

"Silicone Grout Sealer"; L & M Manufacturing Co.

Approved Equal.

PATCHING AND LEVELING COMPOUND

Patching and Leveling Compound: As recommended by tile manufacturer and compatible with both substrate and setting materials.

WATER-RESISTANT GYPSUM BOARD

Approved Products/ Manufacturers: See Section 09260 – Metal studs and Gypsum Board Systems.

MIXING MORTARS AND GROUT

Mixing: Mix mortars and grouts to comply with requirements of referenced standards and manufacturers including those for accurate proportioning of materials, water, or additive content; type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other procedures needed to produce mortars and grouts of uniform quality with optimum performance

characteristics for application indicated. Mortars and grout for tile shall be pure white, grout for tile must be mixed to each separate tile color. Submit mock-up of each tile with corresponding colored grout for approval before installation

PART 3 - EXECUTION

EXAMINATION

Examination: Examine substrates and areas where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.

Verify that substrates for setting tile are firm, dry, clean, and free from oil or waxy films and curing compounds.

Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in, or behind, tile has been completed before installing tile.

Acceptance: Do not proceed with installation until unsatisfactory conditions have been corrected.

PREPARATION

Blending: For tile exhibiting color variations within the ranges selected during sample submittals, verify that tile has been blended in factory and packaged accordingly so that tile units taken from one package show the same range in colors as those taken from other packages and match approved samples. If not factory blended, either return to manufacturer or blend tiles at Project site before installing.

INSTALLATION, GENERAL

ANSI Tile Installation Standard: Comply with parts of ANSI 108 series of tile installation standards included under "Standard Specifications for the Installation of Ceramic Tile" that apply to type of setting and grouting materials and methods indicated.

TCA Installation Guidelines: TCA "Handbook for Ceramic Tile Installation"; comply with TCNA installation methods indicated.

Workmanship: Extend tile work into recesses and under or behind equipment and fixtures to form a complete covering without interruptions except as otherwise shown. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.

Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so that plates, collars, or covers overlap tile.

Jointing Pattern: Unless otherwise shown, lay tile in grid pattern. Align joints when adjoining tiles on floor, base, walls, and trim are same size. Lay out tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths unless otherwise shown.

For tile mounted in sheets, make joints between tile sheets same width as joints within tile sheets so that extent of each sheet is not apparent in finished work.

Expansion Joints: Locate expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated during installation of setting materials, mortar beds, and tile. Do not saw cut joints after installation of tiles.

Locate joints in tile surfaces directly above joints in concrete substrates.

Prepare joints and apply sealants to comply with requirements of "Section 07900 - Sealants."

Grouting: Grout tile to comply with the requirements of ANSI A108.3 for epoxy grout.

Mildew-Resistant Sealant: Use where tile abuts plumbing fixtures, countertops, and items penetrating tile walls, wainscots and bases, such as pipes and outlets. Refer to "Section 07900 - Sealants".

Water-Resistant Gypsum Board: At wall tile applications, install water-resistant gypsum board over metal studs in accordance with manufacturer's instructions. Tape joints and corners; cover with skim coat of dry-set mortar to a featheredge.

CERAMIC TILE INSTALLATION METHODS

General: Install mortar bed, tile, and grout in accordance with manufacturer's instructions and TCA Handbook for Ceramic Tile Installation.

Floors - Thin-Set: TCA # F115.

Walls (Water-Resistant Gypsum Board) - Thin-Set: TCA # W245.

CLEANING AND PROTECTION

Cleaning: Upon completion of placement and grouting, clean all ceramic tile surfaces so they are free of foreign matter.

Remove epoxy grout residue from tile as soon as possible.

Finished Tile Work: Leave finished installation clean and free of cracked, chipped, broken, unbonded, and otherwise defective tile work.

Joints shall be uniform in width; straight, level, plumb and aligned in both directions; neatly grouted without irregularities, holes and gaps.

Tile, trim, and stone thresholds shall be the colors, patterns and textures indicated for each location, and shall match the approved samples.

Exposed surfaces of tile and trim units shall be uniform and even in plane, without offsets over 1/32-inch in adjacent units.

Cut edges of tile and trim units shall be concealed by joint grout, sealant, or overlapping escutcheons of penetrating items.

Grout and Tile Sealer: After grout has fully cured, apply sealer to grout joints and unglazed tile surfaces in accordance with manufacturer's instructions. As soon as grout sealer has penetrated grout joints, remove excess sealer and sealer that has gotten on tile faces by wiping with soft cloth.

Protection: Provide final protection and maintain conditions in a manner acceptable to manufacturer and installer that ensures that tile is without damage or deterioration.

When recommended by tile manufacturer, apply a protective coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with kraft paper or other heavy covering during construction period to prevent staining, damage, and wear.

Prohibit foot and wheel traffic from tiled floors for at least 7 days after grouting is completed.

Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

END OF SECTION

SECTION 09510

ACOUSTICAL CEILINGS

PART 1 - GENERAL

SUMMARY

Section Includes:

Acoustical ceiling and suspension systems.

Related Sections:

Section 09260 – Metal Studs and Gypsum Board Systems.

Division 15.

Division 16.

DEFINITIONS

AC: Articulation Class.

CAC: Ceiling Attenuation Class.

LR: Light Reflectance coefficient.

NRC: Noise Reduction Coefficient

SUBMITTALS

Product Data: Submit manufacturer's specifications and installation instructions for each type of product proposed for use.

Include test reports to confirm fire performance and acoustical properties of proposed acoustical units.

Coordination Drawings: Submit reflected ceiling plans drawn accurately to scale coordinating penetrations and ceiling-mounted items. Show the following:

Adjoining gypsum board construction.

Ceiling suspension members, including wall moldings.

Method of attaching hangers to building structure.

Ceiling-mounted items including light fixtures, speakers, alarm and detection devices, and other electrical systems components; air outlets and inlets, sprinkler heads, and other mechanical systems components; and special moldings at walls, column penetrations, and other junctures with adjoining construction.

Samples For Verification: Submit the following:

12-inch long samples of suspension system members, including moldings, of color and system type proposed for use.

12-inch square samples of acoustical unit type, pattern and color proposed for use.

QUALITY ASSURANCE

Installer Qualifications: Engage an experienced Installer who has successfully completed acoustical ceilings similar to those indicated for Project.

Fire-Performance: Provide acoustical panels with surface burning characteristics specified below, based on ASTM E 84 tests performed by UL or other independent agency acceptable to authorities having jurisdiction. Identify packaged products with approval markings of test agency.

Flame Spread: 25 or less.

Smoke Developed: 50 or less.

Source Limitations:

Acoustical Ceiling Panel: Obtain each type through one source from a single manufacturer.

Suspension System: Obtain each type through one source from a single manufacturer.

Preinstallation Conference: Conduct conference at Project site

Coordination: Coordinate layout and installation of acoustical panels and suspension system with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies.

DELIVERY, STORAGE, AND HANDLING

Delivery and Storage: Deliver ceiling components to project site in original packages and protect during storage against damage.

Before installing acoustical ceiling units, permit them to reach stabilized temperature and humidity of space where they will be installed.

Handling: Handle ceiling components to avoid chipping or damaging them.

PROJECT CONDITIONS

Installation Conditions: Do not install acoustical ceilings until space is enclosed and weatherproof, wet-work in space is completed and nominally dry, work above ceilings is complete, and temperature and humidity will be continuously maintained near levels intended for final occupancy.

Fireproofing: All fireproofing which is removed shall be replaced. All penetrations of fireproofing shall be patched or sealed to restore the required fire resistance.

EXTRA MATERIALS

General: Furnish extra materials that match products installed, are packaged with protective covering for storage, and are identified with appropriate labels.

Acoustical Ceiling Units: Furnish quantity of full-size units equal to 2.0 percent of each type of ceiling unit installed.

Suspension System Components: Furnish quantity of main- and cross-tees and edge moldings equal to 2.0 percent of components installed.

WARRANTY

Sag Warranty: Ceiling panel products shall have a ten (10) year warranty to withstand temperature conditions up to 90 degrees F and relative humidity of 90 percent without visible sag.

PART 2 - PRODUCTS

MANUFACTURERS

Approved Products/ Manufacturers: Armstrong World Industries, USG/ Donn Products or prior approved equal.

ACOUSTICAL PANELS, GENERAL

Standard for Acoustical Ceiling Units: Provide manufacturer's standard panels of configuration indicated that comply with ASTM E 1264 classifications as designated by types, patterns, acoustical ratings, and light reflectances, unless otherwise indicated.

Mounting Method for Measuring NRC: Type E-400 (plenum mounting in which face of test specimen is 15-3/4 inches away from the test surface) per ASTM E 795.

Acoustic Unit: Provide panels complying with the following requirements.

Size: 24" x 24" x 3/4".

Description: Wet-formed mineral fiber, DuraBrite acoustically transparent membrane, fine surface texture, white in color.

Edge Profile: Beveled Tegular, for interface with specified suspension system.

Features: UL Class A Flamespread; HumiGuard Plus (with BioBlock paint both faces).

Acceptable Product: Ultima Item No. 1912, by Armstrong or approved equal.

Colors and Patterns: Provide products to match appearance characteristics indicated.

METAL SUSPENSION SYSTEMS, GENERAL

Standard for Metal Suspension Systems: Provide manufacturer's standard metal suspension systems that comply with ASTM C 635 requirements as specified.

Beams and Tees: All main beams and cross tees shall be commercial quality hot dipped galvanized steel as per ASTM A 653. Beams and tees shall be of double-web steel construction with exposed flange design. Exposed surfaces shall be chemically cleansed, capping prefinished galvanized steel in baked polyester paint. Main beams and cross tees shall have rotary stitching.

Structural Classification: ASTM C 635 Intermediate Duty.

Acceptable Products: Suprafine XL 9/16" Exposed Tee, with smooth matte white baked enamel paint finish by Armstrong, or approved equal.

Finishes and Colors, General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes. Provide manufacturer's standard factory-applied finish for type of system indicated.

Attachment Devices: Size for 5 times design load indicated in ASTM C 635, Table 1, Direct Hung unless otherwise indicated.

Wire for Hangers and Ties: ASTM A 641, Class 1 zinc coating, soft temper.

Gage: Provide wire sized so that stress at 3 times hanger design load (ASTM C 635, Table 1, Direct-Hung) will be less than yield stress of wire, but not less than 0.106-inch diameter (12 gage).

Anchors in Concrete: Anchors of type and material indicated below, with holes or loops for attaching hangers of type indicated and with capability to sustain, without failure, a load equal to five times that imposed by ceiling construction, as determined by testing per ASTM E 488 or ASTM E 1512 as applicable, conducted by a qualified testing and inspecting agency.

Hold-Down Clips: Where indicated, provide manufacturer's standard hold-down clips spaced 24 inches o.c. on all cross tees.

Edge Moldings and Trim: Manufacturer's standard moldings for edges and penetrations, of types and profiles indicated.

Material: Roll-formed, hemmed-edge, galvanized steel.

Finish: Provide manufacturer's standard factory-applied finish to match system components.

PART 3 - EXECUTION

PREPARATION

Examination: Examine ambient conditions, substrates and construction to which ceiling system attaches or abuts, for compliance with requirements specified in this and other sections that affect installation and anchorage of ceiling system. Do not proceed with ceiling installation until unsatisfactory conditions have been corrected.

Layout: Generally, measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less-than-half-size units at borders, and comply with reflected ceiling plans.

If drawing dictates specific layout or work point, comply with Drawings.

Coordination: Furnish layouts for preset inserts, clips, and other devices for ceiling hangers, which are installed as work of other Sections. Supply devices for installation well in advance of time needed.

INSTALLATION

General: Comply with ASTM C 636 installation standard, manufacturer's instructions, and CISCA "Ceiling Systems Handbook."

Arrangement: Arrange acoustical units and orient ceiling suspension grid shown by reflected ceiling plans.

Suspension System: Suspend ceiling hangers from structural components only, not from conduits, pipes, ducts, and other non-structural items. Do not attach hangers to metal deck or permanent metal forms.

Install hangers plumb and free from contact with ducts, pipes, conduits or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other effective means.

Space hangers not more than 4'-0" o.c. along each supported member unless otherwise shown, and provide hangers not more than 8 inches from ends of each member.

Where ducts and other construction interfere with the location of hangers, install supplemental suspension members and hangers in form of trapezes or equivalent devices to support ceiling loads within performance limits established by referenced standards.

Secure wire hangers by looping and wire-tying, either directly to in-place construction or to inserts, eyescrews, or other secure, appropriate devices, and so that attachments will not fail due to age, corrosion, or elevated temperatures.

Install hold-down clips in areas required by Owner; space as recommended by panel manufacturer's written instructions, unless otherwise indicated.

Assemble and support suspension grid in accordance with grid manufacturer's instructions. Support grid independently of edge moldings; do not use edge moldings for support.

Level suspension system to tolerance of 1/8" in 12'-0".

Edge Moldings: Install edge moldings at perimeter of acoustical ceiling area and at penetrating items to support edges of acoustical units.

Screw-attach moldings to substrate at intervals not over 16 inches o.c. and not more than 3 inches from ends, leveling with ceiling suspension system to tolerance of 1/8 inch in 12'-0". Miter corners accurately and connect securely.

Apply continuous ribbon of acoustical sealant, concealed on back of vertical leg, before installing moldings.

Caulk any voids between molding and substrate

Lay-In Ceilings: Install acoustical panels in coordination with suspension system, with edges concealed by support of suspension members. Scribe and cut panels to fit accurately at borders and at penetrations.

COMPLETION

Ceilings: Clean, touch-up and repair exposed surfaces of acoustical ceilings, including trim, edge moldings, and suspension members. Comply with manufacturer's instructions for cleaning and touch-up of minor finish damage. Remove and replace work that cannot be cleaned and repaired to permanently eliminate evidence of soiling, staining, and damage.

Other Work: Touch-up, repair or remove and replace as necessary other items damaged due to acoustical ceiling work.

Completed Work: Acoustical ceilings shall be clean, undamaged and complete. Suspension members and moldings shall be securely attached, with neat, aligned joints. Acoustical units shall be properly sized and supported by suspension system and wall moldings at all sides. Ceilings shall be level to tolerance of 1/8" in 12'-0".

CLEANING

Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage. Architect shall make final determination as to which panels are to be replaced or cleaned.

END OF SECTION

09510-6

SECTION 09650

RESILIENT FLOORING

PART 1 - GENERAL

SUMMARY

This Section includes the following:

- Vinyl composition tile (VCT).
- Resilient wall base.
- Sealing and waxing all resilient flooring.

Related Sections:

- Section 03300 - Cast-In-Place Concrete.

PERFORMANCE REQUIREMENTS

Static Coefficient of Friction: All resilient flooring materials shall be "slip-resistant" meeting the requirements of ASTM C-1028 for the following values:

- Level Surfaces: Minimum of 0.6.

SUBMITTALS

Product Data: Submit manufacturer's product literature and delivery, storage, handling, and installation instructions for each type of resilient flooring, accessory item, and installation material required. Include methods of installation for each type of substrate.

Submit written data on physical characteristics and flame resistance characteristics.

Submit written recommendations from resilient flooring manufacturers on resilient flooring adhesive.

Samples for Verification: Provide 2 samples of each different color and pattern of resilient material to be used, showing full range of variations expected in these characteristics.

- Vinyl Composition Tile: Full-size tiles.
- Wall Base and Accessories: 12-inch-long sections.

Acceptance of Substrate: Provide letter of substrate acceptance, signed by Contractor, Manufacturer and Installer.

Manufacturer, Contractor and Installer shall review substrate testing including results of ASTM F 1869 and bond and adhesion test reports and any other tests required by manufacturer prior to accepting substrate.

Bond and Adhesion Test Reports: Submit certified test data and reports on bond and moisture tests for concrete subfloors. Distribute copies to Installer, resilient flooring manufacturer, Contractor, adhesive manufacturer, and construction manager for review prior to installation.

Maintenance Data: For resilient products to include in maintenance manuals.

QUALITY ASSURANCE

Single-Source Responsibility: Obtain each type, color, and pattern of resilient material from a single source. Provide each type of resilient material and associated primer, leveling compound and adhesive as produced or recommended by a single manufacturer.

Production Quality Control: Assure consistent appearance by providing each pattern and color of flooring and base (including end stops and corner units) from a single production run or dye lot for each room or space.

Fire Performance Characteristics: Provide flooring with the following characteristics as determined by testing by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.

Critical Radiant Flux: 0.45 watts per sq. cm or more per ASTM E 648.

Flame Spread: 75 or less per ASTM E 84.

Smoke Density: 450 or less per ASTM E 662.

Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1.

Inspect condition of substrate and other preparatory work performed by other trades. Discuss any corrections required to substrates or other work required for installation of resilient flooring(s).

Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.

Review special resilient flooring designs and patterns.

Review dust-control procedures.

Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions.

DELIVERY, STORAGE, AND HANDLING

Delivery: Deliver resilient materials and installation accessories to Project site in manufacturer's unopened cartons and containers each bearing names of product and manufacturer, Project identification, and shipping and handling instructions.

Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F or more than 90 deg F.

Store tiles on flat surfaces.

Move resilient materials and installation accessories into spaces where they will be installed at least 48 hours in advance of installation.

PROJECT CONDITIONS

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

48 hours before installation.

During installation.

48 hours after installation.

Installation Conditions: Do not install resilient materials until they are at the same temperature as the space where they are to be installed.

Close spaces to traffic during flooring installation.

Install resilient materials and accessories after other finishing operations, including painting, have been completed.

Install resilient materials over concrete slabs and underlayment compounds until that sufficiently dry to bond with adhesive as determined by manufacturer's recommended bond and moisture test.

After post installation period, maintain temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.

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

EXTRA MATERIALS

Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

Floor Tile: Furnish 1 box for every 50 boxes or fraction thereof, of each type, color, and pattern of floor tile installed.

Resilient Wall Base and Accessories: Furnish not less than 10 linear feet (3 linear m) for every 500 linear feet (150 linear m) or fraction thereof, of each type, color, pattern, and size of resilient product installed.

PART 2 - PRODUCTS

COLORS AND PATTERNS

Colors, Sizes and Patterns: As selected by Architect from full line of colors.

VINYL COMPOSITION TILE

Vinyl Composition Tile shall have a nominal total thickness of 1/8 in. (3.2 mm), 12 in. x 12 in. (305 mm x 305 mm), composed of polyvinyl chloride resin binder, plasticizers, fillers, and pigments with colors and texture dispersed uniformly throughout the thickness of the wear layer. Vinyl composition tile shall conform to the requirements of ASTM F 1066, Class 3 – surface pattern

Fire-Test-Response Characteristics:

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

Colors and Manufacturer: Color to be selected by Architect from full color line.

Mannington Commercial Inspirations Series or prior approved equal.

VINYL WALL BASE

Wall Base: ASTM F 1861, 4" High.

Shapes: Cove base as shown on Finish Plans.

Colors and Manufacturer: Color to be selected by Architect from full color line.

Johnsonite.
Roppe Corporation.
Approved equal.

RESILIENT MOLDING ACCESSORY

Description: Reducer strips, cap strips, nosing, transition pieces and alike as required to complete the project. Provide products from the following:

Johnsonite.
Roppe Corporation.
Approved equal.

Material: Vinyl.

INSTALLATION MATERIALS

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

Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.

Provide Armstrong S-202 Static Dissipative Tile Adhesive with 2 in. (5.08 cm) wide x 24 in. (60.96 cm) long copper ground-connection strips under the tile and Armstrong S-725 Wall Base Adhesive at the wall base as recommended by the flooring manufacturer.

PART 3 - EXECUTION

EXAMINATION

Examine substrates, with Installer present, where installation of resilient material will occur, to verify that substrates and conditions are satisfactory for installation and comply with resilient material manufacturer's requirements and those specified in this Section.

Substrate Conditions: Inspect application surfaces to determine that they are satisfactory. Substrates shall be smooth and free from defects impairing performance or appearance of the installed materials. Application surfaces shall be:

Straight and true to plane within 1/8" in 8 feet, without local irregularities and abrupt changes in plane which could telegraph through new materials.

Smooth and free from cracks, holes, depressions, ridges and similar defects.

Clean and free from foreign materials including incompatible curing compounds, paint, oils, waxes, sealers, grease and similar substances which would prevent adhesive bond.

Proceed with installation only after unsatisfactory conditions have been corrected.

PREPARATION

Prepare substrates according to manufacturer's written recommendations to ensure adhesion of resilient products.

Concrete Substrates: Prepare according to ASTM F 710.

Verify that substrates are dry and free of curing compounds, sealers, and hardeners.

Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.

Moisture Testing:

Perform anhydrous calcium chloride test, ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lb of water/1000 sq. ft. in 24 hours.

Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.

Remove foreign materials, substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by manufacturer. Do not use solvents.

Remove ridges and surface irregularities by grinding or sanding.

Use trowelable leveling and patching compound to fill cracks, holes, and depressions in substrates.

Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.

Do not install resilient products until they are same temperature as space where they are to be installed.

Sweep and vacuum clean substrates to be covered by resilient products immediately before installation. After cleaning, examine substrates for moisture, alkaline salts, carbonation, and dust.

Apply primer, if recommended by adhesive manufacturer, prior to applying adhesive. Apply according to manufacturer's directions.

Proceed with installation only after unsatisfactory conditions have been corrected.

TILE INSTALLATION

Lay out tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter.

Conform to specific pattern, layout and work points indicated on Drawings, where shown.

Lay tiles square with room axis.

Match tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles.

Lay tiles with grain direction in same direction (**no basket-weave pattern or checkerboarding**).

Scribe, cut, and fit tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, edgings, door frames, thresholds, and nosings.

Extend tiles into toe spaces, door reveals, closets, and similar openings.

Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates. Use chalk or other nonpermanent, nonstaining marking device.

Adhere tiles to flooring substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

Hand roll resilient materials where required by manufacturer.

Scribe, cut, and fit resilient materials to butt tightly to vertical surfaces, permanent fixtures, built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings.

RESILIENT WALL BASE INSTALLATION

Apply wall base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.

Install wall base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.

Tightly adhere wall base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.

Do not stretch wall base during installation.

Premolded Corners: Install premolded corners before installing straight pieces.

Job-Formed Corners:

Outside Corners: Use straight pieces of maximum lengths possible. Form without producing discoloration (whitening) at bends. Shave back of base at points where bends occur and remove strips perpendicular to length of base that are only deep enough to produce a snug fit without removing more than half the wall base thickness.

Inside Corners: Use straight pieces of maximum lengths possible. Form by cutting 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.

RESILIENT ACCESSORY INSTALLATION

Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of floor coverings that would otherwise be exposed.

CLEANING AND PROTECTION

Perform the following operations using materials and methods recommended by the manufacturer immediately after completing resilient product installation:

Remove adhesive and other blemishes from exposed surfaces.

Sweep and vacuum surfaces thoroughly.

Damp-mop surfaces to remove marks and soil.

Do not wash surfaces until after time period recommended by manufacturer.

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

Apply protective floor polish to horizontal surfaces that are free from soil, visible adhesive, and surface blemishes if recommended in writing by manufacturer.

Use products recommended by manufacturer

Use commercially available product acceptable to manufacturer.

Coordinate selection of floor polish with Owner's maintenance service.

Cover products installed on horizontal surfaces with undyed, untreated building paper until Substantial Completion.

Do not move heavy and sharp objects directly over surfaces. Place hardboard or plywood panels over flooring and under objects while they are being moved. Slide or roll objects over panels without moving panels.

COMPLETION

Completed work shall be clean and uniform, with joints aligned. Resilient materials, including edge strips, shall be permanently and fully adhered.

Remove and replace with new materials, resilient items that are damaged, defective, improperly installed, and installed on substrates, which were improperly prepared.

Acceptably repair and clean, or remove and replace with new materials other items damaged, soiled or stained by work of this Section. Architect shall determine what items need to be replaced.

END OF SECTION



SECTION 09680

CARPET

PART 1 - GENERAL

SUMMARY

This Section includes modular carpet, direct-glue-down, carpet base, and all accessories as indicated on the Drawings.

The Work shall include, but is not limited to the following:

- Preparation of new concrete subfloor to receive carpet.
- Slab preparation and leveling including necessary priming, sealing, patching and repairs.
- Coordination with expansion joints, and electrical, audiovisual, telephone outlets, and other floor-mounted devices (as applicable).
- Extent of Work as indicated in the Drawings.

Definitions:

Shading: A localized change in appearance of the carpet brought about by the tufts leaning in different directions. Shading may be temporary or permanent.

Temporary Shading: Localized surface effects where the pile is disturbed by normal conditions of use such as footmarks, scuffmarks and vacuum marks, which can be removed or changed in appearance by brushing or vacuuming.

Permanent Shading: A type of pile reversal that exhibits itself visually and is permanent.

Tracking: A form of permanent shading resulting from traffic patterns within an installation. The main lines of traffic and turning points of traffic are susceptible to this type of shading and are predictable.

Random Permanent Shading: Other terms commonly used to describe this type of change in appearance include watermarking and pooling. Random permanent shading effects are not related to known traffic patterns within an installation. Areas of random permanent shading may vary in shape size and orientation through the installation resulting in a random patterning, which can cross seams. Areas appear light from one direction and dark from another. Carpet may look as though water has been spilled (in pools) on areas of the carpet in random, irregular patterns.

PERFORMANCE REQUIREMENTS

Test Reports: Test reports for the following performance assurance tests shall be submitted upon request. Submitted results shall represent average results for production goods of the referenced style. All carpet products shall meet the following:

Carpets:

Flooring Radiant Panel:	ASTM E-648	Class 1
Smoke Density:	ASTM E-662:	450 Flaming Mode - Maximum
Electrostatic Propensity:	AATCC 134:	3.0 KV or less

SUBMITTALS

Product Data: Submit manufacturer's product literature and delivery, storage, handling, and installation instructions for each type of carpet, accessory item, and installation material required. Include methods of installation for each type of substrate.

Submit written data on physical characteristics and flame resistance characteristics.
Submit written recommendations from carpet manufacturers on carpet adhesive.

Installer Qualification: Qualification data for firms specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include list of completed projects of type, quantity, and installation methods similar to the Work of this Section.

Samples for Verification Purposes: Submit manufacturer's physical examples, showing full range of color, texture, and pattern variations expected. Prepare Samples from same material to be used for the Work. Submit the following:

- 18-inch-square Samples of carpet material.
- 18-inch-long Samples of carpet edge guard
- 18-inch-long Samples of carpet wall base with bound top.

Shop Drawings: Show the following:

Seaming Diagrams: Dimensioned Drawings showing carpet layout. Verify field conditions and include field measurements. Comply with manufacturer's instructions for seam location and for lay of carpet. Clearly indicate the following:

- Seam locations, types, and methods.
- Carpet type, color, and dye lot.
- Pattern type, repeat size, location, direction and center point.
- Type, color and location of carpet insets and borders.
- Critical pattern match relationships between carpet types.
- Direction and lay of pile.
- Installation starting point and sequencing.
- Installation method for each space, location, or carpet type.
- Pattern match relationship at stair installations.
- Type and location of edge, transition, and other accessory strips.
- Transition details to other flooring materials.
- Location of building expansion joints and joint/carpet details.
- Indicate columns, doorways, enclosing walls/ partitions, built-in cabinets, and locations where cutouts are required in carpet.
- Installation details at any special conditions
- Type, location and installation of carpet wall base with bound top.

Standard Product Samples: Submit the following for Architect's approval:

12-inch-long Samples of each type of exposed edge stripping and accessory item.

Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention in submittal.

Certification: Submit manufacturer's certificate stating that materials furnished comply with specified requirements for fire performance characteristics and physical properties and warranty requirements.

Test Reports: Submit certified laboratory test data and reports evidencing material compliance with requirements for the following:

Fire performance characteristics.

Acceptance of Substrate: Provide letter of substrate acceptance, signed by Contractor, manufacturer, and Installer as defined herein.

Manufacturer, Contractor, and Installer shall review substrate testing including results of ASTM E 1907 and bond and adhesion test reports and any other tests required by manufacturer prior to accepting substrate.

Bond and Adhesion Test Reports: Submit certified test data and reports on bond and moisture tests for concrete subfloors. Distribute copies to Installer, carpet manufacturer, Contractor, adhesive manufacturer, and Architect for review prior to installation.

Floor Flatness Documentation:

Submit certification that floor flatness criteria established herein has been maintained in areas to receive carpet.

Maintenance Manual: Submit 2 copies of manufacturers' instructions for daily and periodic maintenance of all installed carpet types. Include methods and frequency recommended for maintaining carpet in optimum conditions under anticipated traffic and use conditions. Include cleaning and stain removal products and procedures recommended. Include precautions against products and methods, which may be detrimental to appearance and performance. Include instructions for repairing materials.

Maintenance Training: Prior to Substantial Completion, review maintenance manual with Owner's maintenance staff and demonstrate recommended methods for cleaning and maintaining carpet.

Warranty: Submit manufacturer's and Installer's sample warranties.

QUALITY ASSURANCE

Source of Materials:

Carpet Materials: To ensure matching of quality, color, pattern, and texture, install materials produced from same dye lot and production run. Where materials cannot be obtained from a single lot or production run, notify the Architect so that the extent and use of each lot or run can be controlled.

Carpet Material, Installation Materials and Accessories: Provide material obtained from one source for each type of material used in the Work. Do not change source or brands of materials during progress of Work.

Qualifications:

Carpet Manufacturer Qualifications: Firm (material producer) with not less than 5 years of production experience in materials of types and quantities similar to the work of this Section, whose published literature clearly indicates compliance of products with requirements of this section.

Installer Qualifications: Firm specializing in commercial carpet installation with not less than 5 years experience in installation of carpet of type, quantity, and installation methods similar to the work of this Section.

Installer must be approved and certified by the Floor Covering Installation Board.

Installer must be approved and certified by the manufacturer.

Manufacturer Qualifications: Company specializing in manufacturing specified carpet with minimum 10 years documented experience.

Upon request by Architect, manufacturer shall provide representative to assist in project start-up and to inspect installation while in process and upon completion.

Fire-Test-Response Characteristics: Provide products with the critical radiant flux classification indicated in Part 2, as determined by testing identical products per ASTM E 648 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.

Test concrete subfloors for compliance with ASTM F 710 and for determining adhesion and dryness characteristics.

ADA Compliance: Carpet, as installed, shall be securely attached to the subfloor in compliance with ADA-AG Section 4.5.3.

Preinstallation Conference: One week prior to commencing Work of this Section, conduct conference at Project site to comply with requirements in Division 1.

Required Attendees: Manufacturer's representative, Installer, Contractor, and Architect.

Inspect condition of substrate and other preparatory work performed by other trades. Discuss any corrections required to substrates or other work required for installation of carpet.

Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.

Review special carpet designs and patterns.

Review dust-control procedures.

Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions.

DELIVERY, STORAGE, AND HANDLING

General: Comply with CRI 104, Section 5, "Storage and Handling."

Delivery: Deliver materials to Project site in original factory wrappings and containers, labeled with identification of manufacturer, brand name, and lot number.

Storage: Store materials in protective packaging to prevent damage prior to installation. Comply with manufacturer's instructions and recommendations.

Lay flat, on continuous blocking off ground.

Keep materials dry at all times. Protect against exposure to weather and contact with damp or wet surface.

Protect adhesives from freezing. Follow manufacturer's recommendations for minimum temperatures to which adhesives are exposed.

PROJECT CONDITIONS

General: Comply with CRI 104, Section 6.1, "Site Conditions; Temperature and Humidity."

Space Enclosure and Environmental Limitations: Do not install carpet until space is enclosed and weatherproof, wet-work in space is completed and nominally dry, work above ceilings is complete, and ambient temperature and humidity conditions are and will continuously be maintained at values anticipated for final occupancy.

Subfloor Moisture Conditions: Do not install carpet over concrete slabs until slabs have cured and are sufficiently dry. The moisture emission rate shall be acceptable to carpet and carpet adhesive manufacturers, but in any case not more than 3 lb/1000 sq.ft./24 hours when tested by calcium chloride moisture test in compliance with CRI 104, 6.2.1, with subfloor temperatures not less than 55 deg F.

Application substrates shall show no condensation within 48 hours on underside of 4 foot by 4 foot polyethylene sheet, fully taped at perimeter to substrate.

Subfloor Alkalinity Conditions: A pH range acceptable to carpet and carpet adhesive manufacturers, but in any case not outside the range of 5 to 9, when subfloor is wetted with distilled water and pHDrion paper is applied.

CARPET WARRANTIES

Manufacturer's Warranty: Carpet warranty shall be the sole responsibility of the manufacturer. Second-source warranties and warranties that involve parties other than the carpet manufacturer are unacceptable.

Warranty Period: Warranty shall be for lifetime (20 years minimum) and shall cover against:

- Excessive Surface Wear: More than 15 percent loss of pile fiber weight.
- Excessive Static Electricity: More than 3.0 kV per AATCC 134.
- Resiliency Loss of the Backing: More than 10 percent loss of backing resiliency.
- Delamination.
- Edge Ravel.
- Zippering.

If the product fails to perform as warranted when properly installed and maintained, the affected area shall be repaired or replaced at the discretion of the manufacturer.

Chair pads are not required for carpet warranty coverage.

Warranty shall not exclude carpet product installed on stairs provided it is properly installed and maintained.

Tuft bind warranty in lieu of edge ravel and zippering is not acceptable.

Provide certification and warranty that product is 100 percent recyclable through manufacturer's recycling program into infinitely recyclable products. Warranty and certification shall include that no part of the product will be landfilled or incinerated.

Warranty is not intended to include manufacturer's responsibility for recycling in any way.

Installer's Warranty: Flooring contractor shall provide Owner a written installation warranty that guarantees the completed installation to be free from defects in materials and workmanship.

Warranty Period: One year from date of Substantial Completion.

EXTRA MATERIALS

Furnish extra materials described below, before installation begins, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

Carpet: Equal to 5 percent of amount installed for each type indicated, but not less than 10 sq. yd.

Provide percent overage of calculated yardage for each type of carpet (include carpet needed for complete installation plus waste and usable scraps in calculated yardage) as specified by Architect and/or Owner.

Usable Scraps: Upon completion of the carpet installation, deliver usable scraps to the Owner. Usable scraps are defined to include roll ends of less than 4 feet in length and pieces of more than 3 square feet in area and more than 8 inches wide. Package usable scraps per manufacturer's instructions and clearly label and identify packages. "Usable scraps" will not be accepted as inventory requirement for replacement/maintenance materials.

PART 2 - PRODUCTS

MANUFACTURERS

Mannington Commercial, 1844 U.S. Hwy. 41 S. E., Calhoun, GA 30701 . Telephone 800.241.2262 or prior approved equal.

PRODUCTS: For bidding purposes, figure that a combination of the following carpet types (Worldview and Balanced) will be used, with a maximum of two (2) color selections per carpet type.

Field Carpet: Worldview/Balanced Collection by Mannington Commercial

Worldview

Product Type:	Modular
Construction:	Neotec Loop
Face Fiber:	100% Type 6,6 nylon
Dye Method:	Solution
Gauge:	1/12
Stitches Per Inch:	10
Pile Thickness:	.121 inches
Tufted Yarn Weight:	20 ounce per sq. yd.
Pattern Repeat:	12" W x 17 1/2" L
Primary Backing:	100% Woven Synthetic
Secondary Backing:	Infinity Modular
Wear Warranty:	15 Year Limited Wear Warranty
Backing Warranty:	Lifetime Limited Backing Warranty
Flammability:	ASTM E 648 Class 1 (Direct Glue)
Smoke Density:	ASTM E 662 Less than 450
Static Propensity:	AATCC-134 Under 3.0 kV

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Average Density: 5,950
Standard Width: 18" x 18"
IAQ Green Label: GLP7616

Balanced

Product Type: Broadloom
Construction: Enhanced Graphics Loop
Face Fiber: 100% Type 6,6 nylon
Dye Method: Solution
Gauge: 1/10
Stitches Per Inch: 13.5
Pile Thickness: .124 inches
Tufted Yarn Weight: 20 ounce per sq. yd.
Pattern Repeat: 3/4" W x 1 5/8" L
Primary Backing: 100% Woven Synthetic
Secondary Backing: UltraBac Plus
Wear Warranty: 10 Year Limited Wear Warranty
Backing Warranty: 10 Year Lifetime Backing Warrant
Flammability: ASTM E 648 Class 1 (Direct Glue)
Smoke Density: ASTM E 662 Less than 450
Static Propensity: AATCC-134 Under 3.0 kV
Average Density: 5,806
Standard Width: 12 feet
IAQ Green Label: GLP2278

Carpet Base: Belvedere IV 32 Collection by Mannington Commercial (maximum four (4) colors to be selected)

Product Type: Broadloom
Construction: Solid Color Cut Pile
Face Fiber: XTI® Type 6,6 nylon
Dye Method: Piece Dyed
Gauge: 1/10
Stitches Per Inch: 10.5
Tuft Density: 105
Pile Thickness: .203 inches
Tufted Yarn Weight: 32 ounce per sq. yd.
Primary Backing: 100% Woven Synthetic
Secondary Backing: 100% Woven Synthetic
Wear Warranty: 10 Year Limited Wear Warranty
Flammability: ASTM E 648 Class 1 (Direct Glue)
Smoke Density: ASTM E 662 Less than 450
Static Propensity: AATCC-134 Under 3.0 kV
Average Density: 5,674
Weight Density: 181,596
Standard Width: 12 feet
IAQ Green Label: GLP0678

ACCESSORIES

Carpet Base: At all areas scheduled for carpet finish, provide 4" carpet wall base with bound top. Binding detail shall be prior approved by Architect. Colors selected by Architect from manufacturer's full color line.

Carpet Edge Guard: Extruded or molded heavy duty vinyl or rubber of size and profile indicated; minimum 2-inch-wide anchorage flange; manufacturer's standard colors selected by Architect.

Leveling and Patching Compound: Latex type recommended by carpet manufacturer and acceptable to adhesive manufacturer.

Adhesives: Water-resistant, mildew-resistant, nonstaining type to suit products and subfloor conditions indicated, that complies with flammability requirements for installed carpet and that is recommended by carpet manufacturer.

PART 3 - EXECUTION

INSPECTION

Substrate Conditions: Inspect application surfaces to determine that they are free from defects impairing performance or appearance of the installed materials. Application surfaces shall be:

Straight and true to plane within 1/8 inch in 8 feet, without local irregularities and abrupt changes in plane which could telegraph through new materials.

Smooth and free from cracks, holes, ridges and similar defects.

Clean and free from foreign materials including incompatible curing compounds, paint, oils, waxes, sealers, grease and similar substances which would prevent adhesive bond.

Testing: Perform tests on concrete subfloors to determine if surfaces are sufficiently cured and dry as well as to ascertain presence of curing compounds and other coatings, which would prevent adhesive bond. Floor testing shall include but may not be limited to:

pH level analysis.

Moisture content analysis as required by manufacturer's instructions to ensure pH readings of no more than 9. Moisture transmission of 5.0-lbs/sq. ft per 24 hours is acceptable. If values exceed this level, follow manufacturer's recommendations for moisture transmission mitigation. Do not proceed until unsatisfactory conditions have been corrected.

Acceptance: Start of carpet installation will be considered acceptance by Installer, Contractor, and manufacturer of conditions as satisfactory for proper installation. Do not proceed with carpet installation until application surfaces are free from defects that would impair the in-use performance and appearance of carpet.

PREPARATION

General: Prepare unsatisfactory application surfaces as follows:

Allow new concrete to cure for 90 days before carpet installation starts.

Fill, level and make smooth cracks 1/16 inch or more, holes, unevenness, and roughness with compatible latex floor patching compounds recommended by carpet manufacturer. Feather floor filling or leveling compound a minimum of 4 feet. Sweep floor of loose granular debris prior to filling. After filling, allow filler to dry. Damp mop floor with warm water and allow to dry. Vacuum after mopping to ensure that loose granular debris is removed and to provide a proper substrate to install Modular and Broadloom carpet. Prohibit traffic until filler is cured.

Remove ridges and surface irregularities by grinding or sanding.

Remove foreign materials and coatings by grinding, scraping, sanding and then washing as necessary.

Cleaning: Vacuum floor again immediately before installation of carpeting, re-inspect substrates, and perform additional preparation work if necessary.

Sealing: Apply sealer, if recommended by carpet/adhesive manufacturers, prior to application of adhesive. Apply in compliance with manufacturer's directions.

Adhesive: Confirm compatibility of adhesive (as recommended by manufacturer) with curing compounds on concrete floors.

Preheat areas to receive carpet to a minimum temperature of 68 deg F for 72 hours prior to installation, with a relative humidity of not more than 65 percent. Maintain minimum temperature of 50 deg F thereafter. Carpet and adhesive must be stored at a minimum temperature of 68 deg F, for 72 hours prior to installation.

Store adhesive and other liquid materials in same atmospheric conditions as carpet, 68 deg F for at least 72 hours.

INSTALLATION, GENERAL

General: Follow manufacturer's instructions for installation. Butt edges tight to form seams without gaps. Roll entire area lightly to eliminate air pockets and ensure uniform bond.

Layout: Comply with manufacturer's recommendations for seam locations and direction of carpet; maintain uniformity of carpet direction and lay of pile. Comply with approved layout diagram. Coordinate modular directional layout with Architect prior to installation.

Extent of Flooring: Extend flooring materials into toe spaces, door reveals, alcoves, closets, and similar openings.

Extend carpet under furniture and furnishings, movable equipment, operable partitions, removable flanges and similar non-fixed items.

Cutouts: Provide cutouts where required, and bind cut edges where not concealed by protective edge guards or overlapping flanges.

Carpet Base: Install carpet wall base straight and level using adhesive in accordance with manufacturer's instructions. Staple application not acceptable.

Edge Guard: Install carpet edge guard where edge of carpet is exposed; anchor guards to substrate.

Pattern: Install with pattern parallel to walls and borders, unless otherwise indicated. Orient matching carpet pattern in adjacent spaces in same direction. Coordinate modular carpet pattern with Architect prior to installation.

INSTALLATION METHOD

Manufacturer's Instructions: Comply with manufacturer's recommendations and instructions.

Installation Method: When specified, install self-adhesive sheet carpet in accordance with manufacturer's instructions.

Butt edges to form tight seams without gaps. Roll entire area lightly to eliminate air pockets and ensure uniform bond.

CLEANING AND PROTECTION

Cleaning: Remove and dispose of debris and scraps. Vacuum with commercial machine with face-beater element. Remove soil. Replace carpet where soil cannot be removed. Remove protruding face yarn.

Protection: Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, to ensure carpet is not damaged or deteriorated at time of Substantial Completion.

Workmanship: Completed carpet Work shall be clean and free from damage and defective materials and workmanship. Seams shall be snug, and carpeting shall be smooth and uniform, without humps and wrinkles. Edge strips shall be securely fastened and neatly fitted. There shall be no excess adhesive on carpeting and other surfaces.

Removal and replacement of such defects will be required throughout the period specified for correction of defective work for this Project.

END OF SECTION

SECTION 09900

PAINTING

PART 1 - GENERAL

SCOPE:

Finish painting of exposed surfaces as indicated on Drawings and as specified hereinafter.

If the schedule herein requires two or more types of painting on the same substrate, the type will be distinguished by the term "paint" meaning an opaque finish (flat, satin, semi-gloss, gloss) and "transparent" meaning a non-opaque, transparent finish (varnishes, stains).

Related Work Specified Elsewhere:

Shop coats on fabricated items and structural steel
Factory-applied finishes
Plaster finishing: Section 09220
Drywall finishing: Section 09260

Definitions:

"Paint" as used herein means all coating systems materials, including primers, emulsions, enamels, coatings, stains, sealers and fillers.

"Exposed surfaces" include portions of the completed construction which are visible when permanent and built-in fixtures and equipment are in place.

"Exterior" includes portions of the completed construction which are subject to outdoor ambient temperature and humidity conditions, including covered but unenclosed areas.

Surfaces to be Painted: Complete coverage of all exposed surfaces is intended, unless indicated "no paint" on drawings. Without restricting the extent of the work to be performed, the work shall include, but is not limited to, the following:

Wood: Painting of all exposed woodwork, interior and exterior, doors and of all architectural woodwork, except that specified to be pre-finished.

Structural Steel: Touch-up after erection (concealed work only), and complete painting for all exposed work.

Plaster: All exposed surfaces.

Ferrous Metal: All exposed surfaces of all ferrous metal work, including galvanized, both exterior and interior of building which is not finished-painted under other sections, to include steel frames, guards, lintels, gutters, gravel guards, metal flashings, railings (unless indicated, roof accessories, steel supports, sprinkler riser, roof hatch and grates, bollards, etc.

Masonry: Filling and painting of all exposed interior and exterior concrete block.

Concrete Slab: Concrete sealer for slabs scheduled to remain a concrete surface.

Gypsum Drywall: All exposed surfaces.

Concrete: Sidewalk curbs, handicapped ramps, site light bases, parking striping, directional arrows, etc. (when indicated on drawings).

Surfaces Not to be Painted: The following areas or items will not require painting under this Section, unless otherwise noted:

Concealed duct shafts, concealed spaces, concealed pipes and ducts.

Acoustical tile and suspension system.

Pre-finished panels.

Structural steel work concealed by interior building finish.

Gypsum drywall surfaces to receive other finish materials.

QUALITY ASSURANCE:

Single Source Responsibility: Provide primers and other undercoat paint produced by same manufacturer as finish coats. Use only thinners approved by paint manufacturer, and use only within recommended limits.

Compatibility: Review other Sections of these specifications in which prime paints are to be provided to ensure compatibility of total coatings system for various substrates. Upon request from other trades, furnish information on finish materials to be used, to enable use of compatible prime coats. Notify the Architect of anticipated problems using the specified materials.

Industry Standards: Comply with the recommendations of the Painting and Decorating Contractors of America, as contained in "PDCA Architectural Specification Manual", except where conflicting and more stringent requirements are specified in this Section.

Applicator Qualifications: Engage an experienced applicator who has completed painting system applications similar in material and extent to those indicated for the Project that have resulted in a construction record of successful in-service performance.

Cooperation with Other Trades: This work shall be scheduled and coordinated with other trades and shall not proceed until other work and/or project conditions are as required to achieve satisfactory results. The Contractor shall examine the Specifications for the various other trades and materials and shall thoroughly familiarize himself with all their provisions regarding painting.

QUALIFICATIONS:

Manufacturers:

Standard: For purposes of designating type and quality for the work under this Section, drawings and specifications are based on products manufactured or furnished by Sherwin-Williams Company, except as noted specifically otherwise.

Acceptable Manufacturers: Products of the following manufacturers having equal quality to those specified herein will be acceptable when approved by the Architect:

Cook Paint company
Benjamin Moore & Company
Devoe-Reynolds Company
The Glidden Company
Napco
Martin-Senour Company
PPG Industries
Pratt & Lambert
Mobile - BLP

SUBMITTALS:

General: Comply with Division 1.

Product Data: Submit manufacturer's technical information including paint label analysis with handling, storage and application instructions for each material proposed for use. Identify purpose (primer, intermediate or finish coat) and substrate for each paint material.

Samples: Prior to beginning work submit samples for review of color and texture only. Provide a listing of material for each coat of each finish sample.

On 12" x 12" gypsum board and custom CMU, provide one sample of each color and material. Resubmit samples as requested by Architect until acceptable sheen, color, and texture is achieved.

On 12" x 12" section of plaster, provide one sample of each color and material. Resubmit samples as requested by Architect until acceptable sheen, color, and texture is achieved.

Provide one sample of natural and stained wood finish. Use wood samples approved for Sections 06100 and 08200. Label and identify each as to location and application.

On completed wall surfaces and other building components, where directed by the Architect, duplicate painted finishes of approved samples. Provide full-coat finish samples on at least 100 sq. ft. of surface, until required sheen, color and texture is obtained; simulate finished lighting conditions for review of in-place work.

Final acceptance of colors will be from samples applied on the job.

Approved on-site samples will be the standard for acceptance of the permanent work, which shall match approved samples in color, sheen, texture, hiding powers, application workmanship, and other appearance characteristics. Identify, preserve and protect on-site samples.

PRODUCT HANDLING:

Storage of Materials:

Store all materials in a single place designated by the Contractor. The storage place shall be kept neat and clean and all damage shall be made good. Remove soiled or used rags, waste and trash from the building every night and take every precaution to avoid the danger of fire.

Emulsion paints shall be protected from exposure to cold weather by storing in shelters so as to prevent freezing of the paint.

ENVIRONMENTAL CONDITIONS:

Maintain temperature in building at a constant 65° F. or above during drying of plaster and masonry and provide adequate ventilation for escape of moisture from building in order to prevent mildew, damage to other work and improper drying of paint. Once painting has commenced, provide a constant temperature of 65° F. or above and prevent wide variations in temperature which might result in condensation on freshly painted surfaces.

Exterior painting shall not be performed when the temperature is below 50° F., while the surface is damp, during cold, rain or frosty weather, or when temperature is likely to drop to freezing within 24 hours. Avoid painting surfaces while they are exposed to hot sun.

Cleaning Area: Before painting is started in any area, it shall be broom-cleaned and dust shall be removed from all areas to be painted. After painting operations begin in a given area, broom cleaning will not be allowed. Cleaning shall then be done only with commercial vacuum cleaning equipment.

PROTECTION:

Drop Cloths: Protect adjacent areas and installation by the use of drop cloths or other approved precautionary measures.

Hardware and Fixtures: Remove and protect hardware, accessories, device plates, lighting fixtures, factory finished work and similar items or provide ample in-place protection. Upon completion of each space, carefully replace all removed items. This work shall be done only by skilled mechanics, using adequate tools commensurate with the work to be done.

PART 2 - PRODUCTS

PAINT MATERIALS:

Provide materials as specified in Painting Schedule herein. Paint shall arrive at the project site ready-mixed, except for tinting of undercoats and possible thinning. Tinting materials shall be as recommended by the manufacturer for the particular materials tinted.

APPLICATION EQUIPMENT:

Equipment shall be adequate and commensurate for the work and workmanship required herein.

ACCESSORY MATERIALS:

This shall include all required ladders, scaffolding, drop cloths, masking, scrapers, tools, sandpaper, dusters, cleaning solvents and other items required to perform the work and achieve the results herein specified.

PART 3 - EXECUTION

PREPARATION OF SURFACES:

General Requirements for Preparations:

Hardware, hardware accessories, machined surfaces, plates, lighting fixtures and similar items in contact with painted surfaces (and not to be painted) shall be removed (where possible), masked or otherwise protected prior to surface preparation and painting operations. Such removal and reinstalling shall be done by workmen skilled in the trades involved.

Exposed nails and other ferrous metal on surfaces to be painted with water-thinned paints shall be spot-primed with zinc-dust-oxide or zinc chromate primer.

Surfaces to be painted shall be clean before applying paint or surface treatments. Oil and grease shall be removed with clean cloths and cleaning solvents prior to mechanical cleaning, except when sand blasting is employed. Cleaning and painting shall be so performed that dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.

Paints shall be applied only to surfaces that are completely free of surface moisture as determined by sight or touch. In no case shall paint be applied to surfaces upon which there is visible frost or ice.

Concrete, Masonry and Plaster: Surfaces to be painted shall be prepared by removing efflorescence, chalk, dust, dirt, grease, oil, excessive mortar, unsound paint coatings, and other material detrimental to painting. Surfaces shall be thoroughly dry, properly cured and clean before application of paint. Concrete, Masonry and Plaster Prep.: S-W-3, S-W-4, S-W-11, and/or S-W-12.

Use abrasive blast-cleaning methods if recommended by the paint manufacturer.

Test alkalinity and moisture content of surfaces. If surfaces are sufficiently alkaline to cause blistering and burning of finish paint, correct this condition before application. Do not paint surfaces where moisture content exceeds that permitted in manufacturer's printed directions.

Concrete surfaces to be sealed. Surface must be clean, dry, and in sound condition. Remove all oil, dust, grease, dirt, loose rust and other foreign material to achieve adequate adhesion. Minimum substrate cure is 28 days at 75 deg. F. Remove all form release agents, curing compounds, salts, efflorescence, laitance, and other foreign matter by sandblasting, shotblasting, mechanical scarification or suitable chemical means. Refer to ASTM D4260. Rinse thoroughly to achieve a final pH between 6.0 and 10.0. Allow to dry thoroughly prior to coating.

Surface Preparation of Concrete: SSPC-SP13/NACE 6

Wood Surfaces to Receive Paint Finish: Wood surfaces shall be primed and finish-coated as specified in the Painting Schedule herein. Wood surfaces to be painted shall be cleaned of dirt, oil, unsound paint coatings, and other foreign substances with mineral spirits, scrapers and/or sandpaper. Wood Prep.: S-W-23 (Exterior), S-W-24 (Interior), and/or S-W-12.

After priming, all holes and imperfections in finish surfaces shall be filled with putty or plastic woodfiller, colored to match the finish coat, allowed to dry and sandpapered smooth.

Unless otherwise approved, painting shall proceed only when the moisture content of the wood does not exceed 12% as measured by a moisture meter.

Wood Surfaces to Receive Transparent Finish: Except as hereinafter specified, prepare properly to the approved shade. Lightly sand each varnish coat prior to application of subsequent coat.

Ferrous Surfaces: Surfaces that have not been shop-coated shall be solvent cleaned to remove oil and grease. Surfaces that contain loose rust, loose mill scale, unsound paint coatings, and other foreign substances shall be mechanically cleaned by power wire-brushing or sandblasting in accordance with SSPC specifications. Minor amounts of residual rust that cannot be removed by applying a sharp knife to any edge will be permitted. Ferrous Surfaces Prep.: S-W-13 through S-W-15 (as applicable) and/or S-W-12.

After cleaning, apply one coat of ferrous metal primer to all ferrous surfaces that are to receive paint. Protect shop-coated metal from corrosion before and after installation by treating corroded areas immediately upon detection. Abraded or corroded spots on shop-coated surfaces shall be wire brushed and touched up with the same materials as the shop coat. All edges of repair shall be carefully feathered out on exposed surfaces.

Galvanized Metals: Surfaces shall be solvent-cleaned, treated, and otherwise prepared in accordance with the paint manufacturer's directions. Galvanized Surfaces Prep.: S-W-10 and/or S-W-12.

Aluminum and Aluminum-Alloy: Surfaces shall be solvent cleaned to remove oil and grease and then treated in accordance with paint manufacturer's directions before painting. Aluminum Prep.: S-W-1 and/or S-W-12.

Drywall: Fill minor irregularities with spackling compound. Sand to a smooth, level surface. Exercise care to avoid raising nap of paper. Gypsum board joint treatment and finishing shall be as specified in Section 09260. Drywall Prep.: S-W-8 and/or S-W-12.

TIME BETWEEN SURFACE PREPARATION AND PAINTING:

Surfaces that have been cleaned, pre-treated and/or otherwise prepared for painting shall be given a coat of the specified first-coat material as soon as practicable after such preparation has been completed, but in any event prior to any deterioration of the prepared surface.

MIXING:

Quality: At time of application, paint shall show no signs of hard settling, excessive skinning, livering or other deterioration.

Consistency: Paint shall be thoroughly stirred, strained and kept at a uniform consistency during application.

Prohibited Mixing: Paint of different manufacturers shall not be mixed together.

Thinning: Where necessary to suit conditions of surface, temperature, weather and method of application, packaged paint may be thinned immediately prior to application in accordance with the manufacturer's directions, but not in excess of one (1) pint of suitable thinner per gallon. The use of thinner for any reasons shall not relieve the Contractor from obtaining complete hiding.

Colorant: Primer may be tinted with a colorant recommended by the manufacturer.

APPLICATION:

Method of Application: Paint shall be applied in accordance with manufacturer's recommendations. On masonry surfaces, filler coat and other first coats shall be applied by brush. Subsequent coats shall be applied by brush (or roller, on smooth faced units). On all other surfaces, prime and finish coats may be applied by brush or roller.

Sequence of Coats: Sufficient time shall elapse between successive coats to permit proper drying. This period shall be modified as necessary to suit adverse weather conditions.

General Requirements for Workmanship:

Coverage and hide shall be complete. When color, stain, dirt or undercoats show through final coat of paint, the surface shall be covered by additional coats until the paint film is of uniform finish, color, appearance, thickness and coverage, at no additional cost to the Owner.

Rate of application shall not exceed average rate of coverage recommended by manufacturer for the type of surface involved less ten percent (10%) allowance for losses, unless manufacturer's printed recommended specifications state that the recommended rate included normal expected losses.

Minimum dry film thickness per coat shall not be less than thickness recommended by the manufacturer.

The finished surfaces shall be free from runs, drops, ridges, waves, laps, brush marks and free of variations in color, texture and finish.

All interior wood trim shall be back-primed before installation with enamel undercoat or penetrating sealer, as required.

Sand enamel or varnish finish applied to wood or metal with fine sandpaper and then clean between coats to produce an even, smooth finish.

Remove electrical panel box covers and doors before painting wall. Paint separately and reinstall after all paint is dry.

TOUCH-UP WORK:

A minimal amount of touch-up work to previously painted surfaces will be allowed (one touch-up per every 10 square feet of wall area), but only if the repair is not visible upon close inspection. Contractor must refinish a whole wall rather than spot-finish where there are numerous repairs to be made, or where remedial work is unsatisfactory.

PAINING SCHEDULE - EXPLANATION:

Except as specified under the "Surfaces Not to be Painted" paragraph, the surfaces listed in the painting schedule shall receive the surface treatment, paints and number of coats indicated. Piping and ductwork shall not be painted until the piping and ductwork have been tested and approved.

PAINING SCHEDULE:

Traffic Markings:

First and Second Coats: Napko No. 2304 (Yellow) Zone Marking Paint. Handicapped striping and symbols shall be painted blue and white in compliance with ADA-AG.

Concrete Sealed Floors:

First and Second Coats: Armorseal 1000HS (Part A - B67-2000 and Part B - B67V2002) at 5.0 - 8.0 mils wet/ 3.0 - 5.0 mils dry (rate of 206 - 350 sq ft/gallon)
(NOTE: FOLLOW MANUFACTURER'S STRICT GUIDELINES FOR SURFACE PREPARATION AND APPLICATION PROCEDURES)

Cement Plaster (Exterior):

First Coat: Loxon Masonry Primer B42W46 at 3.2 mils.
Second and Third Coats: Superpaint Exterior Satin Finish at 1.44 mils per coat.

Steel and Ferrous Metals (Including Piping):

Prime Coat: Fabricator's shop coat, Tnemec 10-99G, or Kem Kromik at 3.0 mils.
Second and Third Coats: Metalastic DTM Acrylic Modified Enamel at 3.0 - 5.0 mils dft/ct.

Galvanized Metal:

Prepaint Treatment: Metal Prep #79 followed by Galva Prep S. C. or Proscoc Co 101 Lime Solvent.
First and Second Coats: Exterior Latex Satin A-100 (A82 Series) at 1.5 mils per coat.

Gypsum Board:

First Coat: Prep Rite Interior Wall and Wood Primer (B28 Series) at 1.1 mils per coat.
Second and Third Coats: Pro Mar 200 Interior Alkyd Eg-Shel Enamel (B33 Series) at 1.8 mils per coat.

Interior Wood (Painted):

First Coat: Prep Rite Interior Alkyd Enamel Undercoater (B49 Series) at 1.6 mils per coat.
Second and Third Coats: Pro Mar 200 Interior Alkyd Semi-Gloss Enamel (B34 Series) at 1.7 mils per coat.

Interior Wood (Clear Finish):

First Coat: Pro Mar Varnish Sanding Sealer at 1.0 mils per coat.
Second and Third Coats: Oil Base Hand Rubbed Varnish at 1.0 mils per coat.

CLEANING:

Cloths and cotton waste that might constitute a fire hazard shall be placed in closed metal containers or destroyed at the end of each day. Upon completion of the work, all staging, scaffolding and containers shall be removed from the site or destroyed in an approved manner. Paint spots, oil or stains upon adjacent surfaces shall be removed and the entire job left clean and acceptable.

END OF SECTION