

CONSTRUCTION STANDARD SPECIFICATION

SECTION 09200

THREE-COAT STUCCO SYSTEM

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THREE-COAT STUCCO SYSTEM

PART 1 - GENERAL

1.01 SUMMARY

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

- A. Section includes: Pre-mixed, pre-sanded, fiber-reinforced Portland cement plaster basecoat, and pre-mixed, pre-sanded, colored elastomeric acrylic polymer-based exterior finish coat. Related materials include: Metal lath, trim and accessories.
- B. Related Sections: Refer to Section 05400, "Cold-Formed Metal Framing" for steel studs and joists.

1.02 REFERENCES

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

- C. Underwriter's Laboratories, Inc. (UL)
Fire Resistance Directory
- D. International Building Code (IBC)

1.03 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Section 01330, "Submittal Procedures."
- B. Product Data: Submit manufacturer's product data for each product, including data showing compliance with requirements.
- C. Material Certificates: Submit producer's certificate for each stucco system or component indicated evidencing that materials comply with requirements.
- D. Manufacturer's Certifications: Submit manufacturer's certification that the proposed products are compatible with each other, and with substrates for the intended applications.
- E. Samples: Submit one (1) 48 inch x 48 inch (1220 mm x 1220 mm) minimum moveable panels at job site, for color, texture and finish, showing application and workmanship, texture, techniques and colors. Sample panel to be approved by the Sandia Designated Representative (SDR) and noted as to color and texture ranges.

Do not proceed with work until the sample stucco finish is reviewed and approved by SDR. Maintain sample panel on project site for duration of project for comparison purposes. Remove sample upon Contract completion or when directed by the SDR.

- F. Contractor shall provide a list of projects of similar size and complexity that he has successfully completed in the past three (3) years.

1.04 QUALITY ASSURANCE

- A. Provide installation by a company specializing in work similar to that required on this project and with not less than three (3) years of documented experience.
- B. Regulatory Requirements: At locations indicated on Contract documents, provide fire-rated assemblies tested in accordance with ASTM E119, as listed:
 - 1. Gypsum Association: GA-600, "Fire Resistance Design Manual."
 - 2. Underwriter's Laboratories, Inc. (UL), "Fire Resistance Directory."
 - 3. Uniform Building Code (UBC), "Section 2508 - Table 25-F"

1.05 DELIVERY, STORAGE, AND HANDLING

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

1.06 PROJECT CONDITIONS

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

PART 2 - PRODUCTS

2.01 MANUFACTURERS

Subject to compliance with requirements, products by manufacturers that may be incorporated in the work include the following. However, it is the Contractor's responsibility to provide only products compatible with adjacent materials in the assembly.

- A. Basecoat
 - Dryvit Systems, Inc.
 - El Rey Stucco Company, Inc.
 - STO Industries
- B. Finish Coat
 - Dryvit Systems, Inc.
 - El Rey Stucco Company, Inc.
 - STO Industries

2.02 MATERIALS

- A. Base Coat: Factory pre-mixed, pre-sanded, fiber-reinforced basecoat to comply with ASTM C926.
 - 1. Portland Cement: ASTM C150, Type I or Type III.
 - 2. Lime: ASTM C206, Type S or ASTM C207, special hydrated lime.
 - 3. Sand: ASTM C897.
 - 4. Fiber Reinforcing: Manufacturer's standard acrylic fibers.
 - 5. Water: Potable, clean, fresh, and free from oil, acid, organic matter or other deleterious substances.

- B. Finish Coat: Factory pre-mixed, synthetic exterior elastomeric polymer-based wall finish system consisting of acrylic polymers, properly graded aggregate and colorant.
 - 1. Color: As selected at time of submittals from manufacturer's standard color chart.
 - 2. Finish Texture: As selected at time of submittals from the following list:
 - Spray Finish
 - Spray Finish Knockdown
 - Deep & Shallow Groove Swells
 - Light Brocade Texture

- C. Bonding Agent: ASTM C932, Acrylic bonding agent as manufactured and as recommended by basecoat system manufacturer.

- D. Admixture: Acrylic polymer additive as manufactured by and as recommended by basecoat system manufacturer.

- E. Sealers: UV resistant, high vapor permeability, non-staining, non-yellowing, clear water repellent sealer.

- F. Metal Lath: ASTM C847.
 - 1. Diamond Mesh: Galvanized, 3.4 lbs. per square yard (1.84 kg/m²), self-furring lath or approved equal; to be used on horizontal surfaces and as reinforcing around doors and windows, where framing members are more than 16 inches (406 mm) o.c., and elsewhere as shown on Contract documents.
 - 2. Stucco Lath: Galvanized, minimum 17 gage (1.367 mm) self-furring stucco netting, or approved equal; to be used on framing at 16 inches (406 mm) o.c. or less and elsewhere as shown on Contract documents.

- G. Weather Resistive Barrier: Two (2) layers of Grade "D," 15 pound (6.8 kg) building paper over wood substrates and one (1) layer over gypsum or fiber sheathing.

2.03 METAL ACCESSORIES

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

Hot dip galvanized finish, per ASTM A653, G90.
- B. Corner Beads: 1/8 inch (3.18 mm) diameter bead with expanded flanges.
- C. Casing Beads: Expanded flange, J-shaped, square edge style, to suit application.
- D. Bull Nose Corner Bead: 3/4 inch (19.05 mm) radius with expanded flanges.
- E. Control Joints: M-shaped, with 1/4 inch (6.35 mm) slot and 1 inch (25 mm) grounds, removable tape to keep plaster out of groove, and with diamond mesh expanded flanges.
- F. Expansion Joints: Adjustable expansion joint, free floating with adjustments from 1/4 inch (6.35 mm) to 5/8 inch (15.9 mm).
- G. Weep Screeds: Foundation sill screed, with holes for drainage.
- H. Fasteners: (CMU Applications) Galvanized steel fasteners of furring type and length suitable for at least 1/2 inch (12.7 mm) penetration of the brick or block substrate.
- I. Fasteners: (Steel Stud Applications) Galvanized steel furring nails and or screws, of type and length suitable for at least a 2/3 inch (17 mm) penetration of the steel stud system.
- J. Soffit Vent: Provide soffit vents as indicted on Contract documents.
- K. Drip Screed: Provide drip screed at all exterior drip edges, stucco overhangs and elsewhere as indicated on Contract documents.

PART 3 - EXAMINATION

3.01 INSPECTION

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

3. Examine substrates, grounds and accessories to ensure that finished plaster work will be true-to-line, plane, level and plumb.
4. Verify that masonry and concrete surfaces to receive direct bond applications of plaster base coats are rough, and otherwise properly prepared to provide adequate bond. Correct any deficiencies prior to plaster application.

C. Finish Coat

1. Verify that surfaces to receive exterior wall finish coat are free of dust, loose particles, oil and other deleterious materials which would adversely affect bond of exterior wall finish.
2. Examine base coats, grounds and accessories to ensure that finished work will be true-to-line, plane, level and plumb.

3.02 PREPARATION

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

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

3.03 MIXING

- A. General: Mix factory-prepared cement plaster in accordance with manufacturer's written instructions and recommendations.
 1. Accurately proportion pre-mixed, pre-sanded base coat materials with water for each plaster batch with measuring devices of known volume.
 2. Size batches for complete use within maximum of one hour after mixing.
 3. Retemper plaster stiffened from evaporation per manufacturer's instructions, but do not use or retemper partially hydrated cement plaster.
 4. Do not use frozen, caked or lumpy materials, and remove such materials from job site immediately.
 5. Withhold 10 percent of mixing water until mixing is nearly complete, then add as needed to produce desired working consistency.
 6. Do not add non-approved admixtures such as liquid soap to enhance the mix.

- B. Mechanical Mixing: Mix materials with machine driven paddle.
 - 1. Clean mixer of set or hardened materials before loading new batch.
 - 2. Maintain mixer in continuous operation while adding materials.
 - 3. Conform to mixing sequence, cycle of operations, and time recommended by the manufacturer of the basecoat mix materials.
- C. Hand Mixing: Do not hand mix materials unless authorized by SDR.

3.04 INSTALLATION OF METAL LATH

- A. Metal Lath: ASTM C1063
 - 1. All lath should be attached to framing members at spacing of not more than 6 inches (152.4 mm) o.c., 2 inches (50.8 mm) maximum from longitudinal edges, in accordance with UBC, Table 25-C.
 - 2. Wire-tie expansion joints to mesh.
 - 3. Provide supplementary blocking, bracing, and framing as required to support edges of lath and behind fixtures, hardware, and accessories shown to be attached to plaster construction.
- B. Grounds and Screeds: Install grounds and screeds as indicated on Contract documents, but in no case shall grounds and screeds be installed further than 8 feet (2.44 m) on center to ensure accurate rodding of plaster to true surfaces.
- C. Install lath with long edges perpendicular to supports.
- D. Install lath continuously around internal corners, avoid separate lath reinforcement accessories.
- E. Isolation: Make provisions for movement of building structure to prevent transfer of structural load or movement to the lath and plaster work. Wire tie all expansion joints. Rigid mechanical fastening of expansion joints is prohibited.

3.05 INSTALLATION OF ACCESSORIES AND TRIM

- A. Comply with referenced installation standards for provision and location of plaster trim and accessories.
 - 1. Miter or cope trim and accessories at corners.
 - 2. Install trim and accessories in proper alignment and with tight joints between pieces.
- B. Install trim and accessories where indicated on Contract documents, and as follows:
 - 1. Corner Beads: External corners.

2. Casing Beads: At terminations of plaster which abuts windows, doors, walls or other terminations.
3. Control Joints: At locations indicated, as recommended by plaster manufacturer, and at exterior work at spacing not to exceed 8 feet (2.44 m) on center where surface is continuous plane.
4. Expansion Joints: At locations indicated, and as follows:
 - a. Changes of substrate construction.
 - b. Where control or movement joints occur in substrate construction.
 - c. Where wings of L-, T- or U-shaped surfaces join.

3.06 APPLICATION

- A. General: Apply cement plaster in accordance with manufacturer's instructions and recommendations, to comply with ASTM C926. The "double back" system is not acceptable.
 1. Monolithic Surfaces: Prepare monolithic surfaces to receive plaster using any of the following methods:
 - a. Sandblasting, wire-brushing, acid etching, or chipping.
 - b. Application of metal lath.
 2. Allowable Tolerances: Maximum deviation from true plane 1/8 inch (3.18 mm) in 8 feet (2.44 m) as measured by straight edge placed at any location on surface.
 3. Interrupt cement plaster only at junctions of plaster planes, at openings, or at control joints.
 4. Apply each plaster coat to an entire wall or ceiling panel (control joint to control joint) without interruption to avoid cold joints and abrupt changes in the uniform appearance of succeeding coats.
 5. Nominal Plaster Thickness:
 - a. Vertical: 7/8 inch (22.2 mm)
 - b. Horizontal: 5/8 inch (15.9 mm)
- B. Scratch Coat
 1. Over Lathing Base: Apply scratch coat to a minimum thickness of 3/8 inch (9.53 mm) on vertical surface, and 1/4 inch (6.35 mm) on horizontal surface, using sufficient trowel pressure to key plaster into lath or to create bond to substrates as applicable.

Prior to initial set, scratch horizontally to provide key for bond of brown coat.

2. Over Solid Bases: Apply first coat with sufficient pressure to insure tight contact with complete coverage of solid bases, immediately scratching to provide mechanical key for second coat.
- C. Brown Coat: Apply brown coat to a minimum thickness of 3/8 inch (9.53 mm) on vertical surface, and 1/4 inch (6.35 mm) on horizontal surface, using sufficient trowel pressure to insure tight contact with scratch coat.
1. Rod surface to screeds creating true and even plane.
 2. Trowel to a sand float finish and uniform surface to receive elastomeric acrylic polymer-based finish system.
 3. Tool brown coat to provide a V-joint at intersection of plaster with frames or other item of wood, or metal.
- D. Bonding Agent: Apply bonding agent over brown coat with brush, roller or spray for complete coverage of area to receive elastomeric acrylic polymer-based finish.
- E. Finish Coat: Apply exterior wall finish coat to thickness recommended by manufacturer, but in no case less than 1/8 inch (3.18 mm) to achieve texture indicated, using sufficient trowel pressure or spray velocity to bond finish coat to basecoat.
1. No plasticizing agents shall be added to elastomeric acrylic polymer-based finish.
 2. Apply finish to match approved sample.
- F. Sealer: Apply sealer per manufacturer's instructions and recommendations, unless noted elsewhere in Contract documents.
- G. Workmanship shall be neat and in accordance with referenced standards of workmanship. Entire coated surfaces must appear to be evenly applied and colored, without excessive lumping or surface irregularities, to the satisfaction of the SDR.
- H. Curing: Comply with the following for curing and time interval between coats.
1. Maintain moist conditions by fogging mist. Do not saturate.
 2. Moist cure scratch and brown coats frequently to maintain uniform moisture per schedule below. If Installer applies the base coats on Thursdays or Fridays, provisions shall be made for adequate curing over the weekend.
 3. Moist cure brown coat continuously for a minimum of 10 days.
 4. Air cure polymer-based finish coat. Do not wet cure.

COAT	FIRST (SCRATCH)	SECOND (BROWN)	THIRD (FINISH)
Minimum Period Moist Curing	48 Hours	10 days	Air Cure
Minimum Interval Between Coats	48 Hours	7 Days	Protect from dust and water for a minimum of 12 hrs. following application

3.07 CUTTING AND PATCHING

Cut, patch, point-up and repair stucco as necessary to accommodate other work and to repair cracks, dents and imperfections. Repair or replace work, at the SDR's discretion, to eliminate blisters, buckles, excessive crazing and check cracking, dry-outs, efflorescence, sweat-outs and similar defects, and where bond to the substrate has failed.

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

3.08 CLEANING AND PROTECTION

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

END OF SECTION