SECTION 09 24 00

PORTLAND CEMENT PLASTERING

(MERLEX COLOR COAT STUCCO)

GENERAL NOTES TO SPECIFIER: THIS SPECIFICATION SECTION HAS BEEN PREPARED TO ASSIST DESIGN PROFESSIONALS IN THE PREPARATION OF PROJECT OR OFFICE MASTER SPECIFICATIONS. IT FOLLOWS GUIDELINES ESTABLISHED BY THE CONSTRUCTION SPECIFICATIONS INSTITUTE, AND THEREFORE MAY BE USED WITH MOST MASTER SPECIFICATION SYSTEMS WITH MINOR EDITING. EDIT CAREFULLY TO SUIT PROJECT REQUIREMENTS. MODIFY AS NECESSARY AND DELETE ITEMS THAT ARE NOT APPLICABLE.THIS. IF THE PROJECT MANUAL DOES NOT CONTAIN THESE SECTIONS, ADDITIONAL INFORMATION SHOULD BE INCLUDED UNDER THE APPROPRIATE ARTICLES. THIS IS A PROPRIETARY SPECIFICATION FOR MERLEX COLOR COAT STUCCO PORTLAND CEMENT BASED FINISH MATERIAL FOR DECORATIVE USE ON EXTERIOR SURFACES, MAKE APPROPRIATE SELECTIONS AND DELETE OTHERS.

THIS SPECIFICATION PROVIDES A GUIDELINE FOR THE USE AND SPECIFICATION OF MERLEX COLOR COAT STUCCO SPECIFIC WALL ASSEMBLIES INCORPORATING MERLEX COLOR COAT STUCCO SHOULD CONFORM TO ASTM C 150. THIS GUIDE SPECIFICATION INCORPORATES CSI MASTERFORMAT 2004 EDITION.

PART 1 GENERAL

1.1 SECTION INCLUDES

1. Exterior Portland cement plasterwork (stucco) and accessories.

1.2 RELATED SECTIONS

1. Section 03 30 00: Cast-In-Place Concrete

2. Section 04 20 00: Unit Masonry

3. Section 05 40 00 Cold-Formed Metal Framing: for structural, load-bearing (transverse and axial) steel studs and joists that support lath and Portland cement plaster.

4. Section 06 10 00 Rough Carpentry

5. Section 07 90 00 Joint Sealers

6. Section 08 00 00 Openings

7. Section 09 22 00 Supports for Plaster and Gypsum Board

1.3 REFERENCES

1. ASTM International (ASTM):

a. ASTM A 641/A 641M - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire

b. ASTM A 653/A 653M - Standard Specification for Seamless and Welded Zirconium and Zirconium Alloy Welding Fittings

c. ASTM B 69 - Standard Specification for Rolled Zinc ?

d. ASTM C 150 - Standard Specification for Portland Cement

e. ASTM C 847 - Standard Specification for Metal Lath

f. ASTM C 897 - Standard Specification for Aggregate for Job-Mixed Portland Cement-Based Plasters

g. ASTM C 926 - Standard Specification for Application of Portland Cement-Based Plaster

h. ASTM C 932 - Standard Specification for Surface-Applied Bonding Compounds for Exterior Plastering

i. ASTM C 933 - Standard Specification for Welded Wire Lath

j. ASTM C 1032 – Standard Specification for Woven Wire Plaster Base

k. ASTM C 1063 - Standard Specification for Installation of Lathing and Furring for Exterior Portland Cement-Based Plaster.

l. ASTM D 1784 - Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds.

m. ASTM E 119 - Standard Test Methods for Fire Tests of Building Construction and Materials.

n. ASTM C 1177 – Specification for Glass Mat Gypsum for Use as Sheathing

o. ASTM C 1278 – Specification for Fiber-Reinforced Gypsum Panel

p. ASTM C 1396 – Standard Specification for Gypsum Board

q. ASTM D 1784 – Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds

r. ASTM E 84 – Test Method for Surface Burning Characteristics of Building Materials

s. ASTM E 119 – Method for Fire Tests of Building Construction and Materials

t. ASTM E 283 – Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors under Specified Pressure Differences across the Specimen

u. ASTM E330 – Test Method for Structural Performance of Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference

v. ASTM E 331 – Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference

w. ASTM E 2430 – Standard Specification for the use of Expanded Polystyrene (EPS) Insulation Board in External Insulation and Finish Systems (EIFS)

x. ASTM G 155 – Standard Practice for Operating Light-Exposure Apparatus (Xenon-Arc Type) With and Without Water for Exposure of Nonmetallic Materials

y. UUB 790A – Specification for Building Paper

2. International Code Council – International Building Code.

3. Plaster and Drywall Systems Manual, Fourth Edition.

4. PCA (Portland Cement Association) – Plaster (Stucco) Manual.

5. SMA (Stucco Manufacturer’s Association)

1.4 SUBMITTALS

1. Submit under provisions of Section 01 30 00 - Administrative Requirements.

2. Product Data: Manufacturer's data sheets on each product to be used, including:

a. Preparation instructions and recommendations.

b. Storage and handling requirements and recommendations.

c. Installation methods.

3. Shop Drawings: Show locations and installation of control and expansion joints including plans, elevations, sections, details of components, and attachments to other work, based on architectural drawings.

Note to Specifier: Delete selection samples section if colors have already been selected.

4. Selection Samples: For each finish product specified, two complete sets of color chips (color chart), representing manufacturer's full range of available colors and patterns.

5. Verification Samples: For each finish product specified, two samples, minimum size 3 inches (75 mm) square, represent actual product, color, and patterns.

Note to Specifier: Delete if not required.

6. LEED Submittals:

a. Product Data under MRc2 for the optional environmental product declaration: Products with a publicly available, reviewed life-cycle assessment conforming to ISO 14044 that have at least a cradle to gate scope, and products with a product-specific declaration are valued as one quarter (1/4) of a product for the purposes of calculation using an industry-wide EPD. Products with an industry-wide EPD are valued as one half (1/2) of a product for purposes of calculation. Products with product-specific Type III EPD’s are valued as one whole product for purposes of calculation. Multi-attribute optimization is a second option under MRc2, which offers the use of products that meet at least one of the attributes below 50%, by cost, of the total value of permanently install products in the project. Value examples – certifications that verify impact reduction below industry average in at least three of the following criteria: greenhouse gases, in CO2e, depletion of nonrenewable energy resources, MJ, and depletion of the stratospheric ozone layer, in kg CFC-11. Products that meet above the criteria are valued according to source location: sourced within 100 miles of the project site are valued at 200% of their cost. Final product value is determined by structure and enclosure materials may not constitute more than 30% of the value of compliant building products.

b. Product Data under MRc3 for optional raw material source and extraction reporting: Products use at least 20 different permanently installed products from manufacturers that have publicly released a report from their raw materials suppliers including extraction locations, commitment to long-term ecologically responsible land use, commitment to reducing environmental harms from extraction and/or manufacturing processes, commitment to meeting applicable standards or programs voluntarily that address responsible sourcing criteria; products must be sourced from at least 5 different manufacturers and the manufacturer declared reports are valued as one half (1/2) of a product. Leadership extraction practices use optional products must meet at least one of the responsible extraction criteria below for at least 25% by cost. Extended producer responsibility, bio-based materials, recycle content, products sourced within 100 miles of the project site are valued at 200% of their cost. Structure and enclosure materials may not constitute more than 30% of the value of compliant building products.

c. Product Data under MRc4 for the optional material ingredient reporting, use at least 20 different permanently installed products demonstrate the chemical inventory of the product: Cradle to Cradle (the end use product has been certified at the Cradle to Cradle v2 Basic Level or Bronze Level. The additional option is to use products that document their material ingredient optimization using the paths below for at least 25%, by cost, of the total value of permanently installed products in the project. Engage in validated and robust safety, health, hazard, and risk programs. Document at least 99% by weight of the ingredients used to make the building product or material.

1.5 QUALITY ASSURANCE

1. Manufacturer Qualifications: Regularly engaged in manufacture of stucco systems for at least 5 years.

2. Installer Qualifications:

a. Provide proof of current contractor’s license, bond insurance, and documentation of experience in application of Portland cement stucco for a minimum of three years.

b. Knowledge in the proper use and handling of stucco materials.

c. Successful completion of minimum of three projects of similar size and complexity to the specified project.

e. Able to provide the proper equipment, manpower, and supervision on the jobsite to install the system in compliance with published specifications, details, and the project specific construction documents and drawings.

f. Experienced installer of lathing and plastering systems with familiarity with manufacturer's products scheduled for the work.

3. Fire-Resistance Ratings: Where indicated, provide Portland cement plaster assemblies identical to those of assemblies tested for fire resistance per ASTM E 119 by, and displaying a classification label from, a qualified independent testing agency acceptable to the authority having jurisdiction. Identify products with appropriate markings of applicable testing agency.

a. Construct fire-resistance rated partitions in compliance with tested assembly requirements indicated on drawings.

b. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.

4. Sound-Transmission Characteristics: Where indicated, provide Portland cement plaster assemblies identical to those of assemblies tested for STC ratings per ASTM E 90 and classified according to ASTM E 413 by a qualified testing agency.

5. Mockups: Before plastering, install mockups of at least 100 sf (9.3 sq. m) (job specific) in surface area to demonstrate aesthetic effects and set quality standards for materials and execution (depending on project size if appropriate).

a. Install mockups for each type of finish indicated.

b. For interior plasterwork, simulate finished lighting conditions for review of mockups.

c. Approved mockups may become part of the completed work if undisturbed at time of Substantial Completion.

6. Preinstallation Conference: Conduct conference at jobsite.

1.6 DELIVERY, STORAGE, AND HANDLING

1. Deliver all materials in their original sealed containers bearing manufacturer’s name and identification of product.

2. Protect Portland cement based materials (bag products) from moisture and humidity. Store under cover off the ground in a cool, dry location.

3. Protect cold-formed metal framing from corrosion, deformation, and other damage during delivery, storage, and handling as required by AISI's "Code of Standard Practice.”

1.7 SITE/ENVIRONMENTAL CONDITIONS

1. Comply with ASTM C 150 and ASTM C 926 requirements

2. Exterior Plasterwork:

a. Apply and cure plaster to prevent plaster drying out during curing period. Use procedures required by climatic conditions, including moist curing, providing coverings, and providing barriers to deflect sunlight and wind.

b. Apply plaster when ambient temperature is greater than 40 degree F (4.4 degree C).

c. Protect plaster coats from freezing for not less than 48 hours after set of plaster coat has occurred.

3. Factory-Prepared Finishes: Comply with manufacturer's written recommendations for environmental conditions for applying finishes. Refer to Merlex Insulex technical bulletin, www.merlex.com.

4. Prior to installation, the wall shall be inspected for surface contamination or other conditions that may adversely affect the performance of the Merlex Color Coat Stucco. Assembly shall be free of residual moisture.

PART 2 PRODUCTS

2.1 MANUFACTURERS

1. Manufacturer: Merlex Stucco, Inc., which is located at: 2911 N. Orange-Olive Rd.; Orange, CA 92865; Tel: 714-637-1700; Fax: 714-637-4865; Email: (service@merlex.com); Web: www.merlex.com

2. Substitutions: Not permitted.

3. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

2.2 MATERIALS

1. Stucco Materials: ASTM C 150 and ASTM C 926 requirements.

2. Glue: Merlex Superhold

a. An ethel vinyl acetate bonding agent to be used on a receiving surface. This will allow for a chemical bond and kill suction on dissimilar surfaces such as mortar joints.

3. Engineered Cement: Merlex Matrix

a. Complies with ASTM C 150 and gives better workability with using a sag-resistance co-polymer for efficient application and good production rates. An acceptable alternative to plastic cement and exceeds ASTM C 926. Can be used on lath, masonry, poured-in-place concrete, and other cementitious substrates.

b. Lathing and Furring to Receive Exterior Portland Cement-Based Plaster: ASTM C 1063.

Note to Specifier – Modify to suit requirements.

4. Base Coat:

a. Basex: Polymer-modified crack- and impact-resistant base coat used with 4.5 oz. Merlex mesh under all Portland cement and lime-based, and acrylic finishes.]

5. Merlex Acrylex:

a. A one-component, water-based, non-yellowing, acrylic polymer emulsion, used as an internal admixture.

6. Merlex Color Coat Stucco:

a. A Portland cement based pigmented cementitious finish for exterior surfaces. Can achieve a variety of textures.

2.2.2 WRB

2.2.3 METAL LATH

2.2.4 ACCESSORY MATERIALS

1. Lath:

a. Minimum No. 20 gauge 1 inch (25 mm) self-furred galvanized steel woven wire fabric in compliance with ASTM C 1032, or minimum 1.75 Ib/sq.yd. (1 kg/sm) galvanized steel diamond mesh metal lath in compliance with ASTM C 847 (recommended for residential and light commercial construction).

2. Mesh: 4.5 oz/sq. yd. (136 g/sm) from Merlex Stucco.

3. Mechanical Fasteners:

a. Wood or steel framing: 1/66 inch (1.6 mm) diameter wafer, pan-cake or modified truss head is acceptable.

b. Concrete or Masonry: Tap Cons or Rawl Spikes used with a washer.

4. Corner mesh, vent screed, casing bead, weep screed, control, and expansion joint accessories.

a. PVC plastic in compliance with ASTM standards D 1784 and ASTM C 1063.

b. Zinc Alloy (99.9% pure zinc) in compliance with ASTM B 69.

c. Galvanized metal in compliance with ASTM A 653 with minimum G60 coating. G90 recommended for coastal applications and areas of high rainfall.

d. Water for Mixing: Potable and free of substances capable of affecting plaster set or of damaging plaster, lath, or accessories.

e. Sand: Sand shall be clean and free from harmful amounts of loam, clay, silts, soluble salts and organic matter. Sand gradation shall comply with Table 1 or Table 2 per ASTM C 144 and ASTM C 897.

f. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.

i. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.

2.3 PLASTER MATERIALS

1. Portland Cement: ASTM C 150, ASTM C 926, UBC 24-3

2. Colorants for Finish Coats: Colorfast mineral pigments that produce finish plaster color to match Architect's sample.

4. Lime: ASTM C 206, Type F

5. Color for Job-Mixed Finish Coats: In color matching Architect's sample.

 a. Ready-Mixed Finish-Coat Plaster: pigmented cementitious finish over prepared Portland cement based substrates for exterior surfaces.

2.3.1 MERLEX ENGINEERED CEMENT

a. Matrix- can be used on lath, masonry, poured-in-place concrete, and other cementitious substrates. An acceptable alternative to plastic cement.

2.3.1 MERLEX CRACK REDUCTION SYSTEM

 a. Basex (with embedded mesh if crack reduction is warranted). A polymer-modified base coat to control suction and aid in bonding, which will increase tensile strength.

 b. 4.5 oz. mesh

2.3.2 MERLEX COLOR COAT STUCCO

a. Premium quality, Portland cement based cement finish for exterior surfaces. Can create a smooth finish using Santa Barbara Finish Color Coat Stucco reminiscent of the historical Santa Barbara Mission.

2.3.3 PLASTER MIXES

 General: Comply with ASTM C 926 for applications indicated.

1. 3-coat application with cure times:

a. Use Merlex Superhold – Ethel Vinyl Acetate bonding agent on receiving surface. This will allow for chemical bond and kill suction on dissimilar surfaces such as mortar joints.

b. Merlex Matrix- Engineered cement

c. Merlex Color Coat Stucco- provides optimal bond to Merlex Basex with the addition of Merlex Acrylex to the Color Coat Finish at 1/3 of a gallon per 90 lb. bag. Put Acrylex in the mixer with the mix water and then add Color Coat Stucco mix. It is importat to disperse the acrylic evenly throughout the mixture. (This insures bond as the polymer in the Basex reduces suction and therefore reduces bond). Apply by hand or plaster pump at 1/8” nominal thickness per coat. Allow for a minimum of 24 hours for moist curing before applying next coat. Can create any texture using a chrome trowel.

d. Optional Stucco Finish: SBF (Santa Barbara smooth Finish) with or without catfaces – Apply in two coats; scratch in and double over leaving voids in the second coat. This gives the appearance of an older stucco finish where the material has fallen off in areas. Create the cat faces in random patterns and random areas on the wall.

PART 3 EXECUTION

3.1 EXAMINATION

 a. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance of the Work.

 b. Proceed with installation only after unsatisfactory conditions have been corrected.

3.1.2 PREPARATION

a. Protect adjacent work from soiling, spattering, moisture deterioration, and other harmful effects caused by plastering.

b. Prepare solid substrates for plaster that are smooth or that do not have the suction capability required to bond with plaster according to ASTM C 926.

3.1.3 INSTALLATION, GENERAL

a. Fire-Resistance-Rated Assemblies: Install components according to requirements for design designations from listing organization and publication indicated on Drawings.

b. Sound Attenuation Blankets: Where required, install blankets before installing lath unless blankets are readily installed after lath has been installed on one side.

c. Acoustical Sealant: Where required, seal joints between edges of plasterwork and abutting construction with acoustical sealant.

3.1.4 INSTALLING METAL LATH per ASTM 1063

3.1.5 INSTALLING WELDED WIRE LATH

 a. Installation per ESR 2017 (refer to Structa Wire Corp., http://www.icc-es.org/reports/pdf\_files/esr-2017.pdf) - Fastener type and spacing as per ASTM C 1063 except that fasteners may attach the lath to framing supports either at the furring crimps on the vertical cross wire, at the intersection of the longitudinal wire and cross wire or any point along the longitudinal wires.

3.1.6 INSTALLING ACCESSORIES

a. Install according to ASTM C 1063 and at locations indicated on Drawings.

b. Reinforcement for External Corners:

c. Install lath-type, external-corner reinforcement at exterior locations.

d. Install corner bead at interior corner locations.

e. Install corner bead at exterior corner locations.

f. Control Joints:

g. Install control joints at locations indicated on Drawings.

h. As required to delineate plasterwork into areas (panels) of the following maximum sizes:

i. Vertical Surfaces: 144 sq. ft. (13.4 sq. m).

j. Horizontal and other Nonvertical Surfaces: 100 sq. ft. (9.3 sq. m).

k. At distances between control joints of not greater than 18 feet (5.5 m) o.c.

l. As required to delineate plasterwork into areas (panels) with length-to-width ratios of not greater than 2-1/2:1.

m. Where control joints occur in surface of construction directly behind plaster.

n. Where plasterwork areas change dimensions, to delineate rectangular-shaped areas (panels) and to relieve the stress that occurs at the corner formed by the dimension change.

o. Where control joints not desired, Merlex crack reduction system may be specified up to two stories.

3.1.6 PLASTER APPLICATION

 a. General: Comply with ASTM C 926.

 b. Do not deviate more than plus or minus 1/4 inch in 10 feet (6.4 mm in 3 m) from a true plane in finished plaster surfaces, as measured by a 10-foot (3-m) straightedge placed on surface.

 c. Finish plasters flush with metal frames and other built-in metal items or accessories that act as a plaster ground unless otherwise indicated. Where casing bead does not terminate plaster at metal frame cut base coat free from metal frame before plaster sets and groove finish coat at junctures with metal.

 d. Provide plaster surfaces that are ready to receive field-applied finishes indicated.

 e. Bonding Compound: Apply on unit masonry plaster bases if not using lath

 f. Plaster Finish Coats:

 1. Apply to provide Santa Barbara Smooth Finish to match Architect's sample.

3.1.7 PLASTER REPAIR

a. Repair or replace work to eliminate cracks, dents, blisters, buckles, crazing and check cracking, efflorescence, and similar defects and where bond to substrate has failed.

3.1.8 PROTECTION

a. Remove temporary protection and enclosure of other work. Promptly remove plaster from door frames, windows, and other surfaces not indicated to be plastered. Repair floors, walls, and other surfaces stained, marred, or otherwise damaged during plastering.

END OF SECTION