SECTION 09210- LATHING, PLASTER AND STUCCO

PART 1 GENERAL

1.01 SUMMARY

A. Section covers lathing, plastering, and stucco work, including but not limited to the following:

1. Stucco applied to exterior masonry, concrete surfaces, metal lath or cementitious board.
2. Portland cement plaster finish applied to interior walls, partitions and ceilings.
3. Gypsum plaster finish on gypsum lath or cementitious board applied to interior walls, partitions and ceilings.
3. Beads, stops, control joint members, inserts, accessories, corner reinforcement, etc.

C. Related Sections:

1. Section 06100 - Rough Carpentry
2. Section 07620 - Flashing and Sheet Metal
4. Section 08110 - Metal Doors and Frames

1.02 REFERENCE STANDARDS

A. Except as otherwise specified herein or shown on the Drawings, comply with the latest editions of all applicable codes and regulations including the applicable requirements of the following Reference Standards and Codes which are hereby made a part of this Section, as they relate to the lathing, plaster and stucco.

1. Gypsum Construction Handbook, latest edition, published by USG
2. American Society for testing and Materials (ASTM):

a.	ASTM C150-96	Specification for Portland cement.
b.	ASTM C754-96	Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
c.	ASTM C841-90	Specification for Installation of Interior Lathing and Furring.
d.	ASTM C897-96	Specification for Aggregate for Job-Mixed Portland Cement-Based Plasters.
e.	ASTM C926-95a	Specification for Application of Portland Cement-Based Plaster.
f.	ASTMC932-80(90)	Specification for Surface-Applied Bonding Agents for Exterior Plastering.
g.	ASTM C1063	Standard Specification for Installation of Lathing and Furring to Receive Interior and Exterior

Portland Cement-Based Plaster.

4. BOCA Building Code, 2001 Edition.
5. The Occupational Health and Safety Administration (OSHA) Code of Federal Regulations (CFR), Volume 29.

1.03 QUALITY ASSURANCE

A. Comply with requirements of regulatory agencies.

1. In addition to complying with other legal requirements, comply with fire resistive ratings of U.L. tested and listed assemblies for classification of construction required.

B. Design Criteria:

1. Fire-Resistance Ratings:

a. Where plaster systems with fire-resistance ratings are indicated, provide materials and installations identical with applicable assemblies tested per ASTM E119 by fire testing laboratories acceptable to authorities having jurisdiction.
b. Provide plaster for fire-resistance rated systems having same aggregate as specified for similar non-rated work, unless specified aggregate has not been tested by accepted fire testing laboratories.
c. Portland cement plaster/stucco shall not be used in areas requiring fire-rated construction. Use only accepted listed UL rated materials.

C. Mockups:

1. Before installation of plaster work, fabricate mockup panels for each type of finish and application required using materials, including lath and support system, indicated for final work.
2. Build panels 4 feet x 4 feet x full thickness in location indicated, or if not otherwise indicated, as directed by Resident.
3. Demonstrate proposed range of color, texture, and installation to be expected in completed work.
4. Obtain Resident’s acceptance of panel's visual quality before start of work.
5. Retain panel during construction as standard for judging completed work.

D. Acceptance and Repairing: Stucco and plaster with cracks, blisters, pits, checks or discolorations will not be considered acceptable.

1.04 SUBMITALS

A. Product Data: Submit manufacturer’s product data for cementitious materials, lath, metal support components, accessories; manufacturer’s installation instructions and samples

requested by Resident.

B. Material Certificates:

1. Submit producer's certificate for each kind of plaster aggregate indicated materials comply with requirements.
2. Provide design calculations for metal support systems indicating load calculations, sizing of members, and anchorages for review.
3. Certify that materials meet or exceed the requirements of this section.

C. Field Samples: Before starting application of stucco, prepare at least 3 troweled samples, each about 3' x 4', having smooth and various degrees of surface texture, for Resident's approval. Continue preparing samples until approval is given. Keep approved samples available at the site for record. Match the texture of the accepted samples in the locations indicated.

1.05 ENVIRONMENTAL REQUIREMENTS

A. Do not apply plaster or stucco when substrate or ambient air temperature is less than 50° or more than 90° F or forecasts indicate such extremes may be reached before application attains a complete set.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

A. Accessories:

1. Dietrich.
2. Fry Reglet Corp.
3. Gold Bond Building Products Division
4. Plastic Components Inc.
5. United States Gypsum Co.
6. Amko, Corp.

B. Portland Cement Plaster/Stucco:

1. Lonestar Products.
2. Rinker Materials Corp.
3. United States Gypsum Co.

C. 2 Coat Gypsum Plaster Over Galvanized Metal Lath (on CMU): Base coat, finish coat, 5/8" Rocklath by US Gypsum Co. or accepted equivalent.

D. 2 Coat 5/8” thick Veneer Plaster: over 16 gauge expanded carbon steel security Lath: Imperial Finish over Imperial Gypsum Base by US Gypsum Co. or accepted equivalent.

F. All materials shall be galvanized for exterior use if ferrous.

G. Products identified by their manufacturer only are intended to establish a standard of quality and performance. Equal materials of other manufacturers may be provided, subject to approval by the Resident.

2.02 MATERIALS

A. Metal Supports - Suspended and Furred Ceilings or Soffits:

1. Portland Cement Plaster/Stucco Installation: ASTM C926.
2. Wire for Hangers and Ties: ASTM A641, 16 gage monel.
3. Rod Hangers: Mild steel, zinc, or cadmium coated.
4. Flat Hangers: Mild steel, zinc, or cadmium coated or protected with rust inhibitive paint.
5. Channels:

    a. Cold-rolled steel, minimum 0.0598" thickness of uncoated base metal, allowable bending stress of 18,000 psi. Protect with rust inhibitive paint or galvanizing complying with ASTM A924 for G60 coating designation.
    b. Carrying Channels: 1-1/2" deep x 7/16" wide flanges, 475 lbs. per 1,000 feet painted, 508 lbs. per 1,000 feet galvanized.
    c. Furring Channels: 3/4" deep x 7/16" wide flanges, 300 lbs. per 1,000 feet painted, 316 lbs. per 1,000 feet galvanized.
    d. Provide galvanized channels for exterior installations.

6. Hanger Anchorage Devices:

    a. 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 has been proven through standard construction practices or certified test data.
    b. Size devices to develop full strength of hanger minimum 3 times calculated hanger loading, except size direct pullout concrete inserts for 5 x calculated hanger loading.

B. Metal Lath:

1. Diamond Mesh Lath:

    a. Flat: 3.4 lbs. per sq.yd.
    b. Self-Furring: 2.5 lbs. per sq.yd.
    c. Paper Backing: Provide asphalt-impregnated paper factory-bonded to back and complying with Fed. Spec UU-B-790, Type I, Grade D vapor permeable, Style 2.
    d. Lath Attachment Devices:

        (1) Devices of material and type required by referenced standards and

recommended by lath manufacturer for secure attachment of lath to framing members and of lath to lath.

(2) Provide resilient clips for attachment of gypsum lath to steel at locations indicated.

2. Welded Wire Fabric Lath:

a. Weather Protected Exterior Horizontal Surfaces (Soffits, Ceilings, and Other Decorative Elements): Pyro K-Lath, Gun Lath, or accepted equivalent.
b. Back of Ceramic Tile (Interior Usage Only): Aqua Lath or accepted equivalent.
c. Fire Resistance and Waterproofing (Interior Usage Only): Pyro K-Lath or accepted equivalent.

C. Accessories for Portland Cement Stucco:

1. Comply with material provisions of ASTM C926; coordinate depth of accessories with thickness and number of coats required.
2. Plastic Trim Accessories: Corner beads, casing beads, control joints, and expansion joints with perforated flanges and fabricated from high impact polyvinyl chloride or zinc alloy.
3. Cornerite: Strips of expanded smooth edged metal lath, not less than 2.5 lbs. per sq. yd., with 3" flanges on each side.
4. Stripite: Strips of flat expanded metal lath not less than 2.5 lbs. per sq. yd., 6" wide or wider if required.
5. Tie Wire: Galvanized and annealed, 18 gage for lathing and for 16 gage for furring channels.
6. Plaster Rings: Size and shape required for light fixtures, etc.

D. Portland Cement Plaster Materials:

1. Plastering Materials: Use premixed plaster and stucco materials for finish coat unless approval for job mixed materials is obtained from the Resident for specific locations.
2. Stucco and Portland Cement Plaster: Comply with ASTM C 926 and ANSI A42.3.

a. Base Coat Cements: Portland Cement, ASTM C150, Type I or III.
b. Finish Coat Cement: Portland Cement, ASTM C150, Type I, white.
c. Factory-Prepared Finish Coat:

(1) Manufacturer's standard product requiring addition of water only. White in color unless otherwise indicated.
(2) Product: Oriental Exterior Stucco by United States Gypsum Co.

d. Lime: ASTM C 207, Type N or S.

3. Aggregates:

a. Sand Aggregate - Base Coats: ASTM C897, natural, well graded from coarse to fine, all passing a No. 8 sieve, and 90% to 95% retained on a No. 100 sieve.
b. Aggregate - Finish Coats: ASTM C897, washed silica sand, all passing a No. 20 sieve for fine sand finish texture, and all passing a No. 30 sieve for fine sand float finish. Manufactured or natural sand, white in color.
c. Fiber - Base Coat:

(1) Alkaline-resistant glass fibers, 1/2" long, free of contaminates, manufactured for use in Portland cement plaster.
(2) Product: Dur-O-Fiber AR Glass by Dur-O-Wal.

4. Miscellaneous Materials:

a. Water for Mixing and Finishing Plaster: potable, free of substances capable of affecting plaster set or of damaging plaster, lath, or accessories.
b. Bonding Agent - Portland cement: ASTM C932.
c. Hydrated Finish Lime: Normal type, conforming to ASTM C 206.
d. Waterproofing Admixture: SEC #1 by SEC Manufacturing Co.; Master Builders Omicron; Anti-Hydro Liquid Admixture; Enviroseal or Thoro Sealers by Harris Specialty Chemicals; or approved equal.
e. Bonding Agent: Weldcrete, manufactured by Larsen Products Corporation, or approved equal.
f. Water: Clean and fit to drink.

2.03 MIXES

A. Portland Cement Plaster/Stucco Mixes and Compositions - Base Coats:

1. Comply with ASTM C926 for Portland cement plaster base and finish coat mixes as applicable bases, materials, and other requirements indicated.
2. Base Coat:

a. Proportion materials for respective base coats in parts by volume for cementitious materials and 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.
b. Adjust mix proportions below within limits specified to attain workability.

3. Base Coats for Three-Coat Work Over Metal Lath:

a. Contractor's Option 1:

(1) Scratch Coat: 1 part Portland cement, 2-1/2 to 4 parts sand.
(2) Brown Coat: 1 part Portland cement, 3 to 5 parts sand.

b. Contractor's Option 2:

(1) Scratch Coat: 1 part Portland cement, 1 to 2 parts masonry cement, 2-1/2 to 4 parts sand.
(2) Brown Coat: 1 part Portland cement, 1 to 2 parts masonry cement, 3 to 5 parts sand.

c. Contractor's Option 3:

(1) Scratch Coat: 1 part masonry cement, 2-1/2 to 4 parts sand.
(2) Brown Coat: 1 part Portland cement, 1 parts masonry cement, 3 to 5 parts sand.

4. Two-Coat Work Over Concrete Unit Masonry:

a. Contractor's Option 1:

(1) Base Coat: 1 part Portland cement, 3 to 4 parts sand.

b. Contractor's Option 2:

(1) Base Coat: 1 part masonry cement, 3 to 4 parts sand.

5. Fiber Content:

a. Add fiber to mixes above to comply with fiber manufacturer's directions, maximum 2 lbs. per cu. feet of cementitious materials.
b. Reduce aggregate quantities accordingly to maintain workability.

B. Portland Cement Plaster/Stucco Mixes and Compositions - Finish Coats:

1. Job-Mixed:

a. Contractor's Option 1:

(1) 1 part Portland cement, 2-1/4 to 3 parts sand.

b. Contractor's Option 2:

(1) 1 part Portland cement, 1 part masonry cement, 2-1/4 to 3 parts sand.

c. Contractor's Option 3:

(1) 1 part masonry cement, 1-1/2 parts sand.

2. Factory-Prepared Portland Cement Plaster/Stucco Finish Coats:

a. Add water only.
b. Comply with finish coat manufacturer's directions.

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

PART 3 EXECUTION

3.01 INSPECTION

A. Verify that conditions are satisfactory to receive lathing, plaster and stucco work, and free of defects affecting quality of the work.

B. Examine framing, grounds, and accessories to insure that finished plaster surfaces will be true to line, level and plumb, without requiring additional thickness of plaster.

C. Do no work until unsatisfactory conditions are corrected.

3.02 PREPARATION

A. Deliver manufactured materials in original packages and containers bearing the name of the manufacturer and the brand.

B. Keep cement and cementitious material dry and off walls or damp surfaces until ready for use. Remove damaged or deteriorated materials from the site.

3.03 INSTALLATION

A. General:

1. Comply with provisions of ASTM C 926.
2. Do not retemper or use material, which has partially set or become caked or lumpy. Clean the mixers, mixing box and tools of all set or hardened materials before the new batch is loaded.
3. Broom masonry surfaces off and wet evenly, not saturated, immediately before stucco is applied.
4. Where metal bucks, frames and other trim occur, fill inside of same behind trim with stucco and cut finish coat accurately against buck. Where caulking is shown on details, cut back at meeting point as detailed.

B. Acceptance and Repairing: Stucco and plaster with cracks, blisters, pits, checks or discolorations will not be considered acceptable. Work shall be clean and sound. After other related work has been completed, point up around trim and other set work, repair damaged portions. Match existing work in texture and color.

C. Lath and Furring:

1. Interior Lath and Furring Installation Standard: Install lath and furring materials indicated for gypsum plaster to comply with ASTM C841.
2. Portland Cement Plaster/Stucco Lath and Furring Installation Standard: Install lath and furring materials indicated for Portland cement plaster to comply with ASTM C926.
3. Install supplementary framing, blocking, and bracing at terminations in work and for support of fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, and similar work to comply with details indicated or, if not otherwise indicated, to comply with applicable published recommendations of gypsum plaster manufacturer or, if not available, of Gypsum Construction Handbook, latest edition, published by United States Gypsum Co.
4. Isolation:

    a. Where lath and metal support system abuts building structure horizontally, and where partition/wall work abuts overhead structure, isolate work from structural movement sufficiently to prevent transfer of loading into work from building structure.
    b. Install slip or cushion type joints to absorb deflection but maintain lateral support.
    c. Frame both sides of control and expansion joints independently.
    d. Do not bridge joints with furring and lath or accessories.

D. Suspended Ceilings:

1. Preparation and coordination:

    a. Comply with requirements of Section 09100.
    b. Do not bind ceilings to wall. Allow for expansion.
    c. Coordinate installation of ceiling suspension system with installation of overhead structural systems to ensure inserts and other structural anchorage provisions have been installed to receive ceiling hangers to allow development of their full strength and at spacings required to support ceiling.
    d. Furnish concrete inserts and other devices indicated, to other trades for installations before time needed for coordination with other work.
    e. Powder activated fasteners are not allowed.

2. Hangers: Attach hangers to structure above ceiling to comply with Metal Lath/Steel Framing Association (ML/SFA) Specifications for Metal Lath and Furring and with Referenced Standards.
3. Ceiling Suspension System:

    a. Install components of sizes and spacings indicated but not in smaller sizes or greater spacings than required by referenced lath and furring installation

standards.

b. Wire Hangers: Space maximum 48 inches o.c. parallel with, and maximum 36 inches perpendicular to, direction of carrying channels, unless otherwise indicated, and within 6 inches of carrying channel ends.

c. Carrying Channels: Space carrying channels maximum 36 inches o.c. with 48 inches o.c. hanger spacing.

d. Furring Channels to Receive Metal Lath: Space furring channels maximum 16 inches o.c. for 3.4 lb. diamond mesh lath or 24 inches o.c. for 3.4 flat rib lath

e. Tie metal lath or screw cementitious board to suspended ceilings having plaster or stucco finish, including furring around vent ducts, over chases, etc., as required to make a perfect plaster and stucco job. Install plaster rings as required. Coordinate work with other trades. Install expansion beads around entire perimeter of plastered ceilings.

f. Lath to be tied every 5" to the furring with 16 gauge galvanized annealed wire.

g. Where lath sheets are spliced between supports, lap not less than 4" and lace ends together with wire. Lap not less than 2" at supports. Laps to be staggered.

4. Strip Lath (Stripite): Install at joints created by materials of dissimilar composition including joints between unit masonry and concrete over which stucco is to be applied. Extend at least 2" on each side of joint.

5. Access Panels: Install as specified in Section 08305.

E. Stucco: Surfaces to receive stucco shall be clean and free of dust, dirt, oil, soot, or other particles that might interfere with satisfactory bond. Verify that metal installations and flashings that adjoin stucco are well secured in place and are plumb, straight and true before beginning work. Where it is impossible to work the full dimension of wall surface, make jointing at breaks, openings or other natural division of the surface. Dampen edges to be joined slightly, to produce smooth meeting or flowing together of surfaces. Apply a bonding agent to concrete surfaces that do not have sufficient roughness for proper bond. Wet masonry surfaces evenly immediately before the stucco is applied. Sound all areas and remove loose and damaged stucco. Firmly bonded but cracked stucco to be patched with approved trowel applied patching compound.

1. Stucco on Metal Lath: 3 coat work 3/4" thick, scratch and brown coats approximately 5/8" total thickness.

a. Apply first coat to metal lath approximately 1/4" thick (on face of lath) with sufficient pressure to force stucco to form good key. Bring to plumb, true, even surface, roughing texture. When set sufficiently, float first coat with dry float. Cross scratch evenly to form bond for next coat. Apply second coat as soon as first coat has set sufficiently to carry the weight (approximately 3 hours). Float or rod to true, even surface. Apply second coat approximately 3/8" thick. Leave rough to receive finish coat. Keep moist until application of finish coat.

b. Base and scratch coat stucco mix: 1 part Portland cement, 3 parts masonry cement, 6 parts sand.

1. Stucco on Concrete, Concrete Masonry Units and Cementitious Board: 3 coat work, 7/8" thick, consisting of scratch, base and finish coats.

a. Apply a full coating of bonding agent to monolithic concrete surfaces that are to receive stucco. Comply with manufacturer's published instructions. Protect adjacent surfaces from staining during application. Wet each coat uniformly, but do not saturate, before applying the following coat.

2. Scratch Coat: 1 part Portland cement, 3 parts masonry cement, 6 parts sand. Apply with sufficient pressure to form good bond and then uniformly scratch. Apply 1/4" thickness minimum. Dampen wall evenly with fog spray to obtain uniform suction before first coat is applied.

3. Base Coat: Of same mix as scratch coat, applied not less than 24 hours after application of scratch coat, flanged and rodded to a thickness of minimum 1/4" straight and true. Keep surface of base coat damp until finish coat is applied.

4. Finish Coat: Approximately minimum 1/4" thick, smooth troweled or textured as indicated on Drawings, free of humps, depressions and with a smooth uniform appearance, within the tolerance specified in this Section. Apply finish coat as soon as possible after base coat hardens, usually the next morning. Keep finish coat damp for two days and allow to dry out.

a. Use premixed materials unless otherwise approved by Resident. Comply with instructions and recommendations of premixed stucco manufacturer. When job mixed material is approved, use same mix as for base coat for the finish coat plus addition of 1 quart of waterproofing admixture per bag of cement, added to the mix with the water.

b. Floated Finish: Use float for preliminary finishing followed by steel troweling delayed as long as possible. Float with wood, carpet, or rubber float to true, even surfaces free of slick spots and other blemishes. Sprayed application will not be accepted unless previously approved by the Resident.

c. Curing: Moist cure by frequent fog spraying and protection of stucco from direct rays of the sun. Exercise care to prevent staining.

F. Cement Plaster:

1. Cement Plaster for Interior Surfaces: Same as stucco except that waterproofing in the finish coat is omitted.

2. For one coat applications, omit the scratch and brown coats and do not add waterproofing to the finish coat mix. Apply in a thin coat sufficient to produce a smooth, flat, dense surface, filling all the voids in masonry and concrete faces.

Exception: If the masonry of concrete surface is defective with steps, bumps, or warping, or out of level or plumb, apply a leveling coat before the skim coat finish. Do not apply either coat less than 1/8" to prevent cracking, flaking, or alligatoring.

G. Metal Lath:

1. Install expanded metal lath for following applications where plaster base coats are required.
2. Provide appropriate type, configuration, and weight of metal lath selected from materials indicated which comply with referenced lath installation standards.
3. Suspended and Furred Ceilings: Minimum weight of diamond mesh lath, 3.4 lbs. per sq.yd.
4. Exterior Sheathed Wall Surfaces: Minimum weight of self-furring diamond mesh lath, 3.4 lbs. per sq.yd.

H. Plastering Accessories:

1. Comply with referenced lath and furring installation standards for provision and location of plaster accessories of type indicated.
2. Miter or cope accessories at corners and install with tight joints and in alignment.
3. Attach accessories securely to plaster bases to hold accessories in place and alignment during plastering.
4. Accessories - Portland Cement Plaster:

   a. Corner Reinforcement: Install at external corners.
   b. Corner Bead: Install at external corners.
   c. Casing Beads: Install at termination of plaster work unless otherwise indicated.
   d. Control Joints: Install where an expansion or control joint occurs directly behind plaster membrane, where the ceiling framing or furring changes direction, where dissimilar base materials abut and are to receive a continuous coat of plaster, where cement plaster panel sizes or dimensions change.

3.04 CONTROL AND EXPANSION JOINTS

A. Locate exterior control and expansion joints at even increments not to exceed 18 feet in either direction or a length to width ratio of 2-1/2 to 1 unless otherwise indicated on the Drawings.

B. Control and expansion joints shall be installed in walls so that the area within cement panels formed by the control joints does not exceed 144 sq.ft. and in ceilings and all other horizontal applications so that the area within the cement panels does not exceed 100 sq.ft.

C. Tool joints with knife grade sealant to render them invisible.

3.05 ADJUSTING, CLEANING AND PROTECTION

A. Cutting and Patching:

1. Cut, patch, point-up, and repair plaster as necessary to accommodate other work and to restore cracks, dents, and imperfections.
2. Repair or replace work to eliminate blisters, buckles, excessive crazing and check cracking, dryouts, efflorescence, sweat-out and similar defect, and where bond to substrate has failed.
3. Sand smooth-troweled finishes lightly to remove trowel marks and arises.

B. Cleaning:

1. Remove temporary protection and enclosure of other work.
2. Promptly remove plaster from doorframes, windows, and other surfaces that are not to be plastered.
3. Repair floors, walls, and other surfaces stained, marred, or otherwise damaged during plastering work.
4. When plastering is completed, remove unused materials, containers, and equipment, and clean floors of plaster debris.

C. Protection: Provide final protection and maintain conditions, in manner suitable to Installer, that ensure plasterwork being without damage or deterioration at time of Substantial Completion.

END OF SECTION