****

NASA-09200 (April 2005)

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

NASA

Superseding NASA-09200 (October 2004)

****

SECTION TABLE OF CONTENTS

DIVISION 09 - FINISHES

SECTION 09200

LATH AND PLASTER

04/05

-- End of Section Table of Contents --

****

NASA-09200 (April 2005)
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
NASA
Superseding NASA-09200 (October 2004)

****

SECTION 09200

LATH AND PLASTER
04/05

****

NOTE: Delete, revise, or add to the text in this section to cover project requirements. Notes are for designer information and will not appear in the final project specification.

This broadscope section covers exterior lathing and plastering.

****

PART 1 GENERAL

1.1 REFERENCES

****

NOTE: The following references should not be manually edited except to add new references. References not used in the text will automatically be deleted from this section of the project specification.

****

The publications listed below form a part of this section to the extent referenced:

ASTM INTERNATIONAL (ASTM)

ASTM A 123/A 123M	(2002) Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM A 510	(2003) Wire Rods and Coarse Round Wire, Carbon Steel
ASTM A 510M	(2003) Wire Rods and Coarse Round Wire, Carbon Steel (Metric)
ASTM A 641/A 641M	(2003) Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire
ASTM C 141	(1997) Standard Specification for Hydraulic Hydrated Lime for Structural Purposes
ASTM C 150	(2004a) Standard Specification for

	Portland Cement
ASTM C 28	(2000e1) Standard Specification for Gypsum Plaster
ASTM C 35	(2001) Inorganic Aggregates for Use in Gypsum Plaster
ASTM C 37	(2001) Standard Specification for Gypsum Lath
ASTM C 553	(2002) Standard Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications
ASTM C 61/C 61M	(2000) Gypsum Keene's Cement
ASTM C 842	(1999) Application of Interior Gypsum Plaster
ASTM E 84	(2005) Standard Test Method for Surface Burning Characteristics of Building Materials
ASTM E 90	(2004) Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements

U.S. GENERAL SERVICES ADMINISTRATION (GSA)

FS FF-N-105	(Rev B; Int Am 4) Nails, Brads, Staples, and Spikes: Wire, Cut, and Wrought
FS FF-S-325	(Int Amd 3) Shield, Expansion; Nail, Expansion; and Nail, Drive Screw (Devices, Anchoring, Masonry)

1.2 SUBMITTALS

****
NOTE: Review submittal description (SD) definitions in Section 01330, "Submittal Procedures," and edit the following list to reflect only the submittals required for the project. Submittals should be kept to the minimum required for adequate quality control. Include a columnar list of appropriate products and tests beneath each submittal description.
****

The following shall be submitted in accordance with Section 01330, "Submittal Procedures," in sufficient detail to show full compliance with the specification:

SD-02 Shop Drawings

Fabrication Drawings shall be submitted for the following items consisting of fabrication and assembly details to be performed in the factory, to include wall supports and metal ceiling materials.

Lathing and Framing Materials
Clip and Fastener Materials
Trim and Accessory Materials

Installation Drawings shall be submitted for exterior lathing and plastering systems in accordance with the paragraph entitled, "Installation of Lathing and Framing," of this section.

SD-03 Product Data

Manufacturer's catalog data shall be submitted for the following items; to include wall supports and metal ceiling materials, in accordance with applicable specifications in this section.

Lathing and Framing Materials
Clip and Fastener Materials
Trim and Accessory Materials
Plaster Materials
Ceiling Support System
Sealants

SD-04 Samples

Samples of the following shall be submitted by the Contractor in accordance with paragraph entitled, "Lathing and Plastering Information," of this section.

Panels
Steel Studs, Furring, and Metal Trim
Accessories
Lath

SD-07 Certificates

Certificates shall be submitted in accordance with paragraph entitled, "Lathing and Plastering Information," of this section.

1.3 DELIVERY, HANDLING, AND STORAGE

Materials shall be protected from weather, soil and damage during delivery, storage and construction.

Materials shall be delivered in original packages, containers, or bundles bearing brand name and name of material.

1.4 SOUND TRANSMISSION CLASSIFICATION

Sound transmission classification (STC) shall be as published by the plaster materials manufacturer. STC shall be established in accordance with ASTM E 90 and shall reflect acoustical performance values obtained in laboratory tests by an approved laboratory.

1.5 LATHING AND PLASTERING INFORMATION

Panels: Three samples not less than 12-inches 300 millimeter square of each finish specified.

Steel Studs, Furring, and Metal Trim: Three samples of each, typical not

less than 8-inches 200 millimeter long.

Accessories: Three full-size samples of each.

Lath: Three samples not less than 12-inches 300 millimeter square of each type.

Certificates shall be submitted for exterior lathing and plastering systems indicating that the proposed materials meet or exceed the project specifications and the listed reference specifications.

PART 2 PRODUCTS

2.1 LATHING AND FRAMING MATERIALS

2.1.1 Steel Stud Framing

Material for channel-type studs, floor runners, and ceiling runners shall be corrugated hot-dip galvanized, cold-rolled, copper-bearing sheet steel, conforming to ASTM A 123/A 123M, G-90, coated.

Channel-shaped steel studs shall be not less than 0.047-inch 1.19 millimeter uncoated steel. Stud flanges shall be not less than 1-5/16 inches 33 millimeter wide. Each stud shall be designed to engage floor and ceiling runners and shall have knockouts located at not more than 24 inches 600 millimeter on center. Floor runners and ceiling runners shall be not less than 22 gage (0.0299 inch) 0.75 millimeter, uncoated steel with not less than 1-1/4-inch 32 millimeter flanges, sized to suit functions.

Material for truss-type studs shall be hot-dip galvanized wire rod conforming to ASTM A 510 ASTM A 510M. Rod shall be steel No. 1020, galvanized, medium weight.

Truss-shaped steel studs shall be fabricated from not less than 0.177-inch 4.5 millimeter diameter wire rod. Studs shall be double rods welded to a continuous diagonal wire web. Each stud shall be designed to engage floor and ceiling runners. Floor runners and ceiling runners shall be not less than 0.047-inch 1.19 millimeter uncoated steel with not less than 1-inch 25 millimeter flanges, sized to suit function.

Deflection of studs shall be tested with a 100-pound 445 newtonload, center loaded on a 60-inch 1525 millimeter span, using a 72-inch 1830 millimeter sample stud turned so that the load is along the long axis of the stud section. Deflection shall be not greater than 0.220 inch for 2-1/2-inch 5.5 millimeter for 65 millimeterstuds, 0.215 inch for 3-1/4-inch 5.4 millimeter or 83 millimeterstuds, and 0.210 inch 5.3 millimeter for studs 4 inches 100 millimeter and wider.

2.1.2 Lathing Channels

Lathing channels shall be fabricated from flat sheet steel conforming to ASTM A 123/A 123M, G-90, coated. Channels shall be not less than 0.0598-inch 1.519 millimeter uncoated steel.

Lathing channels shall have a web height of not less than 3/4 inch 20 millimeter and weigh not less than 0.30 pound per linear foot 0.4 kilogram per meter. When 3/4-inch 20 millimeter channels are used for main runners, hanger spacing shall not exceed 24 inches 600 millimeter on center with the spacing of the runners not exceeding 24 inches 600 millimeter on center.

When 3/4-inch 20 millimeterchannels are used for furring, spacing of furring shall not exceed 24 inches 600 millimeter on center when main runners are spaced at 24 inches and 36 inches 600 millimeter and 900 millimeter on center; spacing of the furring shall not exceed 16 inches 400 millimeter on center when main runners are spaced at 48 inches 1200 millimeter on center.

Lathing channels shall have a web height of not less than 1-1/2 inches 40 millimeter and weigh not less than 0.5 pound per linear foot 0.7 kilogram per meter. When 1-1/2-inch 40 millimeter channels are used for main runners, hanger spacing shall not exceed 48 inches 1200 millimeter on center with the spacing of runners not exceeding 36 inches 900 millimeter on center.

Lathing channels shall have a web height of not less than 2 inches 50 millimeter and weigh not less than 0.59 pound per linear foot. 0.99 kilogram per meter. When 2-inch 50 millimeter channels are used for main runners, hanger spacing shall not exceed 84 inches 2130 millimeter on center with the spacing of the runners not exceeding 24 inches 1200 millimeter on center.

2.1.3 Hangers and Tie Wires

Wire hangers and tie wires shall be hot-dip galvanized wire or rods, conforming to ASTM A 641/A 641M. Wires and rods shall be steel ANSI No. 1010, Finish 5, Class 3.

Ceiling hangers supporting up to 16 square feet 1.5 square metershall be not less than ASTM A 510, Gage No. 8. ASTM A 510M, 4.2 millimeter. Hot-dip galvanized flat steel hangers 1 by 1/8 inch 25 by 3 millimeter may be substituted for wire hangers.

Ceiling hangers supporting 16 square feet 1.5 square meter or more shall be not less than ASTM A 510, Gage No. 6 ASTM A 510M, 4.8 millimeter. Hot-dip galvanized flat steel hangers, 1 by 3/16 inch 25 by 5 millimeter may be substituted for wire hangers.

Tie wires for splicing furring channels or for securing furring channels to main runner channels shall be not less than ASTM A 510, Gage No. 14 ASTM A 510M, 2.0 millimeter.

Tie wires for securing metal lath to furring channels shall be not less than ASTM A 510, Gage No. 7/0 ASTM A 510M, 12.0 millimeter.

2.1.4 Metal Lath

Metal lath shall be fabricated from flat sheet steel conforming to ASTM A 123/A 123M, G-90, coated.

Diamond-mesh expanded metal lath shall weigh not less than 3.4 pounds per square yard 1.8 kilogram per square meter. Support spacings for walls and partitions shall not exceed 16 inches 400 millimeter on center. Support spacings for ceilings shall not exceed 13.5 inches 345 millimeter on center.

Weight of 1/8-inch 3 millimeter flat rib expanded metal lath shall be not less than 2.75 pounds per square yard 1.5 kilogram per square meter. Support spacing for walls and partitions shall not exceed 16 inches 400 millimeter on center. Support spacings for ceilings shall not exceed 12 inches 300 millimeter on center.

Weight of 1/8-inch 3 millimeter flat rib expanded metal lath shall be not less than 3.4 pounds per square yard 1.8 kilogram per square meter. Support spacing for walls, partitions and ceilings shall not exceed 19 inches 485 millimeter on center.

Weight of 3/8-inch 10 millimeter rib expanded metal lath shall be not less than 3.4 pounds per square yard 1.8 kilogram per square meter. Support spacing for walls, partitions and ceilings shall not exceed 24 inches 600 millimeter on center.

2.1.5 Gypsum Lath

Plain gypsum lath shall conform to ASTM C 37, round edge, of grade and form as specified for each type of lath. Gypsum lath shall be 16-inches 400 millimeter wide by 48-inches 1200 millimeterlong and indicated thickness.

Plain gypsum lath shall be regular core, plain back.

Insulating gypsum lath shall be regular core, foil back.

Fire-retardant gypsum lath shall be Type X, plain back.

2.2 CLIP AND FASTENER MATERIALS

2.2.1 Resilient Clips

Resilient clips shall be fabricated from flat hot-dip galvanized sheet steel conforming to ASTM A 123/A 123M, G-90, coated.

Suspended, ceiling-type clips shall be used to secure furring channels to runner channels. Clips shall be provided for each grid intersection.

Wall-type clips for securing pencil rods to steel studs shall be spaced not over 16 inches 400 millimeter on center.

Wall-type clips for securing pencil rods or furring channels to concrete or masonry walls shall be spaced not over 16 inches 400 millimeter on center.

2.2.2 Attachment Clips

Attachment clips shall be fabricated from hot-dip galvanized sheet steel conforming to ASTM A 123/A 123M, G-90, coated, or hot-dip flat galvanized, hard steel wire, conforming to ASTM A 510 ASTM A 510M. Wire shall be steel No. 1020, galvanized medium weight. Clips shall include field clips, starter clips, bracing clips, drive clips and other similar clips, as required, for proper securement of gypsum lath to furring members.

2.2.3 Metal Fasteners

Nails for securing clips and furring to concrete shall conform to FS FF-N-105, Type II, Style 11, flathead, countersunk, diamond point, hardened steel.

Nails for securing clips and furring to masonry shall conform to FS FF-N-105, Type II, Style 17, flathead, diamond point, mechanically deformed, hardened steel.

Screws shall be steel, self-tapping type, bugle head, self-drilling point,

length as recommended by the gypsum lath manufacturer for type of system being installed.

Expansion shields shall conform to FS FF-S-325.

Staples shall conform to FS FF-N-105, galvanized steel, Type III, Style 3, flat-top crown.

2.3 TRIM AND ACCESSORY MATERIALS

2.3.1 Corner Beads

Corner beads shall be fabricated from hot-dip flat galvanized sheet steel not less than 0.0179 inch 0.455 millimeter thick before galvanizing, conforming to ASTM A 123/A 123M, G-90, coated.

Corner beads shall be 1/8-inch 3 millimeter radius type. Corner beads shall have expanded- or flexible-type flanges of widths.

2.3.2 Casing Beads

Casing beads shall be fabricated from hot-dip flat galvanized sheet steel not less than 0.0239 inch 0.607 millimeter thick before galvanizing, conforming to ASTM A 123/A 123M, G-90, coated.

Casing beads shall be square-edge type with a 1/4-inch 6 millimeterreturn edge. Casing beads shall have expanded flanges or short flanges.

2.3.3 Screeds

Screeds shall be fabricated from hot-dip flat galvanized sheet steel not less than 0.0179 inch 0.455 millimeter thick before galvanizing, conforming to ASTM A 123/A 123M, G-90, coated.

Screeds shall be 1/8-inch 3 millimeter radius type, designed for the indicated plaster-coat finishes. Screeds shall have expanded or short flanges.

2.3.4 Lath Reinforcement

Lath reinforcement shall be diamond-mesh expanded-metal lath, weighing not less than 3.4 pounds per square foot 5.1 kilogram per square meter. Corner reinforcement shall be not less than 4-inches 100 millimeter wide, bent 90 degrees to form two 2-inch 50 millimeterwide wings for internal corner reinforcement. Strip reinforcement, used where excessive stress concentration may be expected, shall be not less than 3 inches 80 millimeter wide.

2.3.5 Expansion Joints and Control Joints

Expansion and control joints shall be fabricated from flat sheet steel not less than 0.0179 inch 0.455 millimeter thick before galvanizing, conforming to ASTM A 123/A 123M, G-90, coated.

Expansion and control joints for flat surfaces shall be a two-piece adjustable sliding type or two casing beads, placed face to face. Joint gap shall be set at 1/4 inch 6 millimeter.

Expansion and control joints for internal corners shall be two casing

beads, placed face to face. Joint gap shall be set at 1/4 inch 6 millimeter.

2.3.6 Metal Base

Metal bases shall be fabricated from hot-dip flat galvanized sheet steel not less than 0.0478 inch 1.21 millimeter thick before galvanizing, conforming to ASTM A 123/A 123M, G-90, coated. Bases shall be not less than 2-1/2-inches 65 millimeter high, flush face or reveal face, factory primed with manufacturer's standard rust inhibiting primer and with welded exterior corners, splice and attachment plates.

2.3.7 Access Door Frames

Fire-rated access door frames shall conform to Section 08100, "Metal Doors and Frames."

2.3.8 Sound Insulation Blankets and Isolation Material

Insulation and isolation material shall be semirigid, paperless, spun mineral-fiber mat conforming to ASTM C 553. Material shall have a Class A fire-hazard classification. Flame spread shall not exceed 25, fuel contributed 20, smoke developed 0, when tested in accordance with fire test of ASTM E 84.

2.3.9 Bonding Adhesive

Bonding adhesive shall be a polyvinyl acetate-based adhesive material, factory prepared for bonding plaster to concrete substrate. Adhesive shall be tinted to show by visual inspection where the adhesive has been applied. Bond adhesive shall be resistant to acids and alkalies, shall be nontoxic and shall not support combustion. Bond adhesive shall be dry to touch on concrete in less than 1 hour, remain flexible when dry, and develop a bond strength in shear of not less than 150 pounds per square inch (psi) 1030 kilopascal.

2.4 PLASTER MATERIALS

2.4.1 Gypsum Plaster

Gypsum neat plaster shall conform to ASTM C 28. Gypsum neat plaster, when mixed with 2 parts by weight of standard Ottawa sand, shall have a compressive strength of not less than 1,000 psi 5.2 Megapascal.

Gypsum wood-fibered plaster shall conform to ASTM C 28. Gypsum wood-fibered plaster shall have a compressive strength of not less than 1,500 psi 8.3 Megapascal.

Gypsum gauging plaster shall be nonretarded material conforming to ASTM C 28. Gypsum gauging plaster, when mixed with 2 parts by weight of dry lime, shall have a compressive strength of not less than 1,000 psi 5.2 Megapascal. Keene's cement plaster shall be 4 parts of Keene's cement conforming to ASTM C 61/C 61M, 3 to 6 hour set or 1 to 2 hour set, by weight, mixed with 1 part of dry lime. Mixed plaster shall have a compressive strength of not less than 2,500 psi 17 Megapascal.

2.4.2 Hydrated Lime

Hydrated lime shall conform to ASTM C 141.

2.4.3 Portland Cement Plaster

Portland cement plaster shall be mixed by weight in the following proportions: 94 pounds 42.6 kilogram of portland cement to 300 pounds 136 kilogram of sand (aggregate) and 9.4 pounds 4.3 kilogram of hydrated lime. Portland cement shall conform to ASTM C 150, Type I. Finish coats of cement plaster shall be white cement.

2.4.4 Aggregates

Plastering aggregate shall be washed, sharp, durable, uncoated, natural sand free from deleterious substances, conforming to ASTM C 35.

Finishing aggregate shall be washed, sharp, durable, uncoated, natural white-silica sand free from deleterious substances, conforming to ASTM C 35 except for grading. Sand shall have 100 percent passing a No. 30 600 micrometer sieve and 100 percent retained in a No. 100 150 micrometer sieve.

Lightweight aggregate for scratch and brown coats shall be perlite aggregate conforming to ASTM C 35.

Lightweight aggregate for finish coats shall be perlite aggregate conforming to ASTM C 35 except for grading. Aggregate shall have 100 percent passing a No. 30 600 micrometer sieve and 100 percent retained in a No. 100 150 micrometer sieve.

2.4.5 Water

Water shall be potable.

PART 3 EXECUTION

3.1 INSTALLATION OF LATHING AND FRAMING

Installation Drawings shall be submitted for exterior lathing and plastering systems.

3.1.1 Steel-Stud Partitions

Floor tracks shall be secured to concrete substrate with hardened steel nails not less than 3/4-inch 20 millimeter long, or by expansion bolts. Powder-actuated fasteners not less than 3/4-inch 20 millimeter long may be used if this fastening method is approved by the Contracting Officer. Spacing of nails shall not exceed 24 inches 600 millimeter on center.

Ceiling tracks shall be secured to ceiling or underside of structure. Fastener spacing shall not exceed 16 inches 400 millimeter on center.

Metal truss-type studs shall be full height with maximum spacing. Studs shall be secured with manufacturer's standard stud shoe wired with not less than two loops of tie wire or tack welded to floor and ceiling tracks.

Wall corners and intersections shall be formed with three studs placed one-half the stud width from the point of intersection to allow for securing lath. Double studs shall be provided on either side of openings. Studs and opening frame shall be rigidly secured together.

Partitions shall be stiffened with 3/4-inch 20 millimeterhorizontal furring channels spaced not less than 54 inches 1370 millimeter on center.

Additional 1-1/2-inch 40 millimeterfurring stiffeners shall be provided 6 inches 150 millimeter above all wall openings. Stiffeners shall be extended past the second stud on each side of the opening. Stiffeners shall be securely saddle tied to each stud.

Floor tracks shall be bedded in not less than two beads of calking compound, 1/4-inch 6 millimeter wide.

Where partitions abut structural beams and framing above ceilings, a continuous horizontal slip gage metal channel to be secured to structure above shall be provided. A 1/2-inch 15 millimeter thick isolation material shall be provided between channel and structure. Ceiling track shall be slipped into channel. Where partitions run perpendicular to structural framing, closures shall be provided in the space between members.

Where studs abut structural walls or columns, 1/2-inch 15 millimeter thick isolation material shall be provided for end studs to prevent contact.

When insulation blankets are provided between steel studs, the blankets shall be securely wired to studs in accordance with the insulation material manufacturer's written instructions.

Where metal lath is required, resilient metal clips snapped onto studs shall be provided not less than 12 inches 300 millimeter on center. Clips shall be used to secure 1/4-inch 6 millimeter pencil rods to lath.

3.1.2 Ceiling Support System

Maximum hanger and carrying-channel spacing shall be dictated by the specified channels.

Hangers shall be secured to structural steel framing above with approved beam clamps. Hangers shall not be secured to metal roof deck.

Hangers shall be secured to structural concrete framing above with approved inserts.

If wire hangers are used, each hanger shall be wrapped around the carrying channel twice and around itself three times. If steel bands are used, each hanger shall be secured to the carrying channel with bolts and wrapped tightly around the channel and bolted to itself. Hangers shall be provided at each corner of openings in ceilings.

If duct work or other suspended items interfere with hanger specified spacing, the Contractor shall provide extra hangers and a trapeze, or other approved arrangement.

Typical-carrying channels shall be supported at right angles to structural framing. Channels spaced not more than 6 inches 150 millimeteraway from walls shall be provided to support ends of furring channels. Carrying channels shall be provided in lengths as long as practical to minimize jointing. Joints shall be made by lapping 6 inches 150 millimeter and rigidly securing together. Joints shall be located at hangers only. Ends of carrying channels shall be cut back 1/2 inch 15 millimeter from abutting fixed vertical surfaces.

A positive means shall be provided for control of wind uplift pressures at exterior suspended plastered ceiling. Control shall be provided with 1-1/2-inch 40 millimeter steel channel stiffeners secured vertically to the

main structural system at alternate hanger locations and secured to the horizontal carrying channels.

3.1.3 Horizontal Furring

Maximum furring spacing shall be determined by supporting member spacing and the span limit of the lath specified in materials.

Furring members shall be installed straight, true, and perpendicular to the supporting construction. Edge members shall be located within 2 inches 50 millimeter of parallel vertical surfaces, but not in contact. Furring members shall be supplied in maximum practical lengths. Joints shall be made by lapping furring members not less than 6 inches 150 millimeter and rigidly tying them near each end of splice with tie wires looped twice around the furring.

Furring shall be secured to runner channels at crossings by saddle tying with not less than three strands of tie wire twisted tight.

Furring shall be secured to structural steel framing at crossings by saddle tying securely to underside of steel with not less than three strands of tie wire twisted tight.

Furring shall be secured to structural concrete framing at not less than 24 inches 600 millimeter on center with approved inserts.

Horizontal furring shall be resilient clip-suspended. Clips shall be provided at each intersection of furring to carrying channels.

3.1.4 Vertical Furring

Floor tracks shall be secured to concrete substrate with hardened-steel nails not less than 3/4-inch 20 millimeter long, or by expansion bolts. Powder-actuated fasteners not less than 3/4-inch 20 millimeter long may be used if this fastening method is approved by the Contracting Officer. Spacing of nails shall not exceed 24 inches 600 millimeter on center.

Ceiling tracks shall be secured to ceiling or underside of the above structure. Fastener spacing shall not exceed 16 inches 400 millimeter on center.

Vertical furred surfaces shall be stiffened with 3/4-inch 20 millimeter horizontal furring channels spaced not more than 54 inches 1370 millimeter on center. Stiffeners shall be securely saddle tied to each furring channel.

Wall brackets shall be provided for bracing the horizontal stiffeners where vertical furring is used on exterior masonry or concrete walls. Brackets shall be secured to exterior walls with nails not less than 3/4-inch 20 millimeter long. Spacing of nails shall not exceed 24 inches 600 millimeter on center.

3.1.5 Metal Lath

Rib lath or self-furring lath shall be used over solid backed surfaces and at open areas over 1-inch 25 millimeter wide. Rib lath or self-furring lath shall be installed with the projections toward the supports and secured by fastening through the projections to maintain furring clearance.

Metal lath shall be applied with the long dimension of the sheet perpendicular to the supports. End joints of lath shall be staggered between sheets with joints lapped not less than 1 inch 25 millimeter and laced together with tie wire. Side joints of lath shall be lapped not less than 1 inch 25 millimeter, or the edge ribs shall be nested together with tie wire. Lath shall be securely tied to supports, spaced not greater than 6 inches 150 millimeter on center.

Lath shall be applied to the ceiling first. Lath shall be butted to corners and the ceiling and wall joint covered with a reinforcing joint, or the ceiling sheet shall be extended down the wall 6 inches 150 millimeter. Corner reinforcing shall be applied over the junction of metal lath and other surfaces to receive plaster. Internal corners shall be lapped or reinforced unless unrestrained junctions are detailed.

Metal lath shall be terminated at the furring channel at each side of expansion or control joints.

3.1.6 Gypsum Lath

Lath shall be applied with the lath face out and the long dimension of the lath board perpendicular to the supports. End joints shall be staggered between successive courses. Edges of lath shall be butted together. Gypsum lath shall be secured to supports with standard clips or screws.

Joints in gypsum lath that exceed 3/8 inch 10 millimeter shall be reinforced with 3-inch 80 millimeter wide strip metal lath. Metal lath corner reinforcement shall be provided as specified for all internal corners. An 8- by 12-inch 200 by 300 millimeter metal lath strip reinforcement shall be provided diagonally at corners of wall and ceiling openings larger than 1 square foot 93,000 square millimeter in area. Metal lath reinforcement shall be stapled to gypsum lath.

3.1.7 Lathing Trim and Accessories

Required trim and accessories shall be provided in standard long lengths, with splices not less than 7 feet 2100 millimeter apart. Materials shall be positioned and secured in straight, plumb, or level lines, and set for proper plaster thickness. Trim and accessories shall be secured to support, spaced not greater than 9 inches 230 millimeter on center. Wire ties shall be used for securing to metal lath or furring. Trim shall be secured to concrete or masonry with 3/4-inch 20 millimeter nails.

Corner beads shall be provided for external corners and preshaped wire lath for internal corners.

Casing beads shall be provided where plaster abuts concrete, masonry, metal frames, exposed edges of plaster and other similar locations. Joints formed shall be set for 1/4-inch 6 millimeter gap ready to receive joint filler and sealant.

Screeds shall be provided where plaster extends to floor or where built-up bases are indicated flush with the plaster surface.

Expansion and control joints shall be installed to permit free expansion and contraction between plastered surfaces. Metal furring, carrying members, and lath shall be stopped at each side of expansion and control joints. There shall be a continuous furring channel at each side of the joint to secure lath and accessories. Gypsum plaster surfaces shall be

provided and shall not exceed 1,600 square feet 149 square meter in area with joints not exceeding 40 feet 12 meter on center without the use of expansion joints and control joints. Portland cement plaster surfaces shall not exceed 100 square feet 9.3 square meter in area with joints not exceeding 10 feet 3000 millimeter on center without the use of expansion joints and control joints. Joints shall be set for 1/4-inch 6 millimeter gap ready to receive joint filler and sealant.

Metal base shall be installed plumb and secure with splice joints tight and flush.

Fire-rated doors shall be installed flush with plaster surface in accordance with UL-approved installation.

Nonrated doors shall be installed flush with plaster surface.

3.1.8 Joint Fillers and Sealants

External application of joint fillers, backup materials for sealants, and joint sealants is specified in Section 07920, "Sealants and Calkings."

3.2 MIXING OF PLASTER

3.2.1 General

Plaster shall be mixed in accordance with printed instructions of the manufacturer. Mechanical mixers of an approved type shall be used for the mixing of plaster materials. Mechanical mixers, mixing boxes and tools shall be cleaned after mixing of each batch. Frozen, caked, or lumped materials will not be permitted.

Plaster materials shall be accurately measured and the resultant mix shall be of a consistency that will permit handling and manipulation. Retempering of plaster mixtures will not be permitted. Plaster mixtures that have begun to stiffen shall be discarded. The time from the start of mixing to the final placement of gypsum plaster shall not exceed 30 minutes. Use of retarders in plaster will not be permitted.

Plastering shall be done in accordance with ASTM C 842.

3.2.2 Basecoats

****
NOTE: Select from the following.
****

Scratch coat for medium-hard plaster finishes on metal lath shall be 100 pounds 45 kilogram gypsum neat plaster and not more than 200 pounds 90.7 kilogram plastering sand.

Scratch coat for hard plaster finishes on metal lath shall be 100 pounds 45 kilogram gypsum fibered plaster and not more than 200 pounds 90.7 kilogram plastering sand.

Scratch coat for portland cement plaster finishes on metal lath shall be 25 pounds 11.3 kilogram dry hydrated lime, 94 pounds 42.6 kilogram portland cement and not more than 300 pounds 136 kilogram plastering sand.

Brown coat for medium-hard plaster finishes on metal lath shall be 100

pounds 45 kilogram gypsum neat plaster and not more than 300 pounds 136 kilogram plastering sand.

Brown coat for hard plaster finishes on metal lath shall be 100 pounds 45 kilogram gypsum wood fibered plaster and not more than 300 pounds 136 kilogram plastering sand.

Brown coat for portland cement plaster finishes on metal lath shall be 25 pounds 11.3 kilogram dry hydrated lime, 94 pounds 42.6 kilogram portland cement and not more than 300 pounds 136 kilogram plastering sand.

Basecoat for medium-hard plaster finish on gypsum lath shall be 100 pounds 45 kilogram gypsum neat plaster and not more than 250 pounds 113.4 kilogram plastering sand.

Basecoat for hard plaster finish on gypsum lath shall be 100 pounds 45 kilogram gypsum wood fibered plaster and not more than 250 pounds 113.4 kilogram plastering sand.

Basecoat for medium-hard plaster finish on interior masonry shall be 100 pounds 45 kilogram gypsum neat plaster and not more than 300 pounds 136 kilogram of plastering sand.

Basecoat for hard plaster finish on interior masonry or concrete shall be 100 pounds 45 kilogram gypsum fibered plaster and not more than 300 pounds 136 kilogram of plastering sand.

Basecoat for portland cement plaster finishes on masonry or concrete shall be 25 pounds 11.3 kilogram of hydrated lime, 94 pounds 42.6 kilogram Portland cement and not more than 300 pounds 136 kilogram plastering sand.

Scratch coat for fire-rated plaster on metal lath shall be 100 pounds 45 kilogram gypsum neat plaster, 3 pounds 1.4 kilogram of fiber and not more than 2 cubic feet 0.06 cubic meter of lightweight aggregate.

Brown coat for fire-rated plaster on metal lath shall be 100 pounds 45 kilogram gypsum neat plaster, 3 pounds 1.4 kilogram of fiber and not more than 3 cubic feet 0.08 cubic meter of lightweight aggregate.

Basecoat for fire-rated plaster on gypsum lath shall be 100 pounds 45 kilogram gypsum neat plaster, 3 pounds 1.4 kilogram of fiber and not more than 2.5 cubic feet 0.07 cubic meter of lightweight aggregate.

3.2.3 Finish Coats

Finish coat for smooth trowel medium-hard gypsum-plaster finishes shall be 100 pounds 45 kilogram gypsum gaging plaster and 200 pounds 90 kilogram dry hydrated lime.

Finish coat for smooth trowel hard gypsum-plaster finishes shall be 100 pounds 45 kilogram of Keene's cement plaster and 25 pounds 11.3 kilogram of dry hydrated lime.

Finish coat for float, medium-hard gypsum-plaster finishes shall be 50 pounds 22.7 kilogram of gypsum gaging plaster, 100 pounds 45 kilogram of dry hydrated lime and 400 pounds 182 kilogram of finishing sand.

Finish coat for float, hard gypsum-plaster finishes shall be 100 pounds 45 kilogram of Keene's cement plaster, 50 pounds 22.7 kilogramof dry hydrated

lime and 400 pounds 182 kilogram of finishing sand.

Finish coat for float, portland cement plaster finishes shall be 94 pounds 42.6 kilogram of portland cement, 200 pounds 90.7 kilogram of dry hydrated lime and 250 pounds 113.4 kilogram of finishing sand.

Finish coat for troweled portland cement plaster finishes shall be 94 pounds 42.6 kilogram portland cement and 200 pounds 90.7 kilogram dry hydrated lime.

3.3 INSTALLATION OF PLASTER

3.3.1 Conditions at Building

Spaces to receive plastering shall be maintained at a temperature of not less than 55 degrees F 13 degrees C for not less than 24 hours before, during, and for 1 week after the installing and curing of plaster work.

Contractor shall maintain the proper humidity conditions to prevent sweat-out and dry-out of plaster. Surfaces containing sweat-out and dry-out areas shall be replaced with new material.

3.3.2 Preparation of Surfaces to Be Plastered

Furred and lathed surfaces shall be inspected and approved before plaster is applied. Lath, grounds and accessories shall be true to lines and elevations and shall be securely fastened.

Masonry and concrete surfaces shall be cleaned and free of efflorescence, oil, grease, acids, loose particles, dust and other foreign materials prior to application of basecoats. Surfaces shall be sufficiently rough to provide bond. Surfaces shall be fog-sprayed with water before installation of basecoat.

3.3.3 Plaster Thickness

Plaster applied on metal lath shall be applied in three coats, with total thickness not less than 3/4 inch 20 millimeter.

Plaster applied on gypsum lath shall be applied in two coats, with total thickness not less than 1/2 inch. 15 millimeter.

Plaster applied on masonry or concrete walls shall be applied in two coats with total thickness not less than 5/8 inch 18 millimeter.

Plaster applied on concrete ceilings shall be applied in two coats with total thickness not exceeding 3/8 inch 10 millimeter.

Plaster applied on masonry or concrete walls as basecoat for ceramic tile and other similar materials shall be applied in two coats, with a total thickness of not less than 1/2 inch 15 millimeter.

3.3.4 Finish Surface Tolerances

Finish surfaces on plaster walls and ceilings shall not deviate from a true vertical or horizontal plane by more than 1/8 inch 3 millimeter from the line of a 10-foot 3 meter straightedge placed at any orientation on its surface. Finish surfaces shall be free of bumps and depressions.

3.4 APPLICATION OF BASECOATS

Application of gypsum plaster basecoats on metal lath shall be a scratch coat and a brown coat. Scratch coat shall be applied with sufficient material and pressure to form full keys on metal lath with not less than 1/4 inch 6 millimeter of plaster over the face of the metal lath. Surface of scratch coat shall be roughened for proper bonding of brown coat. Brown coat shall be applied after scratch coat has set and hardened. Brown coat shall be brought out to grounds, straightened to true surfaces and roughened to receive finish coats.

Application of portland cement plaster basecoats on metal lath shall be a scratch coat and a brown coat. Scratch coats shall be applied with sufficient material and pressure to form full keys on metal lath with not less than 1/4 inch 6 millimeter of plaster over the face of the metal lath. Surface of scratch coat shall be roughened for proper bonding of brown coat and kept damp with a fog spray for not less than 24 hours. Brown coat shall be applied after the scratch coat has set but not less than 48 hours after application of scratch coat. Brown coat shall be brought out to grounds, straightened to true surfaces, roughened to receive finish coats, kept moist with a fog spray for not less than 48 hours and then allowed to dry.

Gypsum plaster basecoat on gypsum lath shall be applied with sufficient material and pressure to form a good bond. Basecoat shall be doubled back out to grounds, straightened to true surfaces and roughened to receive finish coats. Thickness of basecoat shall be not less than 3/8 inch 10 millimeter.

Gypsum plaster basecoat on masonry walls shall be applied with sufficient material and pressure to form a good bond. Basecoat shall be doubled back out to grounds, straightened to true grounds and roughened to receive finish coats. Thickness of basecoat shall be not less than 3/8 inch 10 millimeter.

Portland cement plaster basecoat on masonry walls shall be applied with sufficient material and pressure to form a good bond. Bond adhesive shall be applied to the masonry surfaces in strict accordance with the manufacturer's printed instructions in one full even coat with brush or spray. Basecoat shall be doubled back out to grounds, straightened to true grounds, roughened to receive finish coats, kept moist with a fog spray for not less than 48 hours and then allowed to dry. Thickness of basecoat shall be not less than 3/8 inch 10 millimeter.

Gypsum plaster basecoat on concrete walls shall be applied to a thickness of not less than 3/8 inch 10 millimeter after the bonding adhesive has dried. Bond adhesive shall be applied to the concrete surface in strict accordance with the manufacturer's printed instructions in one full even coat with a brush or spray. Basecoat shall be applied with sufficient material and pressure to form good bond with adhesive. Basecoat shall be doubled back out to grounds, straightened to grounds and roughened to receive finish coats. Thickness of basecoat shall be not less than 3/8 inch 10 millimeter.

Portland cement plaster basecoat on concrete walls shall be applied after the bonding adhesive has dried. Bond adhesive shall be applied to the concrete surface in strict accordance with the manufacturer's printed instructions in one full even coat with a brush or spray. Basecoat shall be applied with sufficient material and pressure to form good bond with

adhesive. Basecoat shall be doubled back out to grounds, straightened to true grounds, roughened to receive finish coats, kept moist with a fog spray for not less than 48 hours and then allowed to dry. Thickness of basecoat shall be not less than 3/8 inch 10 millimeter.

Gypsum-plaster basecoat on concrete ceilings shall be applied after the bond adhesive has dried. Bond adhesive shall be applied to the concrete surface in strict accordance with the manufacturer's printed instructions in one full even coat with a brush or spray. Basecoat shall be applied with sufficient material and pressure to form a good bond with adhesive. Basecoat shall be level and straightened to true grounds and roughened to receive finish coats. Thickness of basecoat shall not exceed 1/4 inch 6 millimeter.

Portland cement basecoat on concrete ceilings shall be applied after the bond adhesive has dried. Bond adhesive shall be applied to the concrete surface in strict accordance with the manufacturer's printed instructions in one full even coat with a brush or spray. Basecoat shall be applied with sufficient material and pressure to form a good bond with adhesive. Basecoat shall be level and straightened to true grounds and roughened to receive finish coats. Thickness of basecoat shall not exceed 1/4 inch 6 millimeter.

****
NOTE: Delete options not applicable to the project.
****

3.5 SOUND TRANSMISSION CLASSIFICATION (STC)

3.5.1 STC of Plaster Ceilings

Plaster ceilings shall be applied and finished as specified in the plaster materials manufacturer's written instructions for the following STC.

Plaster ceiling shall have an STC of not less than [46] [40] [35].

3.5.2 STC of Plaster Walls

Plaster walls shall be applied and finished as specified in the plaster materials manufacturer's written instructions for the following STC.

Plaster walls shall have an STC of not less than [46] [40] [35].

3.6 FIRE-RATED PLASTER ASSEMBLIES

3.6.1 Fire Rating of Plaster Ceiling

Plaster ceilings shall be applied and finished as specified in the UL design and test listed by the plaster materials manufacturer for the following fire rating.

Plaster ceilings shall have a fire rating of [3] [2] [1] hours.

3.6.2 Fire Rating of Plaster Walls

Plaster walls shall be applied and finished as specified in the UL design and test listed by the plaster materials manufacturer for the following fire rating.

Plaster walls shall have a fire rating of [3] [2] [1] hours.

3.6.3 Steel-Column Fireproofing

Steel columns shall be fireproofed with lath and plaster materials applied and finished as specified in UL design and test listed by the plaster materials manufacturers for the following fire rating.

Steel columns shall have a fire rating of [4] [3] [2] hours.

3.6.4 Steel Beams, Girders and Truss Fireproofing

Steel beams, girders and trusses shall be fireproofed with lath and plaster materials applied and finished as specified in the UL design and test listed by the plaster materials manufacturers for the following fire rating.

Steel beams, girders and trusses shall have a fire rating of [4] [3] [2] hours.

-- End of Section --