UNIFIED FACILITIES GUIDE SPECIFICATIONS

References are in agreement with UMRL dated January 2021
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08/16, CHG 1: 11/18

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USACE / NAVFAC / AFCEC / NASA	**UFGS-09 23 00 (August 2016)** **Change 1 - 11/18**
Preparing Activity: NAVFAC	**Superseding** **UFGS-09 23 00 (August 2010)**

UNIFIED FACILITIES GUIDE SPECIFICATIONS

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SECTION 09 23 00

GYPSUM PLASTERING
08/16, CHG 1: 11/18

****
NOTE: This guide specification covers the requirements for interior and exterior plaster work.

Adhere to UFC 1-300-02 Unified Facilities Guide Specifications (UFGS) Format Standard when editing this guide specification or preparing new project specification sections. Edit this guide specification for project specific requirements by adding, deleting, or revising text. For bracketed items, choose applicable item(s) or insert appropriate information.

Remove information and requirements not required in respective project, whether or not brackets are present.

Comments, suggestions and recommended changes for this guide specification are welcome and should be submitted as a Criteria Change Request (CCR).
****

****
NOTE: Gypsum plaster refers to interior work. Stucco refers to cement plaster used on the building exterior. Indicate on the project drawings the extent and location of the work to be accomplished, and the type of plaster required.
****

****
NOTE: Specification requirements of a one-coat system are Portland cement plaster with a sand float finish applied to concrete masonry units and concrete surfaces.
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****
NOTE: This specification is for unrestrained stucco and plaster systems. Design and detail the cold-formed metal framing (Section 05 40 00 -

COLD-FORMED METAL FRAMING), lathing (Section 09 22 36 - LATH), and (Section 09 22 00 - SUPPORTS FOR PLASTER AND GYPSUM BOARD) to provide an unrestrained system. Also design and detail sleeve and caulking for fire sprinkler, electrical, and mechanical penetrations to avoid transferring structural or vibrational loads from these systems to the plaster panels.

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NOTE: For terminology on gypsum plaster, refer to latest edition of Portland Cement Plaster (Stucco) Manual by Portland Cement Association and ASTM C11 Standard Terminology Relating to Gypsum and Related Building Materials and Systems.

****

PART 1 GENERAL

1.1 REFERENCES

****

NOTE: This paragraph is used to list the publications cited in the text of the guide specification. The publications are referred to in the text by basic designation only and listed in this paragraph by organization, designation, date, and title.

Use the Reference Wizard's Check Reference feature when you add a Reference Identifier (RID) outside of the Section's Reference Article to automatically place the reference in the Reference Article. Also use the Reference Wizard's Check Reference feature to update the issue dates.

References not used in the text will automatically be deleted from this section of the project specification when you choose to reconcile references in the publish print process.

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The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM INTERNATIONAL (ASTM)

ASTM C28/C28M	(2010) Gypsum Plasters
ASTM C35	(2001; R 2019) Inorganic Aggregates for Use in Gypsum Plaster
ASTM C59/C59M	(2000; R 2020) Standard Specification for Gypsum Casting Plaster and Gypsum Molding Plaster
ASTM C61/C61M	(2000; R 2011) Gypsum Keene's Cement

ASTM C206	(2014) Standard Specification for Finishing Hydrated Lime
ASTM C472	(2020) Physical Testing of Gypsum, Gypsum Plasters and Gypsum Concrete
ASTM C631	(2009; R 2020) Bonding Compounds for Interior Gypsum Plastering
ASTM C842	(2005; E 2010; R 2010) Application of Interior Gypsum Plaster
ASTM E1042	(2002; R 2014) Acoustically Absorptive Materials Applied by Trowel or Spray

FM GLOBAL (FM)

FM APP GUIDE	(updated on-line) Approval Guide http://www.approvalguide.com/

UNDERWRITERS LABORATORIES (UL)

UL Fire Resistance	(2014) Fire Resistance Directory

1.2 SUBMITTALS

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NOTE: Review Submittal Description (SD) definitions in Section 01 33 00 SUBMITTAL PROCEDURES and edit the following list, and corresponding submittal items in the text, to reflect only the submittals required for the project. The Guide Specification technical editors have classified those items that require Government approval, due to their complexity or criticality, with a "G." Generally, other submittal items can be reviewed by the Contractor's Quality Control System. Only add a "G" to an item if the submittal is sufficiently important or complex in context of the project.

For Army projects, fill in the empty brackets following the "G" classification, with a code of up to three characters to indicate the approving authority. Codes for Army projects using the Resident Management System (RMS) are: "AE" for Architect-Engineer; "DO" for District Office (Engineering Division or other organization in the District Office); "AO" for Area Office; "RO" for Resident Office; and "PO" for Project Office. Codes following the "G" typically are not used for Navy, Air Force, and NASA projects.

The "S" classification indicates submittals required as proof of compliance for sustainability Guiding Principles Validation or Third Party Certification and as described in Section 01 33 00 SUBMITTAL PROCEDURES.

Choose the first bracketed item for Navy, Air Force, and NASA projects, or choose the second bracketed item for Army projects.

Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are [for Contractor Quality Control approval.][for information only. When used, a code following the "G" classification identifies the office that will review the submittal for the Government.] Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

NOTE: Request for samples as noted below only where walls are textured.

SD-03 Product Data

Gypsum Base Coat Plaster

Gypsum Finish Coat Plaster

SD-04 Samples

Sample Panel; G[, [_____]]

Submit four 900 mm 36 inch square panels of varying texture for the Contracting Officer's approval.

Gypsum Plaster Full Size Sample; G[, [_____]]

SD-08 Manufacturer's Instructions

Ready-Mix Gypsum Plaster

[Acoustical Plaster Finish

] Submit manufacturer's printed mixing instructions for ready-mix plaster[and acoustical plaster finish].

[1.3 QUALITY ASSURANCE

1.3.1 Sample Panels

Erect sample panel at the building site, or as otherwise directed. Finished gypsum plaster work must match the approved sample panel.

]1.4 DELIVERY, STORAGE, AND HANDLING

Deliver manufactured materials in the manufacturers' original unbroken packages or containers which are labeled plainly with the manufacturers' names and brands. Keep cementitious materials dry and stored off the ground, under cover, and away from sweating walls and other damp surfaces until ready for use. Keep materials wrapped and separate from off-gassing materials, such as paints and adhesives. Do not use materials that have visible moisture or biological growth.

1.5 GYPSUM PLASTER FULL SIZE SAMPLE

After selection of an acceptable texture, construct a sample [panel] [wall] separate from the building, minimum size of [2400] [_____] mm [8] [_____] ftin height, by [2400] [_____] mm [8] [_____] ft in length, using 150 mm6 inch metal studs, and gypsum board, metal lath and gypsum plaster. The sample wall must show all aspects of gypsum plaster work, including but not limited to, expansion joints, control joints, corner extrusions,[[electrical][mechanical][and][fire sprinkler] penetration[s]] and casing beads. A sample of a control joint and extrusion butt joint must also be incorporated into the sample wall. Finish work must match the approved sample panel.[Divide the panel into four equal quadrants with the expansion and control joints to show each phase of work, lath, scratch coat, brown coat, and finish coats.] Provide and protect the sample wall from damage during the length of the contract.

1.6 SCHEDULING AND ENVIRONMENTAL REQUIREMENTS

Commence application only after the area scheduled for gypsum plastering work is completely weathertight. The heating, ventilating, and air-conditioning systems must be complete and in operation prior to application of the plaster. If the mechanical system cannot be activated before veneer plastering is begun, the plastering may proceed in accordance with an approved plan to maintain the environmental requirements specified below. Apply plaster prior to the installation of finish flooring and acoustic ceiling.

1.6.1 Environmental Requirements

****

NOTE: Gypsum plaster is a very thin coating that will be adversely affected by extreme of non-uniform drying conditions and by rapid changes in temperature. It should not be used in spaces where adequate environmental control cannot be obtained.

****

Do not expose the gypsum base to excessive sunlight prior to plaster application, as bond failure of the plaster may result. Maintain a continuous uniform temperature of not less than 10 degrees C 50 degrees F and not more than 27 degrees C 80 degrees F for at least one week prior to the application of veneer plaster, while the plastering is being done, and for at least one week after the plaster is set. Shield air supply and distribution devices to prevent any uneven flow of air across the plastered surfaces. Provide ventilation to exhaust moist air to the outside during plaster application, set, and until plaster is dry. In glazed areas, keep windows open top and bottom or side to side 75 to 100 mm 3 to 4 inches. Openings can be reduced in cold weather. For enclosed areas lacking natural ventilation, provide temporary mechanical means for ventilation. In unglazed areas subjected to hot, dry winds or temperature differentials from day to night of 10 degrees C 20 degrees F or more, screen openings with cheesecloth or similar materials. Avoid rapid drying. During periods of low indoor humidity, provide minimum air circulation following plastering and until plaster is dry.

[1.7 FIRE RESISTIVE COATINGS

****

NOTE: For fire-resistive assemblies, drawing

details must follow the tested and approved designs. The addition of gypsum plaster to an approved gypsum wallboard design will improve the fire-resistive properties of the partitions. Tested and approved designs are published by gypsum wallboard manufacturers, Underwriters Laboratory, and Factory Mutual, and are included in the Gypsum Association Fire Resistance Design Manual.
****

Comply with specified fire-rated assemblies for design numbers indicated per UL Fire Resistance or FM APP GUIDE.

]PART 2 PRODUCTS

2.1 MATERIALS

Conform to the specifications, standards, and requirements specified herein. Provide asbestos-free materials.

2.2 GYPSUM BASE COAT PLASTER

[2.2.1 Gypsum Neat Plaster Base Coat

ASTM C28/C28M.

][2.2.2 Gypsum Ready-Mixed Plaster Base Coat

ASTM C28/C28M.

][2.2.3 Gypsum Wood-Fibered Plaster Base Coat

ASTM C28/C28M.

][2.2.4 High Strength Gypsum Plaster Base Coat

ASTM C28/C28M, gypsum neat plaster, except plaster must have a compressive strength of not less than 17.25 MPa 2,500 psi, when tested dry in accordance with ASTM C472.

]2.3 GYPSUM FINISH COAT PLASTER

[2.3.1 Gypsum Gauging Plaster Finish Coat

ASTM C28/C28M.

][2.3.2 High Strength Gypsum Gauging Plaster Finish Coat

****
NOTE: High strength gauging plaster, when blended with finish lime-putty, produces a finish plaster with controlled set, early hardness and strength, and resistance to shrinkage cracks.
****

ASTM C28/C28M, gypsum gauging plaster, except plaster must have a compressive strength of not less than 31 MPa 4,500 psi when tested dry in accordance with ASTM C472.

][2.3.3 Gypsum Molding Plaster for Ornamental Plaster

ASTM C59/C59M.

][2.3.4 Keene's Cement Finish Coat

ASTM C61/C61M.

][2.3.5 Acoustical Plaster Finish Coat

****

NOTE: Selected type and grade of plaster to provide the required acoustical characteristics. Acoustical plaster is not recommended for use in places where heavy abrasion and rough usage is expected.

A Portland cement - lime mix is corrosive to metal lath in high humidity/ salt intensive areas. For high humidity areas or project locations with Environmental Severity Classifications (ESC) of C3 thru C5, to reduce plaster and stucco cracking, delete the lime and substitute a liquid plasticizing agent with a resin compound as the principal ingredient. The result produces a material with greater resistance to most climatic effects and minimizes structure related cracking. Humid project locations are those in ASHRAE climate zones 0A, 1A, 2A, 3A, 3C, 4C and 5C (as identified in ASHRAE 90.1). See UFC 1-200-01 for determination of ESC for project locations.

If surface is to be painted, do not use coral aggregate in the plaster system. If no option is available, use sodium silicate system for stabilization.

****

ASTM E1042 Type [I,] [II,] Class A, noncombustible.

]2.4 HYDRATED LIME

ASTM C206, Type S.

2.5 AGGREGATES

2.5.1 Sand for Gypsum Base Coats

ASTM C35.

Sand Gradation: Percentage retained by weight (plus or minus 2 percent) on each sieve.

Sieve Size	Maximum	Minimum
No. 4 [4760 microns]	0	0

Sieve Size	Maximum	Minimum
No. 8 [2380 microns]	5	0
No. 16 [1190 microns]	30	5
No. 30 [590 microns]	65	30
No. 50 [300 microns]	95	65
No. 100 [150 microns]	100	90

2.5.2 Sand for Gypsum Sand Float Finish

****

NOTE: Aggregates for finish-coat plaster should be less than No. 16 sieve size. Larger sizes may be added for finish appearance purposes. Select sieve number that will provide the desired texture. Float texture is governed by maximum sieve sizes of sand. Sieve sizes of 20 to 30 provide a fine float finish and 16 to 20 provide a coarse finish.

****

ASTM C842.

Sand Gradation: Percentage retained by weight (plus or minus 2 percent) on each sieve.

Sieve Size	Maximum	Minimum
No. 20 [850 microns]	0	
No. 30 [590 microns]	0.5	
No. 100 [150 microns]	100	40
No. 200 [75 microns]	100	70

2.5.3 Lightweight Aggregates, Perlite or Vermiculite for Gypsum Base Coat

ASTM C35.

2.5.4 Silica Sand or Perlite Fines

For use in lime-putty gypsum-gauged finish, aggregated white coat, must have the following gradation: 10 percent maximum retained on a No. 30 sieve (590 microns), 4 percent minimum and 70 percent maximum retained on a No. 100 sieve (150 microns), and 70 percent minimum and 100 percent maximum retained on No. 200 sieve (75 microns).

2.6 WATER

Use only potable water, free of mineral and organic substances that affect the hardening and durability of the plaster or stucco.

2.7 PROPORTIONING

Unless specified otherwise, materials are specified on a volume basis and must be measured in approved containers, to ensure that the specified proportions will be controlled and accurately maintained during the progress of the work. Measuring materials with shovels (shovel count) is not be permitted. Prepare ready-mix gypsum plaster for use by the addition of water only.

2.7.1 Gypsum Base Coat Plaster

****
NOTE: List all conditions where sand or lightweight aggregate should not be used.
****

Use of sand or lightweight aggregate is optional in gypsum plaster basecoats, except provide (1) sand for Keene's cement and high strength gypsum-gauged finish coats; (2) lightweight aggregate when necessary for a required fire resistance rating [; and (3) [_____]].

2.7.1.1 Sand and Gypsum Plaster Base Coat

Mix scratch coat in the proportion of 45 kg 100 lb of gypsum neat plaster to not more than 56 liter 2 cu ft of damp loose sand; mix brown coat in the proportion of 45 kg 100 lb of gypsum neat plaster to not more than 85 liter 3 cu ft of damp loose sand; or scratch and brown coats may both be mixed in the proportion of 45 kg 100 lb of gypsum neat plaster to not more than 70 liter 2-1/2 cubic feet of damp loose sand.[Mix the basecoats for double-up work in the proportion of 45 kg 100 lb of gypsum neat plaster to[not more than 70 liter 2-1/2 cu ft of damp loose sand on gypsum lath][and][not more than 85 liter 3 cu ft of damp loose sand on masonry].]

2.7.1.2 Lightweight Aggregate and Gypsum Plaster Base Coat

Mix scratch coat in the proportion of 45 kg 100 lb of gypsum neat plaster to[not more than 70 liter 2-1/2 cu ft of lightweight aggregate on gypsum lath,][and][not more than 85 liter 3 cu ft of lightweight aggregate on masonry]. Mix brown coat in the proportion of 45 kg 100 lb of gypsum neat plaster to[not more than 70 liter 2-1/2 cu ft of lightweight aggregate on gypsum lath][and][not more than 85 liter 3 cu ft of light weight aggregate on masonry]. Where plaster thickness exceeds 25 mm one inch, the aggregate proportion may be increased to 85 liter 3 cu ft. [Mix the basecoats in two-coat double-up work in the proportion of 45 kg 100 lb of gypsum neat plaster to[not more than 70 liter 2-1/2 cu ft of lightweight aggregate on gypsum lath][and][not more than 85 liter 3 cu ft of lightweight aggregate on masonry]]. Gypsum ready-mixed plaster with perlite aggregate may be provided in lieu of field-mixed lightweight aggregate and gypsum plaster, provided the specified proportion of aggregate to plaster does not exceed the proportion specified for field-mixed plaster.

2.7.1.3 Sand and Wood Fibered Gypsum Plaster Base Coat

****
NOTE: Because of its higher cost, specify wood-fibered gypsum plaster only when needed; e.g., for fireproofing.
****

Mix basecoats in the proportion of 45 kg 100 lb of wood-fibered gypsum plaster to not more than 28 liter one cu ft of damp loose sand.

2.7.1.4 Sand and High-Strength Gypsum Plaster Base Coat

****

NOTE: Specify high strength gypsum plaster base coat only where needed to withstand heavy abuse; e.g., hospital corridors, handball courts, etc.

****

Mix scratch coat in the proportion of 45 kg 100 lb of high strength gypsum base coat plaster to not more than 56 liter 2 cu ft of damp loose sand. Mix brown coat in the proportion of 45 kg 100 lb of high strength gypsum basecoat plaster to not more than 85 liter 3 cu ft of damp loose sand.

2.7.2 Gypsum Plaster Finish Coat

****

NOTE: Do not use gypsum plaster in areas where the ceiling and walls will be subjected to frequent moisture or wetting.

****

2.7.2.1 Lime-Putty

Prepare lime-putty in accordance with the printed directions of the manufacturer. Use putty following preparation or following a soaking period as recommended by the manufacturer.

2.7.2.2 Lime-Putty Gypsum-Gauged (White Coat)

Use over[sand and gypsum plaster][sand and wood-fibered gypsum plaster]. Mix finish coat in the proportions of one part of gypsum gauging plaster to a volume of hydrated lime or lime putty.

This mix is approximately equivalent to one 45 kg 100 lb bag of gypsum gauging plaster to:

a. Not more than four 22.5 kg 50 lb bags of hydrated lime, or

b. Not more than 127 liter 4-1/2 cu ft of lime putty, or

c. Not more than 132 liter 35 gal of lime putty.

2.7.2.3 Aggregated Finish Coat

****

NOTE: Specify aggregated white coat where a smooth trowel finish is required over perlite or vermiculite base coats. Do not use smooth trowel finish over lightweight aggregate base coat or metal lath.

****

Finish coat must consist of the lime-putty, gypsum-gauged finish specified herein with the addition of fine pulverized silica sand or perlite fines in the following proportions:

a. 14 liter per 45 kg 1/2 cu ft per 100 lb bag of gypsum gauging plaster used in finish, or

b. 3.5 liter per 22.5 kg 1/8 cu ft per 50 lb bag of hydrated lime, or

c. 3.8 liter per 7.5 liter one gal per cu ft of lime-putty.

2.7.2.4 Gypsum Sand Float Finish[for [_____]]:

****

NOTE: Do not use this type finish in bathrooms, kitchens, and other similar places requiring a constant cleaning cycle.

****

Mix finish in the proportion of one part neat unfibered gypsum plaster to not more than two parts of sand, by weight.

2.7.2.5 Keene's Cement Lime-Putty Finish[for [_____]]

****

NOTE: Do not use Keene's cement as finish coat over a portland cement plaster base coat, or on monolithic concrete, due to the probability of unsatisfactory bond between the materials. Not recommended over lightweight aggregate base coats.

****

Mix finish in the proportion of not more than 45 kg 100 lb of lime putty to 45 kg 100 lb of Keene's cement.

2.7.2.6 High Strength Gypsum-Gauged Plaster Finish[for [_____]]

****

NOTE: Specify high-strength gypsum-gauged finish plaster where surface hardness and resistance to abrasion are required. Not recommended over lightweight aggregate base coats.

****

Mix finish in the proportion of 90 kg 200 lb of high strength gauging to 45 kg 100 lb of hydrated lime.

2.7.2.7 Acoustical Plaster Finish[for [_____]]

Mix finish in accordance with manufacturer's printed instructions.

2.8 MIXING

2.8.1 Job-Mixed Materials

Mix materials in mechanical mixers except finish coats containing lime may be hand mixed. Mechanical mixers must be an approved type that accurately and uniformly controls the quantity of water. When mixing by hand, mix dry plaster aggregate to a uniform color in the mixing box, add water, and hoe the plaster immediately into the water and mix thoroughly to a proper consistency.

2.8.1.1 Water

Water used for rinsing and cleaning containers and tools must not be used in mixing the materials.

2.8.1.2 Sand

Sand proportions must be damp and in loose condition. A volume of damp loose sand must contain a minimum of 36 kg 80 lb of dry sand in 0.0283 cu m one cu ft.

2.8.1.3 Mixing (Do's)

Mix the material while the mixer is in continuous operation in the following sequence:

a. Add maximum close to 90 percent of estimated quantity of water.

b. Add approximately one-half of the sand. If vermiculite or perlite is used, add all the aggregate.

c. Add cement and approved admixtures. [Add lime prior to cement.]

d. Add remainder of sand.

e. Mix with remainder of water as required. Mix until the mixture is uniform in color and consistency.

2.8.1.4 Mixing (Don'ts)

Avoid excessive mixing and agitation. Discard gypsum plaster which has begun to set before it is used; do not permit retempering. Do not use frozen, caked, or lumped materials. Empty mixers and mixing boxes after each batch is mixed, and keep free of old plaster.

2.8.2 Ready-Mixed Packaged Materials

Mix ready-mixed packaged gypsum plaster in accordance with manufacturer's printed instructions.

2.9 BONDING AGENT

****

NOTE: Bonding agents may be surface applied or integrally mixed with the plaster. Use Integral bonding agents only after review of the manufacturer's documentation of testing and past performance. Check compatibility of the bonding agent with the plaster mixtures. Bonding admixtures increase the potential for shrinkage of the plaster.

****

ASTM C631, interior application.

PART 3 EXECUTION

3.1 SURFACE PREPARATION

Clean surfaces before application of gypsum plaster of projections, dust,

loose particles, grease, bond breakers, and foreign matter. Do not apply plaster directly to surfaces (1) of masonry or concrete that have been coated with bituminous compound or other waterproofing agents, or (2) that have been painted or previously plastered. Before plaster work is started, wet masonry and concrete surfaces thoroughly with a fine fog spray of clean water to produce a uniformly moist condition. Check metal grounds, corner beads, screeds, and other accessories carefully for alignment before starting work. Do not apply gypsum plaster to surfaces containing frost.

3.2 WORKMANSHIP

3.2.1 Slump Tests

Apply Plaster by hand or machine. When a plastering machine is used, control the fluidity of gypsum plaster to have a slump of not more than 75 mm 3 inch when tested using a 50 by 100 by 150 mm 2 by 4 by 6 inch high slump cone. Subsequent to determining water content to meet the specified slump, do not add additional water to the mix. Conduct the slump test according to the following procedure:

a. Place cone on level, dry, non-absorptive base plate.

b. While holding cone firmly against base plate, fill cone with plaster taken directly from the hose or nozzle of the plastering machine, tamping with metal rod during filling to release air bubbles.

c. Screed off plaster level with top of cone. Remove cone by lifting it straight up with a slow and smooth motion.

d. Place cone in a vertical position adjacent to freed plaster sample, using care not to shake or move base plate.

e. Lay a straightedge across top of cone, being careful not to shake or move cone. Measure slump in mm inch from the bottom edge of the straightedge to the top of the slumped plaster sample.

3.2.2 Application

Apply gypsum plaster in three coats, except as follows:

Gypsum plaster applied to [masonry] [and] [gypsum lath] using the two-coat double-up method.

Apply base coats with sufficient pressure and ensure plaster is sufficiently plastic to provide a strong bond to bases. Work base coats into screeds at intervals from 1500 to 2400 mm 5 to 8 ft. Plaster must not be continuous across expansion and control joints occurring in walls, partitions, and ceilings. Finish work level, plumb, square, and true, within a tolerance of 3 mm in 2400 mm 1/8 inch in 8 ft, without waves, cracks, blisters, pits, crazing, discoloration, projections, or other imperfections. Form plaster work carefully around angles and contours, and well-up to screeds. Take special care to prevent sagging and consequent dropping of applications. There must be no visible junction marks in finish coat where one day's work adjoins another.[Plastered surfaces to receive[rubber or vinyl base coves][wood base boards] must extend to wood ground indicated as backing for base.] Plaster not required behind built-in cabinets and equipment[, and [_____]] unless part of a fire-rated assembly.

3.2.3 Control And Expansion Joints

[Install control joints at locations indicated before applying gypsum plaster. Vertical joints must be continuous and butt horizontal joints against the vertical joints.]Check expansion, control joints and accessories to ensure unrestrained movement, metal lath not continuous behind the joints, and area between joints do not exceed 14 sq m 150 sq ft.

3.2.4 Curing

3.2.4.1 Gypsum Plaster

Before the plaster has set, provide environmental controls to prevent the plaster from drying too fast. After the plaster has set, provide for rapid drying to develop high strength.

3.3 GYPSUM PLASTER WORK

ASTM C842.

****

NOTE: Gypsum basecoat plaster may be by one of two methods for a three-coat or two-coat (double back) systems. The three-coat plaster system will require a basecoat of a scratch coat, cross raked, partial drying, and a brown coat. The two-coat plaster system requires a scratch coat and a brown coat that is applied (double back) within a few minutes to the unset (moist) scratch coat. The cross raking of the scratch coat is omitted in the double back system.

****

3.3.1 Gypsum Plaster Thickness Requirements

Plaster thicknesses are from face of metal lath plaster base (scratch coat) or solid base surfaces.

a. Vertical Surfaces

Base Types	Base Coat	Finish Coat	Total Thickness
Metal Lath	13 mm 1/2 inch	3 mm 1/8 inch	16 mm 5/8 inch
Masonry	13 mm 1/2 inch	3 mm 1/8 inch	16 mm 5/8 inch
Concrete	13 mm 1/2 inch	3 mm 1/8 inch	16 mm 5/8 inch
Other Bases	10 mm 3/8 inch	3 mm 1/8 inch	13 mm 1/2 inch

b. Horizontal Surfaces. Total plaster thickness for metal lath plaster, masonry and concrete bases is 16 mm 5/8 inch. Total thickness of plaster for horizontal concrete surfaces is 3 to 10 mm 1/8 to 3/8 inch.

c. Where vertical and horizontal concrete surfaces require more than 16 mm 5/8 inch and 10 mm 3/8 inch, to produce required lines or surfaces, [attach metal plaster base for plaster application] [as indicated].

3.3.2 Gypsum Plaster Basecoat Work

3.3.2.1 Gypsum Two-Coat System

Apply the first coat to cover the base with sufficient material and pressure to form a good bond on the wall or ceiling base. Before the first coat has set and without scratching or cracking the surface, apply a second coat (double back) of the same material proportion as the base coat to the screeds. Straighten to a true surface without application of water, and cross rake or scratch to receive the finish coat.

3.3.2.2 Gypsum Three-Coat System

Apply scratch coat 5 to 6 mm 3/16 to 1/4 inch thick to cover the base with sufficient material and pressure to form a good bond on the wall or ceiling base. Rake or scratch the surface and allow to set firm and hard. Apply the brown coat to bring the base coat out to the screeds, compact and straighten to a true surface without the application of water, and cross rake or scratch to receive the finish coat.

3.3.3 Gypsum Plaster Finish Coats

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NOTE: Do not specify rough textured finishes bathrooms, kitchens, and other similar type places, which require a constant cleaning cycle.
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NOTE: There are six gypsum finish coat plasters, each with a specific function:

Smooth Finishes: Gypsum-lime putty trowel finish Keene's cement-lime putty trowel finish Prepared gypsum trowel finish

Float Finishes: Keene's cement-lime sand float finish Gypsum-sand float finish

Acoustical Plaster Finishes
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Moderately moisten or fog spray base coat of plaster that has become dry before finish coat is applied. Accelerate plaster, if necessary, to provide a setting time of not more than 4 hours from the time the plaster is mixed.

3.3.3.1 Lime-Putty and Gypsum-Gauged Finish Coats

Apply lime-putty gypsum-gauged finish white coat or aggregated white coat [and high strength gypsum gauged finish] over the base coat, scratch in thoroughly, lay on well, double back, and fill out to a true, even surface. Allow the finish to dry a few minutes, then trowel well with water. Apply maximum pressure in order to compact the finish coat and provide a smooth finish free from blemishes and irregularities. Apply trowel finish coats of gypsum-gauged lime-putty over properly prepared base coats as thin as possible and 2 to 3 mm 1/16 to 1/8 inch thick for conventional plaster system, except as necessary in spots to level out hollows in base coat.

3.3.3.2 Keene's Cement Lime-Putty Finish Coat

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NOTE: Do not use Keene's cement as finish coat over a portland cement plaster basecoat, or on monolithic concrete, due to the probability of unsatisfactory bond between gypsum and portland cement materials.

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Apply finish over gypsum-sand base coat only, scratch in thoroughly, lay on well, double back, and fill out to a true, even surface. Allow the finish to dry a few minutes, then trowel it well with water. Apply maximum pressure in order to compact the finish coat and provide a smooth finish free of blemishes and irregularities. Continue troweling until the finish sets.

3.3.3.3 Gypsum Sand Float Finish Coat

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NOTE: Specify type of float required to produce the texture desired.

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Apply finish over the base coat, scratch in thoroughly, lay on with a trowel to an even surface, and then float with [_____] floats to a true, even surface, free of slick spots or other blemishes. Apply sand float finishes to a maximum thickness of 3 mm 1/8 inch except as necessary to level out hollow spots.

3.3.3.4 Acoustical Plaster Finish Coat

Apply finish in accordance with manufacturer's printed instructions and in the thickness necessary to provide the sound absorption coefficient specified, but not be less than 13 mm 1/2 inch thick.

3.4 ORNAMENTAL PLASTER WORK

Complete ornamental work before the finish coat of plaster is applied to adjoining areas. Plaster for ornamental work must consist of a mixture that will produce satisfactory results for the respective conditions, be reinforced properly with fiber or zinc-coated steel wire netting as necessary to provide permanent construction, and be rigidly secured in place. Run plain moldings in place to templates and guides, with true radial lines for curved work; where it is not practicable to run such moldings, cast or run them on a bench and then secure in place firmly. Cornices and moldings must be straight or curved, true to line, and corners neat.

3.5 PATCHING AND POINTING

Cut out and patch loose, cracked, damaged, or defective gypsum plaster. Patch must match existing work in texture, color and finish flush with previously applied gypsum plaster surfaces. Point work abutting or

adjoining finish work in a neat manner. Remove droppings or spatterings from surfaces. Leave clean and in a condition to receive paint or other finish. Remove protective covering from floors and other surfaces, and rubbish and debris from [the interior and exterior of] the building.

-- End of Section --