AIA FILE NUMBER 4-2

PLAINTIFF'S EXHIBIT

USG-1715

TECHNICAL INFORMATION

GYPSUM PLASTERS

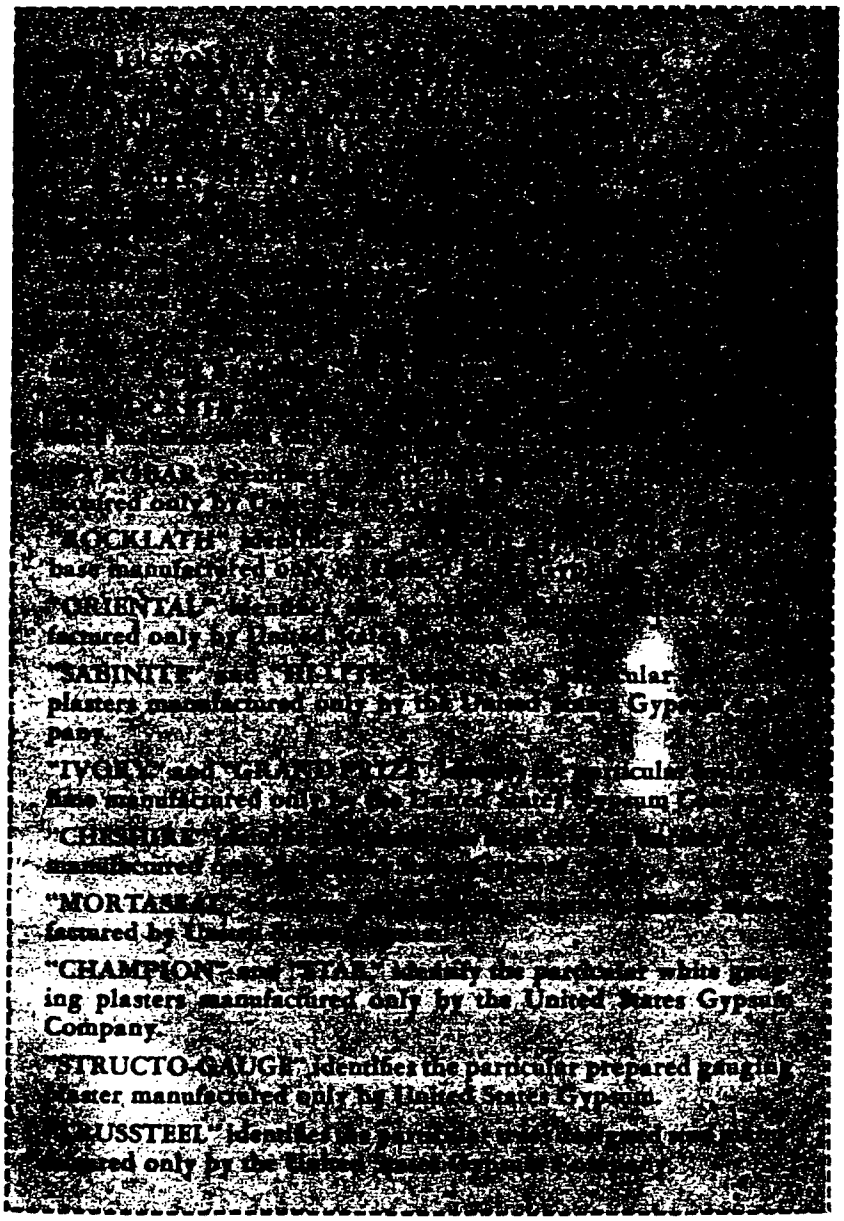
AND FINISHING LIMES

UNITED STATES GYPSUM
The Greatest Name in Building

GENERAL OFFICES—300 WEST ADAMS STREET, CHICAGO 6, ILLINOIS

1955

AIA FILE NUMBER



[illegible]

[illegible]

[illegible]

"[illegible]" [illegible] factured only by [illegible]

"ROCKLATH" [illegible] base manufactured only [illegible]

"ORIENTAL" [illegible] factured only by United States [illegible]

"SABINITE" and "[illegible]" [illegible] particular plasters manufactured only by the United States Gypsum Company.

"IVORY" and "GRAND PRIZE" [illegible] particular [illegible] lime manufactured only by the United States Gypsum [illegible]

"CHESHIRE" [illegible] manufactured [illegible]

"MORTASEAL" [illegible] factured by [illegible]

"CHAMPION" and "STAR" identify the particular white gauging plasters manufactured only by the United States Gypsum Company.

"STRUCTO-GAUGE" identifies the particular prepared gauging plaster manufactured only by United States Gypsum.

"TRUSSTEEL" identifies [illegible] factured only by the United States Gypsum Company.

CS016 1159

RED TOP* STRUCTO-LITE* PLASTER

DESCRIPTION

RED TOP STRUCTO-LITE plaster is a high quality basecoat plaster formulated at the mill by proportioning a select expanded perlite with gypsum plaster.

STRUCTO-LITE is packaged in 80 lb. bags (regular) and 67 lb. bags (masonry) and requires the addition of clean water *only* on the job.

Complies with A.S.T.M. Designation C28-50 for "Gypsum Ready Mixed Plaster." The perlite used complies with ASTM Designation C35-53T "Inorganic Aggregate for use in Interior Plaster."



FUNCTION AND UTILITY

1. Uniformly Strong Walls—Proper proportioning of cement plaster with a well graded, controlled-density, perlite aggregate and a mill-controlled set that help insure strength in the plaster slab.

2. Uniform Hardness—Because the perlite in STRUCTO-LITE plaster is manufactured to conform with exacting specifications for density, strength and gradation, and is thoroughly mixed with the cement plaster at the mill.

3. Over Fifty Per Cent Less Weight in the finished plaster. Large savings in framing costs are possible due to this saving in weight.

4. More Fire Resistant—Greatly increased fire resistant ratings over those attained with sand in plastered walls and ceilings. Ideally suited where building code requirements demand maximum fire ratings not attainable with sand. For example:

a. 3/8" Perforated ROCKLATH plaster base attached to wood studs spaced 16" o.c. with R-1 Resilient Clips, plastered to 1/2" grounds with STRUCTO-LITE—1 hr. fire rating.

b. 3/8" Perforated ROCKLATH nailed to wood joists spaced 16" o.c. and plastered to 1/2" grounds with STRUCTO-LITE—1 hour fire rating.

c. 3/8" Perforated ROCKLATH attached with BRACE-TITE clips to TRUSSTEEL Studs, plastered to 1/2" grounds with STRUCTO-LITE—1 hour fire rating.

d. Steel joists 24" o.c.: 2" concrete over 3/8" rib lath top of joists: 3/8" perforated ROCKLATH attached with BRACE-TITE Clips to 3/4" channels 16" o.c. wire-tied to joists, plastered with STRUCTO-LITE to 5/8" grounds—1 hour fire rating.

STRUCTO-LITE plaster, having a mortar weight of half that of a gypsum-sand plaster proportioned 1:3, still develops comparable tensile and compressive strengths. STRUCTO-LITE is strong, quick-drying, light weight, and easy to finish over.

"k" FACTOR = 1.4 (approximate) or about 3 times the insulation value of a gypsum-sand basecoat.

LIMITATIONS

Same as paragraphs **2** to **8** under Limitations for use on RED TOP Cement Plaster, page 4.

9. On jobs where STRUCTO-LITE is used to plaster over radiant panel heating systems, the system must be designed by the heating engineer to allow for the insulating value of STRUCTO-LITE. If the design did not contemplate an insulating value equivalent to that of STRUCTO-LITE, do not use it over radiant heating panel portions of the job. See Limitation 8 referred to above.

CS016 1160

Trademarks Reg. U. S. Pat. Off.

RED TOP CEMENT PLASTER

DESCRIPTION

RED TOP Cement Plaster is a neat gypsum plaster requiring the addition of an aggregate and water on the job. It is the basecoat that receives the finish coat plaster.

Complies with ASTM Designation C28-50 for "Gypsum Neat Plaster" and Federal Specification SS-P-402, Type N.

FUNCTION AND UTILITY

RED TOP Cement Plaster is used for scratch (1st coat) and brown (2nd coat) wherever good plastering aggregate is available.

Fireproof—Made from gypsum rock, it is incombustible and will not transmit high temperatures until completely calcined: a slow process. In this respect, gypsum plaster is unique. See fire test data page 6, for authoritative fire ratings.

Adaptable—RED TOP Cement Plaster bonds firmly with ROCKLATH plaster base, metal lath, fiber insulation lath, PYROBAR gypsum partition tile, clay tile, porous brick and certain other approved plaster bases.

RED TOP Cement Plaster is the standard of excellence for receiving such finish coats as lime, putty, keene's cement, gypsum trowel finish, gypsum float finish, ORIENTAL* interior colored finish, acoustical plasters, etc. It is excellent base for adhesive application of acoustical tile.

RED TOP Cement Plaster is plastic, permitting wide latitude in its use for plain or curved surfaces.

Uniform—RED TOP Cement Plaster is manufactured on a nation-wide basis within narrow limits of tolerance. Its "stabilized set" minimizes the hazards due to impure water or aggregate and job conditions. Its set is adjusted for seasonal conditions.

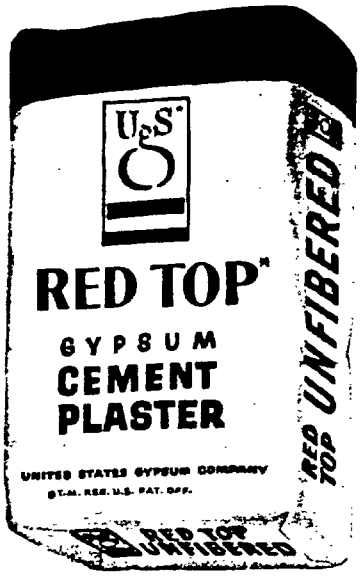
Strong—When mixed with good sand according to specifications, RED TOP Cement Plaster has a compressive strength up to 1,200 lbs. psi for normal mixes (see test data, page 6). It is capable of withstanding normal wear and usage for the life of the building.

Economical—RED TOP Cement Plaster is lowest in cost of the various types of gypsum basecoats because:

The neat plaster is low in cost and is mixed with economical aggregate which increases bulk and coverage.

RED TOP Cement Plaster is highly plastic, thus is easily and quickly applied by the mechanic.

Normal usage requires little or no maintenance.



LIMITATIONS OF USE

1. RED TOP Cement Plaster should have aggregate added strictly according to specifications. Use of too much aggregate drastically decreases its strength. Sand content is easily calculated. A No. 2 shovel full of damp sand weighs approximately 15 lbs. The light weight aggregates are generally shipped in 3 or 4 cu. ft. bags.

2. Two coat plastering not recommended over fiber insulation lath.

3. Under no conditions should RED TOP Cement Plaster be applied to concrete. Use BONDCRETE* Plaster, described on page 5.

4. RED TOP Cement Plaster should not be used where contact with excessive water or moisture is expected. In such instances, use portland cement-lime plaster.

5. RED TOP Cement Plaster is an interior basecoat plaster and should not be used on the exterior where exposed to the elements.

6. Because bituminous compounds do not provide an ideal base for gypsum plaster basecoats, plaster application on masonry walls and concrete that have been coated with these compounds **is not recommended.**

7. Due to possibility of condensation or water seepage, plastering direct to interior side of exterior masonry walls is not recommended. Furring such walls prior to plastering **is recommended.**

8. When used in conjunction with radiant heating systems, the temperature at the surface of the plaster shall not exceed 115° Fahrenheit. The thermal conductivity of gypsum-sand plaster is approximately three times that of a gypsum-lightweight aggregate mix.

**Trademark Reg. U. S. Pat. Off.*

CS015 1161

RED TOP WOOD FIBER PLASTER



DESCRIPTION

RED TOP Wood Fiber Plaster is a factory-prepared gypsum basecoat plaster containing finely-shredded, selected wood fiber. It requires the addition of water only on the job.

Complies with ASTM Designation C28-50 "Gypsum wood-fibered plaster" and Federal Specifications SS-P-402, Type W.

FUNCTION AND UTILITY

Stronger—Compared to plaster sanded 1:3, Wood Fiber Plaster has:

3 times greater compressive and tensile strength.
2½ times greater resistance to lateral impact.
50 per cent greater surface hardness.
Consequently, has greater resistance to cracking.

Fireproof—Generally 50 per cent more fire resistant than sanded plaster. See ratings on page 6.

Factory Prepared—Particularly suitable where good aggregates are unavailable. Avoids dangers of improper proportioning of aggregates.

Lightweight—Dead load is 25 per cent lighter than sanded plaster.

Cost—A wood fiber basecoat plaster job costs approximately 10 to 15 per cent more than RED TOP Cement Plaster sanded on the job.

LIMITATIONS

Same as paragraphs 2 to 7 under Limitations for use of RED TOP Cement Plaster, page 4.

**Trademark Reg. U. S. Pat. Off.*

BONDCRETE* PLASTER



DESCRIPTION

RED TOP BONDCRETE is a gypsum basecoat plaster specially formulated to bond with rough interior monolithic concrete surfaces. It is factory prepared, requiring addition of water only on the job.

There are no ASTM or Federal Specifications covering this type of plaster.

FUNCTION AND UTILITY

BONDCRETE is plaster especially prepared for application to concrete. It provides the bonding plaster to receive a browning, or leveling, coat of RED TOP Cement Plaster or Wood Fiber Plaster when necessary.

If a leveling coat is unnecessary, the finish plaster may be applied directly to the BONDCRETE.

Bonding Strength—BONDCRETE adheres well to properly prepared concrete surfaces. See Surface Preparation under Specifications for proper conditioning of concrete surfaces. This is important.

The thermal coefficient of expansion of BONDCRETE is approximately the same as for concrete.

Low Cost—An economical bonding coat to provide for the application of plaster direct to concrete surfaces.

LIMITATIONS OF USE

1. BONDCRETE should be used only on concrete that is properly prepared for plastering. It should never be applied to smooth concrete. (See RED TOP Cover Coat, page 10.)

2. Maximum thickness of BONDCRETE and basecoat shall not exceed ⅜" on ceilings or ⅝" on walls. If additional thickness is required, metal lath shall be secured to the concrete surfaces.

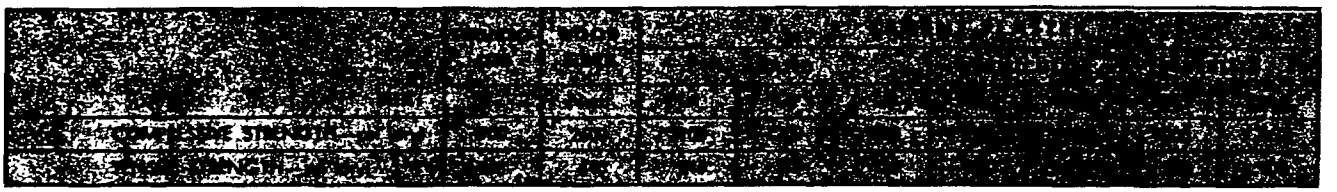
3. The same as paragraphs 4 to 8 under RED TOP Cement Plaster, page 4.

CS016 1162

BASECOAT PLASTERS

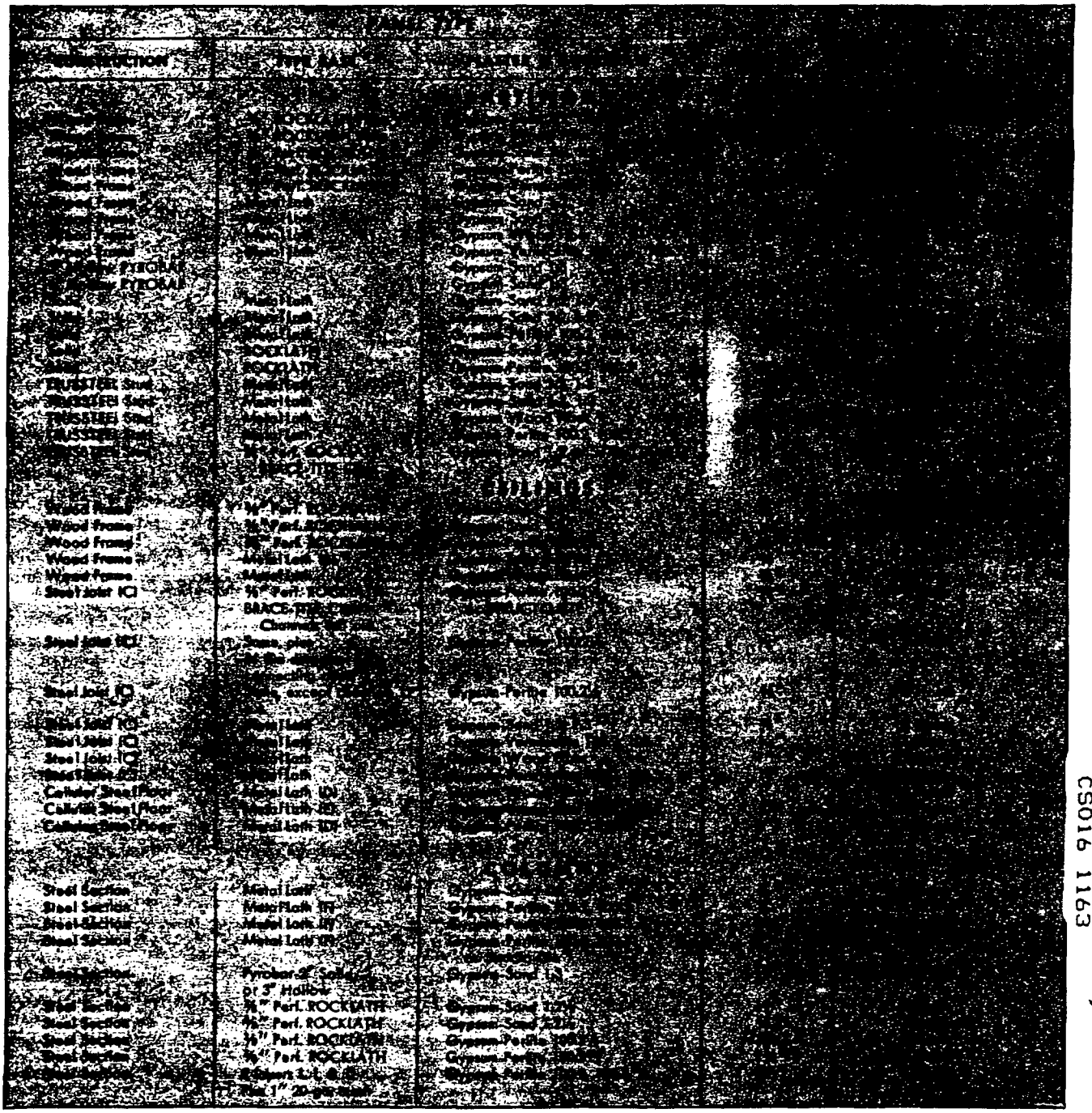
TECHNICAL DATA—AVERAGE TEST RESULTS

(NOTE—results from separate producing plants may vary somewhat—above or below these average figures)



FIRE TEST DATA

(All tests made at nationally recognized fire testing laboratories)



CS016 1163

(A) Lath applied with 1⅛", 13 gauge nails, ⅜" head and joints covered with Striplath. 1¾" nails. (B) Lath applied with 1½", 11 gauge, 7/16" head barbed roofing nails, 6" O.C. (C) 2½" reinforced concrete slab on Riblath or 2" precast gypsum tile above. (D) Ceiling 9" or more below floor slab. (E) Ceiling 3" or more below floor slab. (F) Self-furring metal lath wrapped tight to column or diamond mesh on channel frame not filled solid to column.

FINISHING PLASTERS

DESCRIPTION

The finish coat plaster provides the base for final wall or ceiling decoration. It is applied to a thickness of 1/16" to 1/8", usually over a gypsum plaster basecoat.

Several types of finish coats are available, each with characteristics to serve specific requirements, and generally classified according to the principal cementitious ingredient as follows:

1. Lime and Gauging, commonly known as "white coat" for a smooth white trowel finish. It consists of lime, soaked to a smooth putty, and mixed with gypsum gauging plaster. With addition of sand, is adaptable for sand float finishes. The three essentials to a good white coat job are:

a. Lime must be highly plastic and completely hydrated.

b. Correct proportioning of gauging plaster to lime putty (see specifications) and thorough blending of ingredients.

c. Careful application and sufficient trowelling to produce a smooth glossy surface.

2. Lime and Keene's—for extra hard smooth white trowel finish. With addition of sand, is adaptable for sand float finishes. Also available mill mixed and colored under "ORIENTAL"* Interior Finish brand.

3. Gypsum—Trowel (smooth), or sand float prepared finishes.

4. Acoustical Plaster—(SABINITE*), (USG Hi-Lite) for sound absorption. (See page 10 and AIA Folder 39-B.)

ESSENTIALITY OF COMPLETE HYDRATION IN DOLOMITIC FINISHING LIMES

Some years ago an exhaustive investigation was undertaken by the National Bureau of Standards in co-operation with several architects and lime manufacturers to determine reasons for "lime bulges" (delamination of finish from basecoat) occurring on many government and private buildings. The failures investigated occurred on surfaces which had been "white coated" with *dolomitic* hydrated finishing limes from the Ohio fields, which have been widely used. Failures often occur 5 or 10 years after erection of the buildings.

After much analysis, it was the consensus of opinion that the delayed hydration and attendant expansion of unhydrated oxides in the "normal" dolomitic finishing limes resulted in bulging and delamination.

To correct this difficulty, United States Gypsum Company took the lead in developing "IVORY"* Double Hydrated finishing lime, a "fully" or "pressure" (less than 8 per cent unhydrated) hydrated Ohio dolomitic finishing lime.

ASTM specifications C206-49 for *special* finishing lime and proposed amendments to Federal specifications, have been written to cover 92 per cent hydrated limes; a specification has been published by the National Lime Association. This type of finishing lime is required by ASA Specifications for Gypsum Plastering, A42.1-1950.

Note that all high calcium hydrated limes (properly soaked) comply with these requirements as do high calcium quicklimes (properly slaked).

TECHNICAL DATA—FINISH PLASTERS

	GAUGING PLASTER TO LIME	STRUCTO-GAUGE TO LIME		[illegible] TROWELLING [illegible] TO LIME		[illegible]
[illegible]	[illegible]	1:2 Medium Hard	1:1 Hard	[illegible]	[illegible] Hard	[illegible]
[illegible]	White	White	White	White	White	[illegible]
[illegible]	Smooth	Smooth	Smooth	Smooth	Smooth	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Cost Factor Labor & Mat'l	100	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

(1) Kilograms required to force a 10mm ball .01" into plaster [illegible]
(2) These are hard finishes but the aggregate in the surface does [illegible]

*Trademark Reg. U. S. Pat. Off.

CS016 1164

LIME PUTTY—GAUGING (WHITE COAT) FINISH

DESCRIPTION

Hydrated Finishing Lime (or Finishing Quicklime) is soaked (or slaked) to putty consistency, blended in proper proportion with gypsum gauging plaster, and is trowelled to a smooth, hard finish usually over a properly prepared gypsum basecoat. This is by far the most widely used plaster finish coat due to ease of application, flexibility, whiteness and economy.

The function of lime in a finish plaster is to provide the "spread" and plasticity to permit fast, easy application with full flexibility and economy. Lime does not "set," but hardens slowly; it likewise shrinks on drying. Therefore, gypsum gauging must be blended into the lime in proper proportion to provide initial set and strength, and to avoid shrinkage cracks.

IVORY*—A double hydrated (over 92%) special finishing lime that will not expand measurably in the wall. *Requires no soaking* to produce a smooth, uniform, white, highly plastic putty. May be mixed by adding dry lime to water in mechanical mixer because it develops its normal plasticity almost immediately then adding gauging. This is the preferred lime. Meets ASTM Designation C206-49 Type S and Federal Specification SS-L-351, Type F. including the added requirement of not more than 8% unhydrated oxides.

RED TOP and GRAND PRIZE*—Shipped from *Genoa, Ohio,* are normal dolomitic hydrated finishing limes, and are only partially hydrated. They comply with ASTM Designation C6-46, Type N, and Federal Specification SS-L-351, Type F, but do not comply with specifications limiting the unhydrated oxides to 8 per cent.

RED TOP Hydrated Limes shipped from *Farnams, Massachusetts* and *New Braunfels, Texas,* are high calcium limes and are completely hydrated. They comply with ASTM C206-49 Type S and Federal Specification SS-L-351, and meet specifications limiting the unhydrated oxides to not more than 8 per cent.

All types of USG* hydrated lime except IVORY Finish Hydrate require overnight soaking. They yield a smooth, highly plastic putty of exceptional purity. Until the advent of pressure hydrates, such as IVORY, they were the standards of excellence.

RED TOP and CHESHIRE Brands—Are high calcium finishing quicklimes. When properly slaked and aged for at least 16 hours, hydration is complete, (over 92%) thereby insuring against further hydration and attendant possibilities of expansion on the wall. Comply with ASTM Designation C5-26, and Federal Specification SS-Q-351. They have unusually high plasticity and purity.

GAUGING PLASTERS

1. **CHAMPION*** and **STAR*** are **WHITE** Gauging Plasters, for blending with lime putty to provide initial set and strength. They are ground to the proper fineness to blend readily and completely, thus minimizing the danger of check-cracking, crazing, etc. when properly used. They give strength and hardness to the surface finish. CHAMPION has a quicker "set" than STAR Gauging Plaster. They are the preferred gauging plasters because of the extreme whiteness of the finish when used with limes of high purity.

Complies with ASTM Designation C28-50 "Calcined gypsum for finishing coat" and Federal Specification SS-P-402, Type G.

2. **RED TOP GAUGING** is a "local" gauging plaster, so called because it is made from a rock grade that is used in basecoat plasters. It is available with slow or fast "set." It is distinguished from White Gauging Plasters by its darker color. Except for color, RED TOP Gauging Plasters are the equal of CHAMPION and STAR Gauging Plasters.

Compliance is the same as for "white" gauging plasters above.

3. **STRUCTO-GAUGE** is a new high strength gypsum gauging plaster for use with lime-putty to produce surfaces of extreme hardness and durability, designed for use in hospitals, schools and other buildings where a hard finish is desired. STRUCTO-GAUGE has excellent mixing qualities, applies easily and requires a minimum of troweling to produce a smooth finish.

Complies with ASTM Designation C28-50 "Calcined gypsum for finishing coat and Federal Specification SS-P-402, Type G, and, in addition, has a compressive strength (dry) of not less than 5000 psi.

PROPORTIONING—See Specifications

LIMITATIONS OF USE

1. For interior application only.

2. Recommended proportioning must be observed. Failure to use sufficient gauging plaster, to blend thoroughly, or to trowel adequately often results in check-cracking, crazing, lack of hardness and bond failure.

3. Designed for normal humidity conditions. Where higher humidity or exposure to wetting is expected, use Keene's Cement or STRUCTO-GAUGE.* If humidity or exposure to moisture is extreme or continuous, use portland cement-lime plaster.

4. Designed for normal usage. If greater hardness, and resistance to abrasion are required, use Keene's cement or STRUCTO-GAUGE.

5. Must be applied to gypsum or lime plaster basecoat. The bond of lime putty gauging finish to portland cement plasters is inadequate. Do not apply direct to masonry.

Trademarks Reg. U. S. Pat. Off.

CS016 1165

KEENE'S-LIME FINISH

DESCRIPTION

RED TOP keene's cement is a high strength, white gypsum plaster. Keene's-lime finish is composed of lime putty blended with keene's cement in proportions required to obtain desired hardness.

Complies with ASTM Designation C61-40 and Federal Specification SS-C-161, Type I (Regular) and Type II (Quick Troweling).

FUNCTION AND UTILITY

In addition to those listed for lime putty-gauging, are:

Resistance to Abrasion. Keene's cement has exceptionally high strength and surface hardness. See Technical Data on page 7.

Low Water Absorption. Keene's cement, having a high density, has low water absorption.

Choice of Hardness. Keene's cement is mixed with lime putty in varying proportions for "hard" and "medium hard" finishes. See Technical Data and specifications.

Two Types. Regular and Quick Troweling. Regular keene's sets slowly, requires more troweling and may be used with any proportion of lime.

Quick Troweling keene's sets faster, requires less troweling and must be used with a minimum of 25 lbs. of dry hydrated lime per 100 lbs. of keene's cement.

LIMITATIONS OF USE

1. Keene's cement is for interior finishes only.

2. Keene's cement finish is not recommended where exposure to water is extreme or continuous. Use portland cement-lime plaster.

3. For application over gypsum basecoats of high compressive strength only.

MOULDING PLASTERS

Moulding Plasters are made for use in specialized work such as casting ornamental enrichments or running cornice. Moulding Plasters may be used either neat or with the addition of lime putty. In cast work, moulding plaster is used neat whereas for running cornice a small portion of lime is used. Moulding Plaster is available in white and local grades as well as in quick or slow set.

CASTING PLASTER

RED TOP Superfine Casting is similar to RED TOP White Moulding Plaster except that it has a much finer particle size. It is ideal for use in modeling done directly in the plaster. The fine particle size results in smoother castings showing excellent detail—important in the making of fine plaques and art statuary. Only water is added in mixing.

PREPARED GYPSUM FINISHES

RED TOP Gypsum Trowel Finish and RED TOP Gypsum Sand Float Finish

DESCRIPTION

RED TOP Trowel and Sand Float finishes are mill-prepared gypsum finish coat plasters requiring the addition of water only.

There are no ASTM or Federal Specifications covering this type of plaster.

FUNCTION AND UTILITY

RED TOP Gypsum Trowel Finish—is used where hard, smooth surfaces are desired.

RED TOP Gypsum Sand Float Finish—is used where a quality float finish is desired.

Strength—approximately twice the strength of ordinary lime-gauging finishes.

Early Decoration—may be painted as soon as set and dry.

Factory Prepared—mill selection of ingredients and formulation insure uniform results and avoid variations possible with job mixing.

Non-Alkaline—contain nothing injurious to paint or decorations.

Bond—provides durable and natural bond to gypsum basecoat.

Cost—slightly higher than job-prepared finishes.

LIMITATIONS

1. Designed for application over gypsum basecoats only.

2. Should not be used on exterior surfaces where exposed to the elements or on interiors exposed to excessive moisture.

CS016 1166

RED TOP COVER COAT FINISHING PLASTER

DESCRIPTION

RED TOP Cover Coat is a mill prepared white gypsum bonding-finishing plaster requiring the addition of water only.

FUNCTION AND UTILITY

RED TOP Cover Coat is a specially prepared finishing plaster designed to furnish an adhesive bond for application direct to smooth unpainted concrete (to which application of Bondcrete is not suited) and provide a finish surface ready for decoration.

Application specifications provide for one coat work, which is most economical and provides customary finish appearance; and two coat work, which provides a superior finish appearance. If sand float finish is desired, it must be two coat work.

LIMITATIONS

1. For interior application only.
2. Not recommended for application on exterior masonry walls.
3. Not designed for use on surfaces which are exposed to excessive humidity or where frequent exposure to water is expected.
4. Unprotected steel in surface of concrete may result in rust spots on Cover Coat, requiring subsequent decoration.
5. As a finishing plaster it is designed for application in a total thickness not to exceed an average of 1/8 of an inch.

ORIENTAL* INTERIOR COLORED FINISHES

DESCRIPTION

ORIENTAL Interior Finish is a mill-prepared and colored finish plaster requiring the addition of water only.

There are no ASTM or Federal Specifications covering this type of plaster.

FUNCTION AND UTILITY

Integrally Colored at factory, requiring no decoration. Permits early occupancy. Avoids variations of color intensity that are possible when colors are mixed at site.

Colors (with LIGHT REFLECTION for float finish).

White—81%; Pewter Gray—52%;
Surf Green—56%; Old Ivory—77%;
Desert Rose—56%; Azure—58%;
Sahara Gold—63%.

Texture—A finely floated surface or special textured finish may be obtained.

Strength—highly resistant to abrasion due to very great hardness.

LIMITATIONS OF USE

1. ORIENTAL Interior is for producing finely floated surfaces or textures. Do not use for a smooth finish.
2. To be used on interiors only.

ACOUSTICAL PLASTER FINISHES (See full data on pages 2 and 3 Sec. 10a–uni)

SABINITE* ACOUSTICAL PLASTER

DESCRIPTION

SABINITE Trowel Finish is a highly efficient acoustical plaster, scientifically prepared to produce a continuous *trowel or float finish* of exceptional sound absorbent qualities. It is manufactured in four standard colors and white and requires the addition of water only. Basically mineral, it is incombustible.

HI-LITE ACOUSTICAL PLASTER

DESCRIPTION

HI-LITE Acoustical Plaster is a highly efficient acoustical plaster with exceptional light reflecting qualities which provides a stipple, or stipple perforated finish. Having a harder surface than SABINITE finish, it is more suitable for side walls above wainscots which require sound conditioning. It is manufactured in white only and requires the addition of water only.

LIMITATIONS (Both Types)

1. Designed for use on ceilings and areas not exposed to rough usage.
2. To insure best results, acoustical plasters must be applied in strict accordance with manufacturer's directions.
3. Not recommended over radiant heated panel areas, due to low thermal conductivities.

**Trademark Reg. U. S. Pat. Off.*

CS016 1167

EXTERIOR STUCCO FINISH

ORIENTAL EXTERIOR COLORED FINISHES

DESCRIPTION

ORIENTAL Exterior Finish is a factory-prepared stucco for exterior application over a portland cement-lime basecoat. It requires the addition of water only on the job.

Colors: Pewter Gray, Eggshell Ivory, Sun Tan, Stone Gray, Copper Rose, Alamo Buff, Mission Green, Cascade Green, Pueblo Tan, Indian Coral, Rancho Brown and White.

FUNCTION AND UTILITY

Factory Prepared—Uniformity in formulation insures endurance under all weather conditions. Avoids possibility of job-mixing errors.

Integral Coloring—Prevents variations possible where colors are added at site.

Decoration—Requires none.

Adaptable *to any texture.*

LIMITATIONS

1. Not designed for use as a smooth trowel finish.
2. Requires a portland cement-lime basecoat.

EXTERIOR STUCCO BASECOAT

DESCRIPTION

Exterior stucco basecoat is prepared on the job from portland cement, lime, sand and water and is the basecoat that receives the ORIENTAL* Exterior (colored) Finish.

FUNCTION AND UTILITY

Exterior stucco basecoat is used for the scratch (first coat) and brown (second coat) over cement block or clay tile, or over sheathing to which STUCCO MESH or self-furring metal lath has been properly applied.

Fire Resistant—Made from portland cement, lime and sand, it will not support combustion.

Weather Resistant—Suitable for normal exposure to climatic variations.

Strong—Properly mixed and cured, it provides a dense, hard base that will withstand normal wear and usage.

Economical—Use of standard, readily available materials provides a low cost basecoat.

LIMITATIONS OF USE

1. Because of the use of portland cement, each coat requires curing with water after set.
2. Must not be applied in freezing weather or over bases containing frost.
3. Must not be used on smooth, dense surfaces or over old, unsound stucco unless stucco mesh reinforcement is first properly applied.

INTERIOR PORTLAND CEMENT-LIME PLASTER

DESCRIPTION

Portland cement-lime plaster basecoat is prepared on the job from portland cement, lime, sand, and water.

FUNCTION AND UTILITY

A portland cement-lime plaster is used for the basecoat over cement block, clay tile, or metal lath as a base for ceramic tile or in areas subject to high moisture conditions.

It is incombustible and strong.

LIMITATIONS OF USE

1. Because of the use of portland cement, each coat requires curing with water after set.
2. Must not be used over smooth, dense surfaces, gypsum lath or gypsum block without first securing metal lath to such surfaces.
3. Provisions for relief of setting and drying shrinkage should be made at locations such as ceiling-wall intersections, beams, columns, or fixtures passing through the plaster. Construction joints should be provided to avoid excessive continuous areas.

**Trademarks Reg. U. S. Pat. Off.*

CS016 1168

Notes to Architect

Select one or more of the following base coat plasters, aggregates and finish coat plasters as desired or required to meet fire-resistant ratings. Where conductivity of the plaster is a factor, see limitations on Pages 3, 4, and 10.

Where "contact," "furred" or "suspended" lath and plaster ceilings are located under roof deck construction, it is recommended that the space thus established be ventilated. Such ventilation, with or without vapor barrier and insulation, shall be designed in accordance with accepted engineering practice.

I. SCOPE

Unless otherwise specified or shown on the drawings, all walls and ceilings shall be plastered as herein described.

II. GENERAL PROVISIONS

In cold weather, the temperature of the building shall be maintained in the uniform range above 55° for an adequate period prior to the application of plaster, while the plastering is being done, and after the plaster is dry. The heat shall be well distributed in all areas, with deflection or protective screens used to prevent concentrated or irregular heat on plaster areas near source. When required, heat shall be furnished by.....

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Ventilation shall be provided to properly dry the plaster during and subsequent to its application. In glazed buildings, this shall be accomplished by keeping windows open approximately 2" top and bottom (or side pivoted windows approximately 4") to provide air circulation; and, in enclosed areas or buildings lacking openings for natural ventilation by the use of temporary circulators or the air conditioning system.

If glazed sash are not in place and the building is subjected to hot, dry winds or temperature differentials from day to night of 20° F. or more, openings shall be screened with cheesecloth or similar material.

III. GROUNDS

The minimum thickness of plaster over 16" x 48" gypsum lath, gypsum partition tile or fiber insulation lath, shall be ½"; over brick, clay tile or other masonry, it shall be ⅝" thick; over metal lath, the plaster thickness shall be ⅝" measured from the face of the lath; and ¾" over long length gypsum lath. (A greater thickness in grounds may be required for certain fire ratings. See table, page 37, and specify accordingly.)

IV. MATERIALS

Base Coat Plaster shall be (STRUCTO-LITE) (RED TOP Cement Plaster) (RED TOP Wood Fiber Plaster) (BONDCRETE) as manufactured by the United States Gypsum Company.

Aggregate (for cement plaster) (wood fiber over masonry) shall be (Sand) (Perlite) (Vermiculite) meeting the requirements of ASTM Designation C35-53T—"Inorganic Aggregate for use in Interior Plastering."

Aggregate for job mixed sand float finish shall be a graded silica sand all passing a (30 mesh) (20 mesh) screen.

Water shall be clean, fresh and suitable for domestic consumption.

For (Exterior Stucco Base) (Portland Cement-Lime plaster) the **Portland Cement** shall comply with A.S.T.M. Designation C150-47, the **Lime** shall be MORTASEAL as manufactured by the United States Gypsum Company, and the **Sand** shall be clean and sharp and shall meet their requirements of American Standards Association Specifications. A42-2.

Finish Coat Plaster shall be:

a. Gypsum gauged lime putty trowel finish made from IVORY Pressure Hydrated Lime and (CHAMPION Gauging Plaster) (STAR Gauging Plaster) (RED TOP Gauging Plaster) as manufactured by the United States Gypsum Company.

b. High strength gypsum gauged lime putty trowel finish made from IVORY Pressure Hydrated Lime and (STRUCTO-GAUGE) (RED TOP Quick Trowelling Keene's Cement) as manufactured by the United States Gypsum Company.

c. RED TOP Gypsum Trowel Finish as manufactured by the United States Gypsum Company.

d. RED TOP Gypsum Sand Float Finish as manufactured by the United States Gypsum Company.

e. ORIENTAL Interior Colored Finish as manufactured by the United States Gypsum Company.

f. A job mixed sand float finish made from IVORY Pressure Hydrated Lime, RED TOP Keene's Cement and silica sand.

g. RED TOP Cover Coat Finishing Plaster for monolithic concrete as manufactured by the United States Gypsum Company.

h. (SABINITE Acoustical Plaster) (Hi-Lite Acoustical Plaster) as manufactured by the United States Gypsum Company.

i. Ornamental run mouldings and Cast enrichments made with RED TOP Moulding Plaster and USG Casting Plaster as required.

j. Exterior finish coat shall be ORIENTAL Exterior Colored finish as manufactured by the United States Gypsum Company.

V. SURFACE PREPARATION

a. Concrete to which RED TOP Cover Coat Finishing Plaster is to be applied shall have all laitance and efflorescence removed by dry brushing and the surface scrubbed with naphtha or mineral spirits to remove grease and oil. Brush or spray surface with cover coat bonder to "neutralize" surface alkalinity and then allow to dry. Patch holes and other surface defects with a paste of Cover Coat.

b. Monolithic concrete to which BONDCRETE is to be applied shall be cleaned of all dust, loose particles and other foreign matter. Laitance and efflorescence shall be removed by washing with a 10% solution of commercial muriatic acid and water, and then cleaning with water to remove all traces of acid. Grease and oil shall be completely removed. Concrete surfaces shall have sufficient roughness to provide proper bond. If surfaces are not rough, they shall be hacked or bush-

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hammered, or dash coated with portland cement grout composed of one part of cement and one and one-half parts of fine sand mixed to a mushy consistency. Using a stiff fiber brush, the portland cement grout shall be forcibly dashed on the concrete surface with a whipping motion. This coat shall be kept damp for at least two days immediately following its application and then allowed to dry. Before application of the plaster, the surface shall be evenly dampened if necessary to reduce suction.

c. Monolithic concrete surfaces to which asphalt emulsion is applied as bonding medium for acoustical plaster must be dry, and free of dust, oil, grease or efflorescence.

d. Unit masonry surfaces that exhibit high suction shall be moderately wetted immediately before plastering.

VI. BASE COAT PROPORTIONS

a. STRUCTO-LITE shall be regular formula for all lath bases and masonry formula for masonry bases.

b. RED TOP Cement Plaster for the scratch or first coat over all lath bases in three-coat work shall be mixed in proportion of (one part of plaster to not more than two parts of sand by weight) (100 pounds of plaster to two cubic feet of perlite) (100 pounds of plaster to two cubic feet of vermiculite).

RED TOP Cement Plaster for all unit masonry surfaces and for the brown or second coat over lath bases shall be mixed in the proportion of (one part plaster to not more than three parts sand by weight) (100 pounds of plaster to three cubic feet of perlite) (100 pounds of plaster to three cubic feet of vermiculite).

RED TOP Cement Plaster, when mixed for two-coat work over gypsum lath, shall be mixed in the proportion of (one part of gypsum to not more than 2½ parts of sand by weight) (100 pounds of gypsum to not more than 2½ cubic feet of perlite) (100 pounds of gypsum to not more than 2½ cubic feet of vermiculite).

c. RED TOP Wood Fiber Plaster. For application over all types of lath, shall be mixed with water only.

For masonry surfaces (except monolithic concrete), the scratch and brown coats of wood fiber plaster shall have (one part of sand by weight) (one cubic foot of perlite per 100 pounds) (one cubic foot of vermiculite per 100 pounds) added.

d. BONDCRETE shall be mixed with clean water only.

VII. GROUT

Grout for door bucks and flush metal base shall be (STRUCTO-LITE) (RED TOP Cement Plaster) and not more than (300 pounds sand) (3 cubic feet of perlite) per bag of plaster.

VIII. MIXING OF BASE COATS

For hand mixing, the mixing boxes shall be water-tight and thoroughly clean of all set or hardened material. All tools and equipment shall be cleaned after mixing each batch. Do not mix more material than can be used in one hour.

a. STRUCTO-LITE shall be mixed with clean water only and hoed to uniform application consistency.

b. RED TOP Cement Plaster and aggregate shall be mixed dry to a uniform color at one end of the box, hoed into the water at the other end and thoroughly mixed to proper consistency.

c. RED TOP Wood Fiber Plaster shall be mixed with clean water only and hoed to uniform application consistency. (For application over masonry aggregate shall be added and dry mixed prior to adding water.)

d. BONDCRETE shall be mixed with clean water only and hoed to uniform application consistency.

For mechanical mixing, the mixer shall be cleaned of all set or hardened material before materials for a new batch are loaded. Each batch shall be mixed separately. Material that has partially set shall not be retempered or used. Mix no more material than can be used in one hour.

a. For STRUCTO-LITE plaster, no aggregate shall be added. Put the approximate amount of water in the mixer and add the STRUCTO-LITE and mix to proper application consistency, adding water if necessary, and dump the entire batch and use.

b. RED TOP Cement Plaster; put the approximate amount of water required in the mixer, then, while the mixer is in continuous operation, add approximately half the amount of aggregate required, add all of the plaster and add the remainder of the aggregate. Mix to proper application consistency, adding water if necessary, and dump the entire batch.

c. For Gypsum Wood Fiber Plaster: add the approximate amount of water required. Then add the plaster and mix to proper application consistency. When sand is added for application over masonry bases, add the water, then the sand, and then add the plaster and mix to proper application consistency.

d. For BONDCRETE Plaster, add clean water only, then add the plaster and mix to proper application consistency.

e. For (Exterior Stucco) (Portland Cement-Lime plaster), the scratch (first coat) shall be mixed in the proportion of one bag of portland cement; two bags of MORTASEAL* (or two cubic feet of lime putty) and seven and one-half cubic feet of sand (approximately 45 No. 2 shovels). For application over stucco mesh or self-furring metal lath, approximately two pounds of fiber or hair shall be added to each mix of the above proportions.

The brown coat (second coat) shall be mixed in the proportion of one bag of portland cement, two bags of MORTASEAL (or two cubic feet of lime putty) and nine cubic feet of sand (approximately 55 No. 2 shovels).

IX. GROUTING

a. All steel door bucks in 2" solid lath and plaster partitions shall be fully grouted prior to lathing, leaving a groove to receive the lath.

b. All 2½" flush metal base for 2" solid lath and plaster partitions and furred exterior walls shall be grouted. (Provide a V-Groove to receive (ROCKLATH plaster base) (⅜" Riblath). (Grout after channel studs are erected for channel stud metal lath partitions.)

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*Trademark Reg. U. S. Pat. Off.

X. BASE COAT APPLICATION

a. For two coat work over gypsum lath and masonry, the base (first) coat shall be applied with sufficient material and pressure to form a good bond on the gypsum lath or masonry, as the case may be, and to cover well, and then be doubled back to bring the plaster out to grounds, straightened to a true surface with rod and darby, and left rough, ready to receive the finish (second) coat.

b. For three coat work, the scratch (first) coat shall be applied with sufficient material and pressure to form good full keys on metal lath, and a good bond on gypsum or fiber insulation lath, as the case may be, and to cover well, and then be cross scratched to a rough surface. The brown (second) coat shall be applied after the scratch (first) coat has set firm and hard, brought out to grounds and straightened to a true surface with rod and darby and left rough, ready to receive the finish (third) coat.

c. For 2″ solid gypsum lath and plaster partitions, apply a scratch coat of plaster with a maximum 3 hour set, about ⅜″ thick, to each side of the lath. In no case, shall application of scratch coat to second side of lath be delayed longer than the setting time of the scratch coat applied to the first side. Scratch lightly in horizontal direction only.

After the scratch coats have set firmly and have partially dried (but not less than 16 hours), the brown coat shall be applied to the unbraced side, bringing it out to within 1/16″ of ground dimension for finish coat to bring overall partition thickness to 2 inches. When brown coat has set firmly (but not less than 3 hours), braces shall be carefully removed from opposite side and brown coat applied to that side in a manner similar to that described for the other brown coat.

d. For 2″ solid studless metal lath and plaster partitions apply scratch coat and allow it to set and partially dry. Then apply brown coat to side opposite braces, allowing it to set thoroughly before removing temporary braces. Next apply brown coat to previously braced side, bringing it out to sufficent grounds to make overall partition thickness 2″ when finish coats are applied to both sides.

e. For 2″ channel stud, metal lath and plaster partitions apply scratch coat on lath side and allow it to set and partially dry. Then apply back-up coat on channel side applied to full grounds in not less than two operations and allow to set. Next apply brown coat on lath side bringing it out to sufficient thickness to make overall partition thickness 2″ when finish coats are applied to both sides.

f. For resilient ROCKLATH ceilings, three coat plaster work shall be used. Apply a full scratch coat, cross rake and allow to set. Then apply brown coat to bring total thickness of plaster to 7/16″ over the lath, darby level and leave rough ready for finish coat.

g. For (exterior wall furring) (hollow partitions) having long length ROCKLATH three coat plaster work shall be used to a total thickness of ¾″ over the lath.

h. For column fireproofing total thickness of plaster over lath face shall be (½″) (⅝″) (1″) (1⅜″) (1¾″). Apply a full scratch coat, cross rake and allow to set. Then apply brown coat to within 1/16″ of thickness required and leave level and rough ready for application of finish coat.

i. Where plaster finish is flush with metal bases, bucks, window frames or similar constructions, both the brown coat and the finish coat should be grooved back at the intersection to reduce possibility of chipping of plaster at these points.

j. At windows, doors and other openings all base coat plaster across head of opening and 12 inches down, each side, shall be cut free of buck, frame or grounds with edge of trowel, after stiffening but before setting, to allow for expansion.

k. Scratch coat of (Exterior stucco) (Portland cement—Lime plaster) shall be applied in a full ⅜″ coat, with sufficient pressure to form a good bond with masonry surfaces or to force it through and completely embed the metal reinforcement. Cross scratch and, after set, damp cure for not less than 48 hours.

Brown coat shall be applied over the dampened scratch coat in a full ⅜″ coat with sufficient pressure to form a good bond, rodded level and left rough, using a broom if necessary. After set, damp cure for at least 48 hours before applying the finish (third) coat.

Damp curing of each coat shall be accomplished by applying water in a fine, fog spray. Apply only as much water as is readily absorbed. The frequency of spraying required will depend on the weather exposure, more frequent applications being required during hot, dry and windy weather.

XI. PREPARATION OF LIME PUTTY

IVORY Finishing Lime shall be mixed with clean water only, using approximately 5½ to 6 gallons per bag. The putty may be prepared by overnight soak, or by mixing by hand or machine. Run mixer for sufficient time to get a smooth, thoroughly mixed putty which can be used immediately or run into a box for use as required. When stored in a box after mixing, do not permit putty to get crusty or to dry out. Mixer, tools and equipment must be clean.

XII. PROPORTIONS OF FINISH COATS

a. Gypsum gauged lime putty finish shall be mixed in the proportions of 100 pounds of gauging plaster to 200 pounds of dry lime (400 pounds, or 34 gallons, of lime putty).

b. Medium hard STRUCTO-GAUGE-Lime Putty Finish shall be mixed in the proportion of 100 pounds of (Structo-Gauge) to 200 pounds of dry lime (400 pounds, or 34 gallons, of lime putty).

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c. Hard STRUCTO-GAUGE-Lime Putty Finish shall be mixed in the proportion of 100 pounds of STRUCTO-GAUGE to 100 pounds of dry lime (200 pounds, or 17 gallons, of lime putty).

d. Medium hard Keene's Cement-Lime Putty Finish shall be mixed in the proportion of 100 pounds of Keene's Cement to 50 pounds of dry lime (100 pounds, or 8½ gallons of lime putty).

e. Hard Keene's Cement-Lime Putty Finish shall be mixed in the proportion of 100 pounds of Keene's Cement to 25 pounds of dry lime (50 pounds, or 4¼ gallons of lime putty).

f. Keene's Cement-Sand Float Finish shall be mixed in the proportion of 100 pounds of Keene's Cement to 50 pounds of dry lime and 400 pounds of sand (100 pounds, or 8½ gallons of lime putty and 4 to 5 cubic feet of sand (27 No. 2 shovels of sand).

g. RED TOP Gypsum Trowel Finish shall be mixed with clean water only to proper application consistency.

h. RED TOP Sand Float Finish shall be mixed with clean water only to proper application consistency.

i. ORIENTAL Interior Colored Finish shall be mixed with clean water only to proper application consistency.

j. RED TOP Cover Coat Finishing Plaster, for smooth finish, shall be mixed with clean, *warm* water only. For sand float finish, 1½ parts of silica sand by weight to one part of Cover Coat shall be added in the finish coat only.

k. ORIENTAL Exterior Colored Finish shall be mixed with clean water only to proper application consistency.

XIII. APPLICATION OF FINISH COATS

Finish coat shall be applied over a partially dry, level and roughened gypsum base coat. NOTE: *Except Cover Coat Finishing Plaster, which shall be applied over Cover Coat Bonder direct to concrete, and* SABINITE *or* HI-LITE *Acoustical Plaster, which may be applied over emulsified asphalt.*

The finish coat shall be scratched in thoroughly and immediately doubled back to fill out to a true, even surface. Thickness to be 1/16" to ⅛". (Except Acoustical Plaster which shall be ½" thick.)

a. Trowel finishes shall be water troweled during set to provide a smooth, dense surface for decoration, free of irregularities and blemishes.

b. Float finishes shall be floated with shingle, wood, carpet or rubber float to bring aggregate to the surface and produce a finish free of slick spots, cat faces, and other blemishes. In natural color finishes, use water sparingly while floating. Do not use water while floating colored finishes.

c. Textures shall be applied in such a manner that they will match the sample approved by the architect.

d. SABINITE Acoustical Plaster finish shall be applied according to manufacturer's directions which are hereby made a part of this specification.

e. HI-LITE Acoustical Plaster finish shall be applied according to manufacturer's directions, which are hereby made a part of this specification.

f. (1) Cover Coat shall be applied in one coat over a properly prepared and dry concrete surface by scratching in a thin coat completely covering the concrete and doubling back with a thin coat, levelling out the surface with light trowelling. When the finish has taken up, trowel with water to a smooth, level surface. Total thickness not to exceed an average of ⅛".

f. (2) Cover Coat shall be applied in two coats over a properly prepared and dry concrete surface by scratching in a thin coat completely covering the concrete and allowing it to set and dry. Second coat shall be then applied, covering first coat evenly and levelling out the surface with light trowelling. When finish has taken up, trowel with water to a smooth, level surface, float with sponge or shingle to a uniformly sandy textured finish. Total thickness not to exceed an average of ⅛".

g. Ornamental plaster shall be executed in accordance with the full-sized details shown on the drawings. Cornices and moldings shall be run full, straight and true with molding plaster, using clean cut metal templets conforming to the profiles shown on the drawings. Lines shall be in alignment, with true intersections, and accurate mitres at corners and angles. Enriched ornamental work which cannot be run in place shall be cast with casting plaster in gelatine molds. The work shall be solidly backed with jute or burlap, shall be properly reinforced with galvanized iron, and shall be securely stuck and wired in place with copper wires not lighter than 16 gauge. All joints shall be carefully made and neatly pointed so as to be invisible. All rough spots shall be eliminated with fine sandpaper, and the entire work left in proper condition, ready for decoration.

h. ORIENTAL Exterior colored finish shall be mixed and applied in strict accordance with the manufacturer's directions. Color and texture to be designated and approved by the architect or his representative.

XIV. PATCHING

Point up around trim and other work. Cut out and patch defective and damaged plaster. Patching of plaster shall match existing work in texture and finish and joinings with plaster previously applied shall finish flush and smooth.

XV. COMPLETION

At the completion of the finish plaster work, clean all plaster from beads, screeds, metal base and metal trim, leaving work ready for decoration by others. Remove all plaster rubbish from the building, leaving floors broom clean. Remove excess material from the job site. Remove all scaffolding, tools and other equipment from the building and job site.

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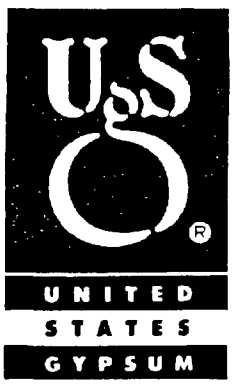

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