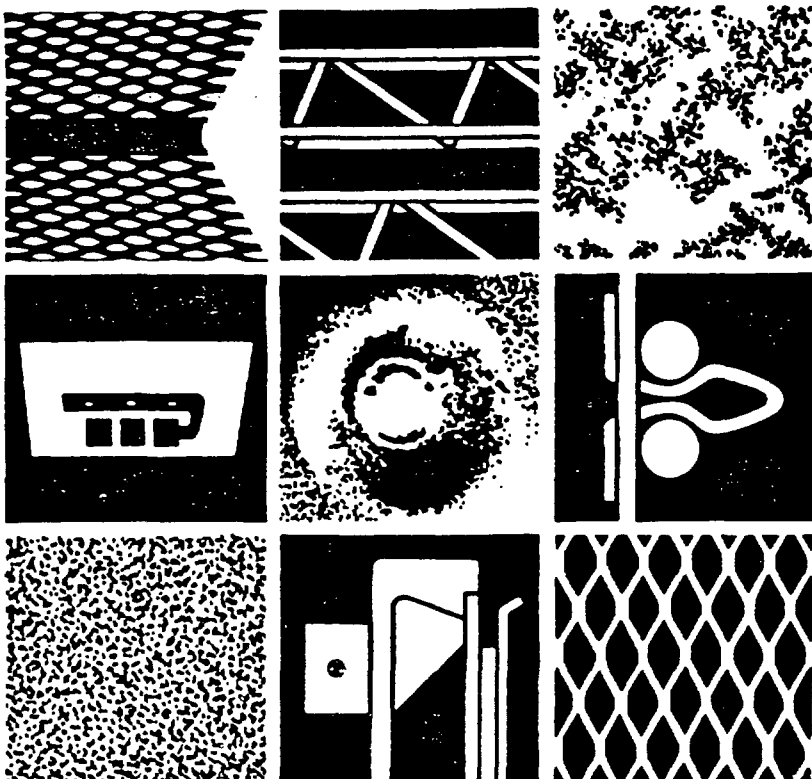


UNITED STATES GYPSUM

red book
of lathing
& plastering



P-15 USG Rev. 11/69

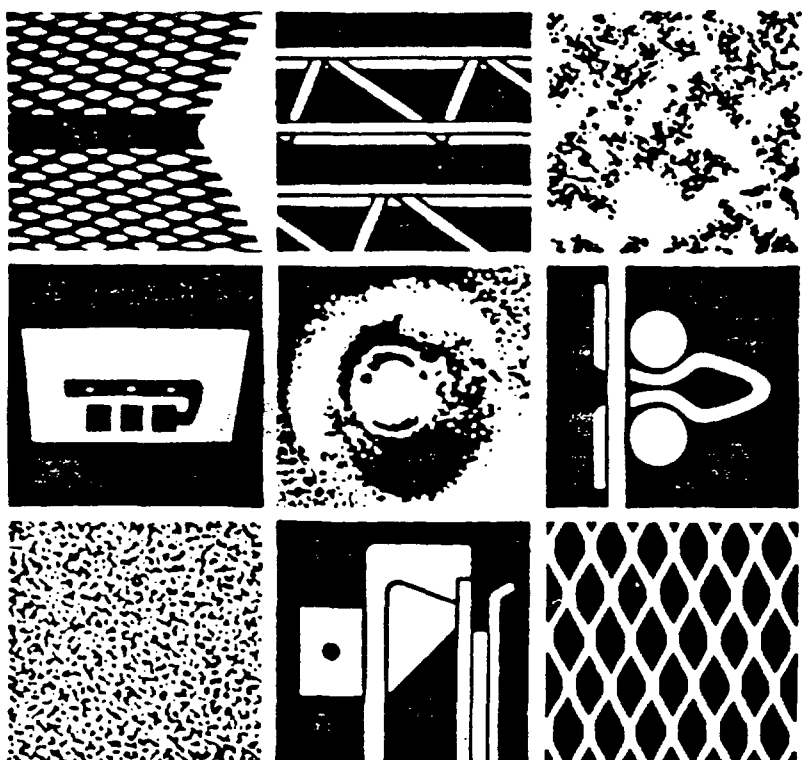
Printed in U.S.A.

UNITED STATES GYPSUM

48 pp 5 25-34

27th edition

red book
of lathing
& plastering



price \$1.50

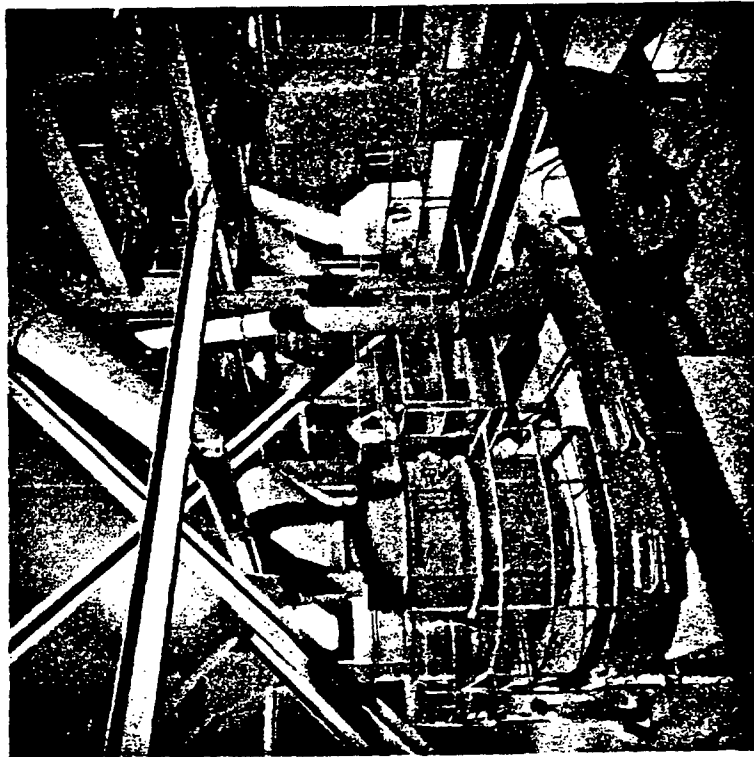
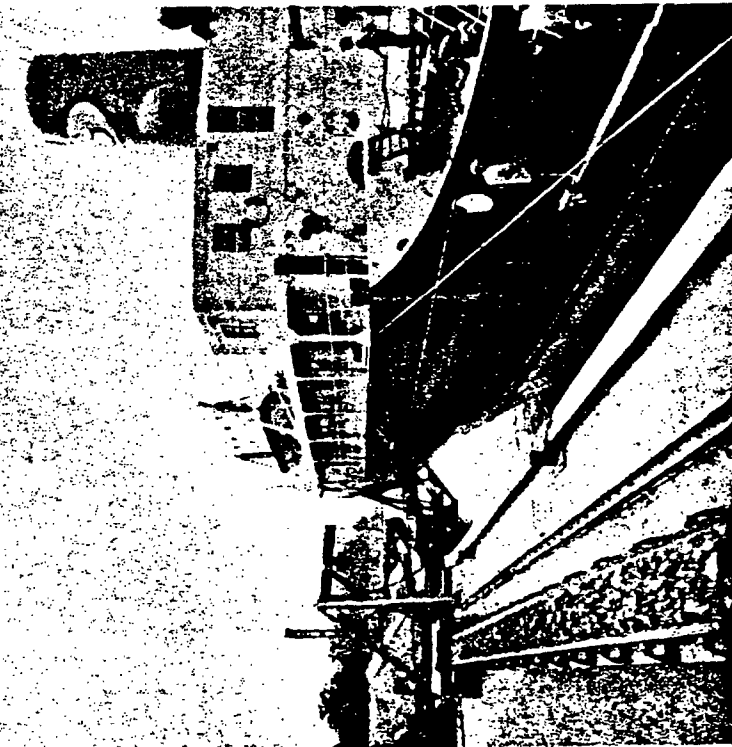
red book of lathing & plastering

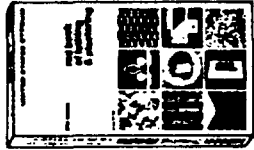
18005 2538

TRADEMARKS: The following trademarks are owned and/or registered in the U.S. Patent Office by United States Gypsum Company, and are used throughout this book to designate particular products manufactured by that company: USG (metal products, plaster, gypsum coreboards, fiber boards, adhesives); STRUCTO-LITE, STRUCTO-BASE, STRUCTO-GAUGE, O.K., DIAMOND, ORIENTAL, IVORY, CHAMPION, STAR, HI-LITE, AUDICOTE (plastering products); PYROBAR (gypsum partition tile); ROCKLATH (plaster base); MORTAREAL (mason's lime); BRIDJOINT, BRACE-TITE, SUPER-TITE, TRUS-LOK (lathing clips); TRUSSTEEL (metal studs); RED TOP (plaster, plaster base, partition tile cement); FIRECODE (plaster, plaster base); GRAND PRIZE (lime, paint); TEXOLITE, ACERPOX, PRO-KVD (paints); THERMARIBER (insulating wool); SHASTROCK (gypsum wallboard, resilient channel, sealant); PERK-A-TAPE, DURABOND (joint treatment); IMPERIAL (paint, plaster, plaster base, reinforcing tape, set catalyst).

Note: Since methods and conditions of application and use are beyond our control, our warranties of FITNESS and MERCHANTABILITY, and any other warranties, express or implied, made in connection with the sale of these products and systems, SHALL NOT BE EFFECTIVE OR ACTIONABLE UNLESS the products and systems are applied according to our current printed directions and specifications.

Copyright 1983, United States Gypsum Company





This R&D Book is a guide to good lathing and plastering procedures and describes the newest developments in the plastering field—including the time-saving, lower cost methods now booming in popularity.

Versatile and dependable, lath and plaster construction meets the wide range of building requirements including durability and strength, fire resistance and sound insulation. Lath and plaster are not only ideal finishing materials for conventional wall and ceiling surfaces, but their flexibility also suits them to ornamental contours—the only interior finish readily adaptable to such design.

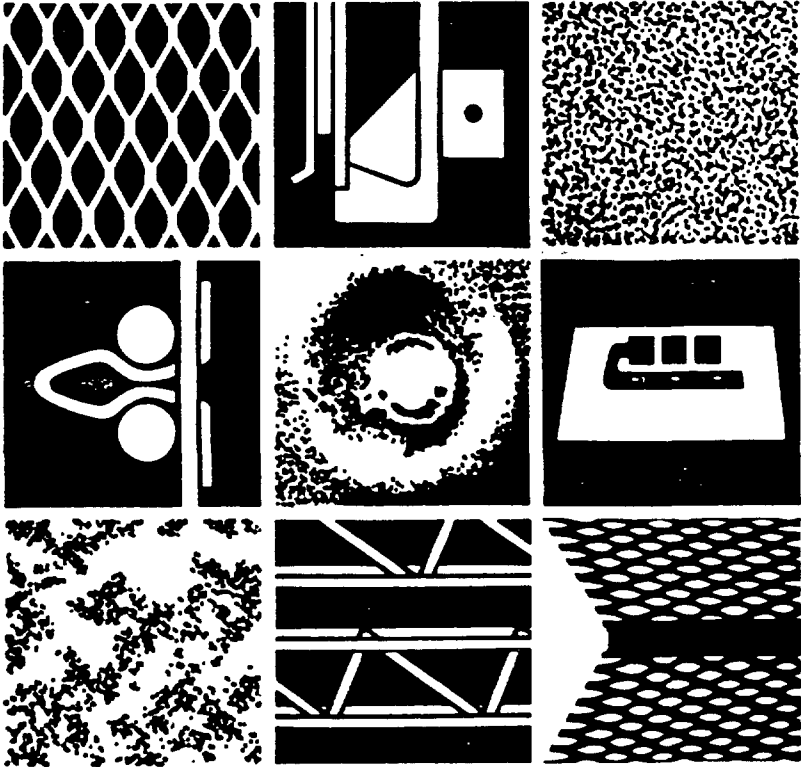
In addition to descriptions of plaster systems and their installation, this book contains new data on products, methods of application and performance ratings. It is designed to serve not only the experienced contractor and journeyman, architect and dealer, but the novice who wishes to better understand plastering, its advantages and applications.

The United States Gypsum R&D Book, like the company's plastering products, sets the standard of the industry.

13075 2539

table of contents

chapter	title	page
1.	Good Lathing and Plastering Practices	6
2.	Veneer Products and Application	28
3.	Standard Products and Application	60
4.	Systems and Performance Data	106
5.	Special Applications and Tools	198
6.	Job Problems and Remedies	222
7.	How To Inspect a Plaster Job	240
	Index	246

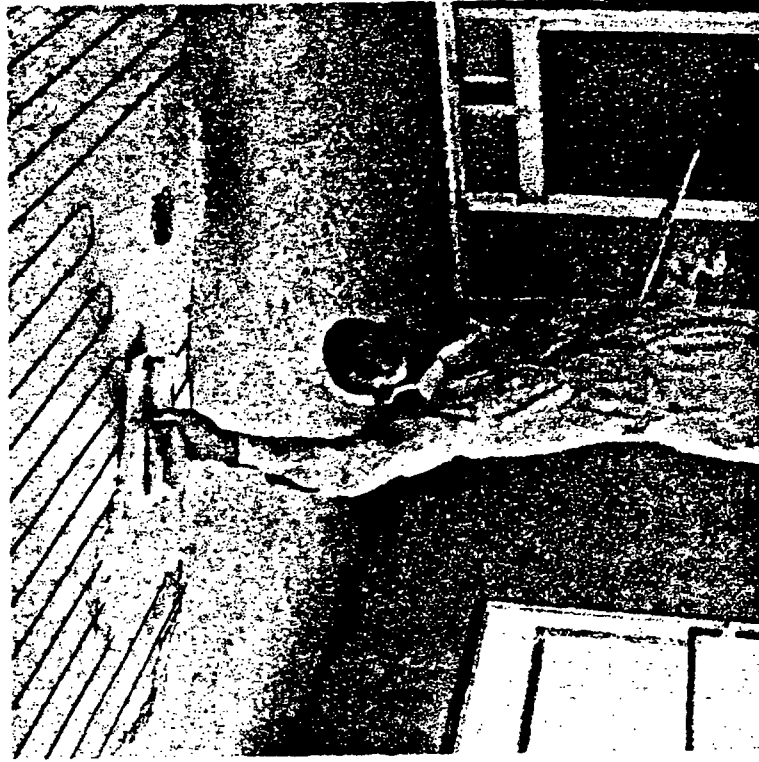


chapter 1

good lathing and plastering practices

LB 005 2540

	page		page
WHAT'S PLASTERING TODAY?	8	Grounds	17
ADVANTAGES OF PLASTERING	9	Vapor Barriers	18
GOOD LATHING PRACTICES	10	Fastening	19
Framing Requirements	10	PLASTER	19
Job Storage	11	Basecoat Plasters	20
Mechanical Handling	11	Water, Aggregates	21
Temperature and Humidity	12	Setting Time	22
GENERAL APPLICATION for PLASTER BASES	12	Mixing	23
Reinforcing	14	Finish Plasters	23
Isolation and Control Joints	15	Drying	24
Perimeter Relief	16	DECORATING	25
Floating Interior Angles	16	SOUND CONTROL REQUIREMENTS	26
		FIRE RESISTANCE	27
		STOCK ROTATION	27



veneer plasters

Today's plastering includes high-strength veneer plasters—IMPERIAL Basecoat Plaster with IMPERIAL Finish Plaster or DIAMOND Finish Plaster (an extra-hard finish), O.K. Concrete Basecoat Plaster with O.K. Concrete Finish Plaster and specially fortified heat-resistant Rm Top Radiant Heat Basecoat and Finish Plasters. See Chapter 2 for complete description and application of these products.

finish plasters and application

Finish plasters serve as a leveling coat over the basecoat to provide a durable surface with the required resistance to abrasion. Some finishes are used as a base for decoration while others provide the final finished surface themselves.



There are several types of gypsum finish plasters, some requiring the addition of water only and others which are a blend of gypsum, lime and water, or of gypsum, lime, sand and water. They are selected according to job requirements for texture, color, hardness, sound absorption and for compatibility with the basecoat.

Since the finish plaster coat comprises about 75% of the visible room area, it is important to select high-quality materials, mix them properly and use according to directions.

LB 005 2541

USG FINISH PLASTERS—TECHNICAL DATA

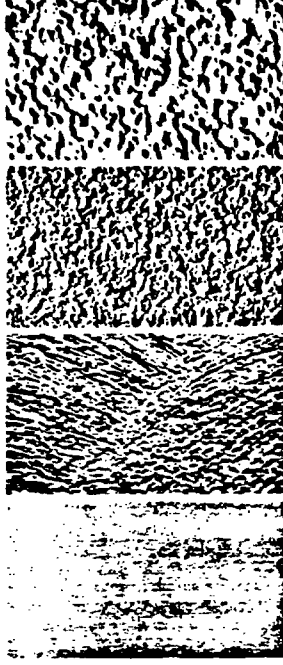
Product	Finish Texture	Physical Properties	Gauging to Lime, (Dry Wt.)	Sq. Yds. per Ton (1)
ORIENTAL Interior Finish Plaster	Float or Texture Finish	Hard and Resistant to Abrasion	neat	250-300 1/4"
STRUCTO-GAUGE and Lime Putty	Smooth Trowel	Extremely Hard and Resistant to Abrasion	100 lbs. gauging 100 lbs. lime	350-425
		Hard and Resistant to Abrasion	100 lbs. gauging 200 lbs. lime	400-465
DIAMOND Finish	Smooth Trowel	Hard and Resistant to Abrasion	neat	390-445
IMPERIAL Finish	Smooth Trowel	Hard and Resistant to Abrasion	neat	190-335
O.K. Concrete Finish	Smooth Trowel, Float or Texture	Hard and Resistant to Abrasion	neat	190-335
RED TOP Redant Heat Finish	Smooth Trowel, Float or Texture	Hard and Resistant to Abrasion	neat	400-500
Keenes Cement-Lime Putty	Smooth Trowel	Hard and Resistant to Abrasion	400 lbs. Keenes 100 lbs. lime	270-350
		Med. Hard and Re-sistant to Abrasion	200 lbs. Keenes 100 lbs. lime	310-425
Gauging Plaster Lime Putty	Smooth Trowel	Standard	50 lbs. gauging 100 lbs. lime	325-350
Keenes Cement, Lime Putty and Sand	Float Finish	Hard	100 lbs. Keenes 50 lbs. lime 400 lbs. sand	260-310
Gauging Plaster, Lime Putty and Sand	Float Finish	Standard	50 lbs. gauging 100 lbs. lime 400 lbs. sand	260-310
ORIENTAL Exterior Finish Stucco	Float or Texture Finish	Extremely Hard and Resistant to Abrasion	neat	150-200 1/4"

(1) 1/4" thick except as noted

SURFACE HARDNESS—GAUGING PLASTERS

(Lbs. required to force a 10 mm. diameter steel ball .01" into plaster face)

Gauging/Lime Ratio	STRUCTO-GAUGE	Regular Gauging	Keene's Cement Regular	Quick-trowel
1:2	106	75		
1:1	231			
2:1			75	112
4:1			98	135



Trowel finish Float finish Spray finish Texture finish

Trowel Finishes: used where a smooth, easily maintained surface is desired, often as a base for paint or other wall covering. The degree of hardness, porosity, and polish is determined by the materials and application techniques used. When a smooth-trowel gauged lime putty finish is used over a basecoat containing lightweight aggregate on any plaster base, it is necessary to add at least 50 lbs. of fine silica sand or 1/4 cu. ft. of perlite fines per 100 lbs. of gauging plaster to improve the compatibility of the finish with the basecoat.

Float or Spray Texture Finishes: provide pleasing, durable finishes where surface textures are desired. They are recommended for use over all types of gypsum basecoats and are the most desirable finishes from the standpoint of crack-resistance. The surface texture is easily controlled and can be produced by spray application, or a variety of hand tools.

Other Texture Finishes: many pleasing and distinctive textures are possible using various techniques in finishing. Finishes may range from an extremely fine stipple to a rough, heavy or coarse texture. Variety is limited only by the imagination of the designer or the ingenuity of the applicator.

ORIENTAL INTERIOR FINISH PLASTER

This is a factory-prepared white finish containing properly graded aggregate to insure easy-working qualities and uniformity in results. It may be applied to produce many types of surfaces ranging from very fine sandfloat finish to a heavy texture. It is highly resistant to abrasion because of its great hardness and is uniform in color. To eliminate need for further surface decoration, color may be added to the plaster mix.

LB 075 2542

Mixing and Application: add clean water only and hoe the plaster into the water. Allow to soak 20 or 30 min. and mix thoroughly to a smooth, creamy, easy-working consistency. This plaster must be applied to a set, "half-green" basecoat of gypsum plaster. If the basecoat is exceptionally dry, it should be sprayed uniformly with clean water the night before finishing.

Apply by hand in a two-coat double-back operation. Scratch in a thin coat well ground into the base, and double back with a second coat, filling out to a true, even surface. The surface can be floated with a sponge, sponge rubber or carpet float. Do not use water while floating.

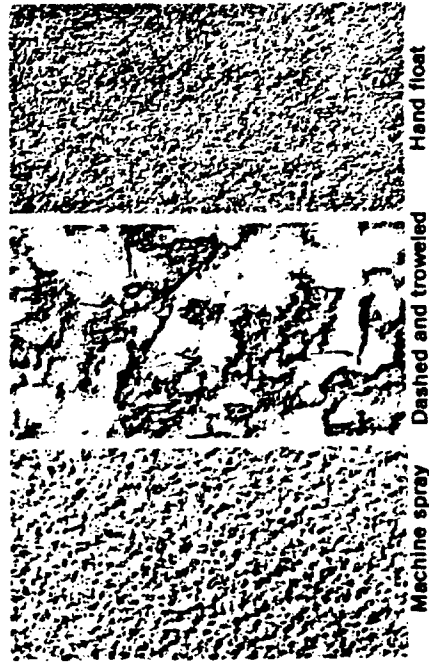
The finish can be applied in any desired texture except a smooth trowel finish; also can be spray-applied. For uniform appearance, spray finishes must be applied over a smoothly troweled level plaster surface.

DIAMOND FINISH PLASTER

A pre-mixed interior finish that provides exceptional surface hardness, greater crack resistance and excellent troweling features. See Chapter 2 for complete description and application.

ORIENTAL EXTERIOR FINISH STUCCO

ORIENTAL Exterior Stucco is a pre-mixed, water-resistant finish for use over exterior portland cement-lime basecoats only. This material is available in 10 designer colors and white for hand or spray application. It is suitable for application on new work or for remodeling and is an economical means of beautifying in two ways: with texture and color.



This finish is easy to apply, permanently durable and can be worked in a number of textures: rough coat, stipple, sponge or fine-grained float finish.

Hand Application: ORIENTAL Exterior Finish Stucco needs only the addition of water. Use clean water and measure accurately. Do not add anti-freeze, waterproofing compounds or sand. Hoe the stucco into the water and allow to soak approximately 15 min. Then hoe thoroughly to a smooth consistency. Mix each batch for the same length of time to insure color uniformity and mix only enough material for 3 hours' use.



Spraying base for ORIENTAL Exterior Finish Stucco

Apply ORIENTAL Exterior Finish Stucco only over a portland cement-lime and sand basecoat that is level but left rough under the darby, or broomed and properly cured. Water-spray basecoat to provide a uniformly damp "half-green" surface. Remove loose and projecting particles from the basecoat. Then apply a thin coat well ground into the base and completely covering it. Double back and fill out to a uniform surface about $\frac{1}{4}$ " thick, covering total area in one operation to eliminate joinings. Trowel three or four times before starting to texture.

For a float finish, use a cork, wood, carpet or sponge rubber float and work the surface to an even texture, free from blemishes, as the material stiffens and starts to set. Floating must be done without the use of additional water.

Machine Application: ORIENTAL Exterior Finish Stucco may be applied in a single-coat or two-coat operation. Excessive mixing water should not be used as this may result in "lime bloom."

One-Coat Application: Spray-apply material to basecoat to

uniform thickness of approximately $\frac{1}{4}$ ". Work from wet edges to complete an entire unbroken area in one continuous operation to eliminate jointing.

Two-Coat Application: Apply first coat with a trowel as in hand application. After troweling uniformly level, apply textured second coat by machine-spraying to a total thickness of approx. $\frac{1}{4}$ ".

After setting, fog-spray surface with water periodically for several days to cure the finish and help to prevent glazed spots and "bloom." Apply as much water as is readily absorbed. The frequency of spraying will depend on the weather.

gauging plasters and application

Lime, when used alone as a finish plaster, does not set, is subject to shrinkage when drying and lacks a hard finish. Gauging plaster is blended into the lime putty in the proper proportions to provide controlled set, early hardness (see Surface Hardness table page 89) and strength, and to prevent shrinkage cracks.

High-strength Red Top Keenes Cement and STRUCTO-GAUGE Gauging Plaster are to be used only over sanded or wood fiber basecoat plasters. Over lightweight aggregated basecoats use white or regular gauging plaster that is properly aggregated.

USG GAUGING PLASTERS—TECHNICAL DATA

Product	Set Time with Lime Putty (Min.)	Bag Size (Lbs.)
CHAMPION (white)	quick set 20-30	100
STAR (white)	slow set 40-60	50
RED TOP Gauging (local-gray)	slow set 50-75	100
RED TOP Gauging (local-gray)	quick set 30-40	100
RED TOP regular Keenes Cement (white)	180-360	100
RED TOP quick trowel Keenes Cement (white)	60-120	50
STRUCTO-GAUGE (white or light gray)	slow set 60-75	50
	quick set 30-40	100



CHAMPION, STAR AND RED TOP GAUGING PLASTERS
Red Top Gauging Plasters are carefully ground and screened to proper particle sizes to make the plasters quick-soaking and easily blended with lime putty. **CHAMPION** (quick-set) and **STAR** (slow-set) are white gauging plasters for finish work. **Red Top Gauging** is slightly darker in color and is available in quick-set (QS), and slow-set (SS). These plasters are also available with added perlite fines and are designated as "Quality," for use over lightweight aggregated basecoat plasters.

Mixing: add gauging plaster to lime putty in proportion of 1 part dry gauging plaster by weight to 2 parts dry lime by weight or 1 part dry gauging by volume to 3 parts lime putty by volume. To mix, form a ring of lime putty on the mixing board. The volume of putty used depends on the wall or ceiling area to be covered. A hod of lime putty weighs approximately 100 lbs., a 12-qt. bucket of lime putty about 35 lbs. (50 lbs. dry lime equals 100 lbs. lime putty). After forming the putty ring, pour clean water into the center of the ring in correct proportions: 6 qts. of water to 100 lbs. of lime putty; 2 qts. of water to each 12-qt. bucket of lime putty. Next, sift "slow", "medium" or "quick" set gauging plaster into water; 25 lbs. gauging plaster to one hod of lime putty. Thoroughly wet the gauging plaster and blend the materials *thoroughly* to prevent gauging "streaks" and provide uniform density.



Sift gauging plaster into water



Mix to blend thoroughly

To protect against finish coat check or map-cracking, add $\frac{1}{4}$ cu. ft. perlite fines or 50 lbs. silica sand to every 100 lbs. of gauging used. This addition is necessary when applying smooth troweled finishes over lightweight aggregate basecoats. Mill-aggregated "Quality" gauging plasters are generally available and eliminate the need for on-the-job measuring.

Apply the gauged lime putty over a partially dry basecoat. Scratch in a thin coat, well ground into the basecoat, and double back with a second coat, filling imperfections. After the basecoat has absorbed most of the excess water from the finish, trowel to densify the surface. As final set takes place, water-trowel the surface to provide a dense, smooth surface.

STRUCTO-GAUGE GAUGING PLASTER

This is a high-strength gypsum finishing plaster designed for use with lime putty to produce an easily applied finish of extreme hardness. It is available in "Quick Set" (30 to 40 min.) and "Slow Set" (60 to 75 min.) and complies with ASTM C28 for gypsum gauging plaster and Fed. Spec. SS-P-00402a, Type V and has the added property of a compressive strength of at least 5000 lb. psi when tested in accordance with this specification.

Finish hardness may be altered by varying the proportions of lime putty and **STRUCTO-GAUGE**. Since the material cannot be retempered, use regular Keenes Cement when retempering is a factor. **STRUCTO-GAUGE** may be used for wall and ceiling finishes as in residential bathrooms, kitchens and where surfaces of extreme hardness and durability are required such as hallways or traffic areas in hospitals or schools. It is not recommended for use where excessive or continued moisture conditions exist. Application must be over high-strength sanded or wood-fibered gypsum basecoat, O.K. Concrete Basecoat or **IMPERIAL Basecoat** only.

Mixing: for a "hard finish" mix in proportions of 100 lbs. dry hydrated lime (200 lbs. of lime putty) to 100 lbs. **STRUCTO-GAUGE**. For a "medium hard" finish, mix in proportions of 200 lbs. dry hydrated lime (400 lbs. of lime putty) to 100 lbs. **STRUCTO-GAUGE**. For best results, machine mix.

Apply like regular finish over a partially dry gypsum basecoat. Scratch in the thin coat, well ground into the base, and immediately double back with second coat, filling imperfections. Water-trowel to a smooth, hard finish, free of all blemishes. Continue troweling until final set has taken place. Clean tools and equipment after each mix.

RED TOP KEENES CEMENT

A high-strength white gypsum plaster used with finish lime putty for extremely hard, dense surfaces. It is the only gypsum plaster that can be retempered. Made in two types: Type I or regular, slow setting (3-6 hours); Type II or quick troweling, setting (1-2 hours). Quick-troweling Keenes must be used with a minimum of 25 lbs. dry hydrated lime per 100 lbs. of Keenes. Both products comply with ASTM C61 and Fed. Spec. SS-P-00410 Type I and II.

Keenes Cement-Lime Finish is similar in many respects to a lime gauged finish except that Keenes Cement, instead of gauging plaster, is used in varying proportions depending on the hardness required and is generally used as a float finish. If a smooth trowel hard finish is desirable, use **STRUCTO-GAUGE Gauging Plaster**. Keenes Cement is for interior use over sanded or wood-fibered gypsum basecoat. Do not apply smooth troweled finish over lightweight aggregate basecoats.

MIXING AND APPLICATION

Sand Float Finish: a commonly used, hard float finish which may be satisfactorily colored. Mix in proportions of 100 lbs. Keenes Cement to 50 lbs. dry lime and 400 lbs. sand, with or without lime-proof colors. Apply in same manner as indicated for Keenes Cement-Lime Finish but instead of the final troweling, use a wood, cork, sponge or felt-covered float to bring the sand particles to the surface to produce a pleasing, durable sand finish.

Keenes Cement-Lime Finish: for medium hard finish, mix in proportion of 100 lbs. lime putty (50 lbs. of dry hydrated lime) to 100 lbs. Keenes Cement. For a hard finish, use 50 lbs. lime putty (25 lbs. of dry hydrated lime) to 100 lbs. Keenes Cement. Apply the finish coat over a set basecoat that has been broomed and is partially dry. Spray with water if surface is too dry but do not soak. Scratch in a thin coat and then double back with a second coat to a true surface. Trowel with water to a smooth, glossy finish, free from blemishes. Continue troweling until finish has set.

finish limes and application

The purpose of finish lime is to provide bulk, plasticity and ease of spread for the finish coat.

There are three types of finish lime: (1) double hydrate, (2) normal hydrate, and (3) quicklime. Each requires different handling for alaking or soaking in order to produce a good finish lime putty.

FINISH LIMES—TECHNICAL DATA

Brand	Type Material	U.S.G. Mfg. Plant	Size Container	Putty Preparation	Approximate Coverage Per Ton
DOUBLE HYDRATED FINISH LIME					
IVORY	Dolomitic Autoclaved	Genoa, Ohio	50 lbs.	None (Use immediately)	500-700 Yds.
HYDRATED FINISH LIME					
GRAND PRIZE	Dolomitic Hydrate	Genoa, Ohio	50 lbs.	Soak 16 hrs.	500-700 Yds.
RED TOP	Dolomitic Hydrate	Genoa, Ohio	50 & 25 lbs.	Soak 16 hrs.	500-700 Yds.
RED TOP	High Calcium Hydrate	New Braunfels, Texas	50 lbs.	Soak 16 hrs.	500-700 Yds.
FINISH QUICKLIME					
RED TOP	High Calcium Quicklime	New Braunfels, Texas	50 lbs.	Soak 16 hrs.	800-1000 Yds.



IVORY FINISH LIME—AUTOCLAVED

This finish lime immediately develops high plasticity when mixed with water and does not require overnight soaking. It mixes easily by hand or machine, is easy to apply and has excellent spreading qualities.

Ivory Finish Lime is over 92% hydrated and complies with Fed. Spec. SS-L-00351a Type F and ASTM C206 Type S.

Mixing: machine equipment must be clean. Place $5\frac{1}{4}$ to 6 gal. clear water per 50 lb. bag of Ivory Finish Lime in mixer.

Using a motor-driven, propeller-type mixer, the complete mixing of lime putty takes 2 to 3 min. and results in a high-quality, easy-working putty. Machine-mixed putty is plastic and coverage is increased from 10 to 15%. With a paddle-type mixer, the mixing time is about 15 min.

Hand-Mixing: for immediate use, place $5\frac{1}{4}$ to 6 gals. of water per 50 lbs. Ivory Finish Lime in mixing box. Add Ivory Lime to water and hoe sufficiently to eliminate lumps. Screen putty through an 8-mesh screen before using.

Overnight Soak: place water hose in bottom of a level soaking box. Run water continuously while sifting Ivory Finish Lime through screen into water. When lime is soaked in this manner, there should be a small amount of excess water over top of lime. If excess water remains on the surface the following morning, absorb excess water by screening in additional Ivory Lime, allow to soak a few minutes, then blend into putty by hoeing. For use, screen through 8-mesh hardware cloth and mix with gauging plaster that meets job requirements.

Apply, following directions in section on Gauging Plasters and Application.

RED TOP AND GRAND PRIZE FINISH LIMES—HYDRATED

These finish limes are economical, easy working, uniform, white and plastic. Both products comply with ASTM C6, Type N, and Fed. Spec. SS-L-00351a, Type F.

Machine Mixing: produces a smoother more plastic putty, easier to use and with better coverage. Use approximately 6 gal. of water to each 50 lb. bag of Red Top or Grand Prize Finish Lime. Mix lime and water to a soupy consistency and then pour into soaking box. Soak mix for a minimum of 16 hrs. to develop maximum workability and plasticity. Screen mix through 8-mesh hardware cloth to assure smooth, lump-free putty.

Hand Mixing: slowly sift Red Top or Grand Prize Lime into water in soaking box. Allow material to take up water for about 20 to 30 min. and then hoe briskly to mix thoroughly. Let mix soak for minimum of 16 hrs. to develop full workability and plasticity. For use, screen through 8 mesh hardware cloth and mix with desired gauging plaster that meets job requirements.

Apply according to directions in Gauging Plaster and Application section.

RED TOP FINISH QUICKLIME

A high-calcium finish lime, Red Top Finish Quicklime produces lime putty that is very plastic and economical to use because of its greater yield. It requires 16 hrs. of soaking and must be handled carefully to prevent burns or clothing damage. Meets Fed. Spec. SS-Q-351 Type C and ASTM C5.

Mixing: In slaking Red Top Finish Quicklime, use approximately 15 gals. clean water per 50 lbs. quicklime and 18 gals. per 60 lbs. of quicklime. Sift quicklime into the water and hoe immediately, working thoroughly and breaking up all hot spots. Continue hoeing until boiling action stops (about 15-20 min.) and then run material into a water-tight aging box.

Soaking or aging of slaked quicklime is necessary to insure complete slaking of all particles, to permit putty to cool before mixing, to develop its full plasticity and to permit the putty to stiffen for easier hodding to gauging board. Allow finely ground and pulverized quicklime to soak at least 16 hrs. before using.

Select proper gauging putty for job requirements and mix with the Red Top Finish Quicklime putty.

Apply, following directions for particular gauging plaster used, as described in section on Gauging Plasters and Application.

43005. 2546

hot and cold weather precautions— finish lime

In Cold Weather: a few precautions will result in improved quality and easier working. Where weather and water are cold, lime develops better plasticity when soaked overnight. The best conditions are a warm room and water over 50° F.

It is important to note that in cold weather the lime putty-gauging mixture requires a longer time to set. Therefore, gauging content should be increased or quick-set gauging added to offset the slower setting time.

Proper heat and ventilation are *musts*. Windows should be opened slightly so that moisture-bearing air moves out of the building. Fast drying after setting is essential to a hard finish.

Many cold weather problems with finish lime are a direct result of improper basecoat conditions. Finish should go over a set, fairly dry basecoat. Since the basecoat will dry slowly in winter, heat and ventilation are needed. The water retentivity of lime putty, plus a cold, "green" base, does not provide enough suction to remove excess moisture. Blistering and cracking can occur due to slow set or the lime may work back through set of the gauging.

In Hot Weather: precautions include proper soaking of lime putty. When the sun is hot, hydrated lime requires $\frac{1}{2}$ to 1 gal. more water per 50 lbs. The water should be cool. Soaking of putty in shade prevents undue water evaporation and helps to prevent curdling and loss of spreading properties. Avoid soaking for periods longer than two or three days.

For application of lime putty-gauging finish plaster, make sure that basecoat is set and partially dry. If applied over a dried out basecoat, water will be drawn from the finish coat resulting in severe check-cracking. Spray the basecoat before finish coat application and trowel finish coat until final set.

acoustical plasters

The main function of acoustical plaster is to absorb sound and reduce noise level. A wide selection of pleasing finishes combined with medium to high light reflection is available. Low in initial cost, they provide greater sound absorption per

dollar than most other commonly used acoustical materials. Basically mineral, they are incombustible and provide an added measure of fire safety.

USG ACOUSTICAL PLASTERS—TECHNICAL DATA

Product	Finish	NRC (1)	Light Reflection (2)	Bag Size (Lbs.)	Coverage/ Ton (Sq. Yds.)(3)
HI-LITE	stippled	.60	80%	40	250-290
	stipple perforated	.60	77%		
AUDICOTE	machine textured	.55	Satin White 65% Spec. White 70%	38	350-400

(1) Noise reduction coefficient—from standard tests at a recognized laboratory. Care must be taken to mix the material to specified consistencies and to uniformly fill grounds.
(2) Light reflection from an independent recognized laboratory.
(3) Coverage based on $\frac{1}{2}$ " thickness. Actual sheet will vary depending upon method of application. When ordering, specify application method and sq. yds. to be covered.



Stippled Stipple-perforated Machine textured

HI-LITE ACOUSTICAL PLASTER

This lime base acoustical plaster is pure white, making it particularly suitable for use in schools and office buildings where light reflection is of importance. It can be used in areas of high humidity because of its high moisture resistance; also resists spreading of rust stains. HI-LITE plaster develops its acoustical properties by mechanical opening of the surface by stippling and perforating. When perforated, this acoustical plaster can be painted without loss of sound absorption qualities. Complies with Fed. Spec. SS-S-111, Type I and II (NRC Grade 5); sound absorption grade 105; class not determined.

Mix by machine. Add approx. ~~33~~ ³⁵ gal. water per bag of HI-LITE Plaster and mix until mortar weighs 15 to 17 lbs. net per 12-qt. pail (about 10-15 min. depending on mixer speed). Prepare 1 hour's supply of plaster at a time.

Application over metal lath, gypsum lath or masonry bases (except monolithic concrete) requires a full scratch coat and

LB 005 2548

Stippling Hi-LITE
Acoustical PlasterPerforating is done
after stippling

brown coat of gypsum plaster that has been cross-raked. Where basecoat resistance to high humidity is required, Hi-Lite Acoustical Plaster may be applied over a full, cross-raked portland cement-lime basecoat. For the first coat of acoustical plaster, apply over a set and dry, partially dry or semi-"green" basecoat.

Scratch in hard $\frac{1}{8}$ " and double back to a total thickness of $\frac{1}{2}$ ". Use a wood or serrated metal darby for a true, uniform, roughened surface and allow plaster to dry overnight. Apply finish coat $\frac{1}{8}$ " thick, working from wet edge to avoid joinings.

Stipple Finish: after surface sheen has disappeared (15-30 min.), stipple with a rice root stippling brush. Work on areas around doors and windows first since they dry faster.

Perforating: for a stipple-perforated finish, perforate about 30 min. after stippling (when surface is hard enough to give clean perforations). Use perforator with stainless steel prongs and hold so that prongs are at right angles to plaster surface. Perforate about $\frac{3}{16}$ " deep, 500 per sq. ft.

AUDICOTE ACOUSTICAL PLASTER

A low-cost material for machine or hand application, used over properly prepared gypsum or portland cement basecoats, monolithic concrete or stable, prefabricated concrete units.

Available in Satin White and Special White, the uniform texture when spray-applied is ideal for use on large continuous surfaces. It is fire-resistant, may be decorated with minor reduction in sound absorption and can be economically refinished with a spray coat of AUDICOTE. Complies with Fed. Spec. SS-S-111, Type I and II (NRC Grade 5); sound absorption grade 105; class not determined.

Machine Mixing is the recommended method. For first coat, use about 55 qts. clean water per bag of AUDICOTE. For machine-applied finish coat, use more water—70 to 90 qts.—depending on machine used and finish desired. More water produces a finer texture. For hand-applied finish coat, mix with about 55 qts. water per bag. Add plaster to water and mix for at least 5 min.

Hand Mixing: requires about 48 qts. water per bag. Hoe the mix to develop even consistency, free of lumps.

Machine Application: apply first coat $\frac{7}{16}$ " thick, level with darby and point up with trowel for a smooth, even coat. Allow to dry partially and apply $\frac{1}{8}$ " thick finish coat.

Hand Application: for the first coat, apply AUDICOTE $\frac{1}{2}$ " thick. Level with darby to smooth, level base, allow to dry partially and apply $\frac{1}{8}$ " thick finish coat. After finish coat has taken up sufficiently, it may be stippled, stipple-perforated, floated, darbyed or troweled for the desired finish.

PAINTING ACOUSTICAL PLASTERS

Remove dust and dirt with vacuum cleaner. First coat: 1 part TEXOLITE Standard Paint to 1 part water by volume. Second Coat (if required): 1 part TEXOLITE Standard Paint to 2 parts water by volume.

Use Binks Model 18 spray gun-66 SS (.070 orifice) with 30-40 lbs. pressure in gun and 20-30 lbs. on paint. Hold nozzle 14" to 18" from work and cover in one pass. Allow overnight drying between coats or longer in humid weather.

special plasters

U.S.G. produces a number of special plasters, among them Red Top Moulding Plaster and Red Top Casting Plaster.

RED TOP MOULDING PLASTER

Used for specialized work such as ornamental trim or running cornices, the grain of Red Top Moulding Plaster is very fine,

for sharp detail when used neat for cast work. For running cornice work, add a small amount of lime putty to add plasticity and to act as a lubricant for the template. Complies with ASTM C28 and Fed. Spec. SS-P-00402a, Type V.

RED TOP CASTING PLASTER

Red Top Casting Plaster is like moulding plaster but has finer particle size. This gives smoother castings—important in casting fine plaques and art statuary. It is highly plastic and has great surface hardness and strength. For mixing, add only water.

USG SPECIAL PLASTERS

Product	Bag Size (Lbs.)	Approx. Cu. Ft. per 100-lb. Bag
RED TOP Moulding Plaster	50	1.5
RED TOP Casting Plaster	100	1.5

PYROBAR MORTAR MIX

This is a mill-mixed mortar specially prepared for setting up gypsum, clay or other non-load bearing tile. Can be machine- or box-mixed with addition of water only. Develops better bond to gypsum block than portland cement mortars, is easy to use and offers high coverage.

Mix PYROBAR Mortar Mix in clean mortar box or mixer. Add clean water to obtain proper consistency. Use clean tools and equipment and do not mix more material than can be used in one hour. PYROBAR Mortar Mix is available only in Eastern Area.

RED TOP PARTITION TILE CEMENT

This is a specially prepared gypsum cement, used with sand and water, for setting interior partition units of PYROBAR Gypsum Tile or clay tile. Red Top Partition Tile Cement makes an easy-working, economical mortar for column fire-proofing coverings. It provides definite set, fine bedding and early high-strength qualities that insure strong, rigid joints for any non-load bearing partition.

Mix RED TOP Partition Tile Cement in a clean mortar box. Use 1 part cement to 3 parts sand by weight and add clean water to

LB 005 2549

bringing to the right working consistency. Add sand to comply with ASTM Specs. Do not retemper tile mortar.

RED TOP RETARDER AND RED TOP ACCELERATOR

Red Top Retarder and Red Top Accelerator are available for use with plaster when required by job or climate conditions. When used in excess, setting and drying problems can arise. Avoid especially use of too much retarder which can weaken the plaster finish.

sound control and insulation products

Adequate sound control is one of the fastest growing requirements in today's buildings. The public has become sufficiently "noise-conscious" to demand effective measures to control unwanted sound in both commercial and residential construction. With its advanced research, U.S.G. has been a leader in developing new systems and products for efficient, low-cost sound control for plastered walls and ceilings in all types of new construction and remodeling.

THERMAFIBER SOUND ATTENUATION BLANKETS

These are semi-rigid, paperless, spun mineral fiber blankets of uniform dimension and controlled density. When inserted in the partition cavity from floor to ceiling, these blankets help provide excellent fire ratings and substantially increase STC ratings of partitions.

THERMAFIBER INSULATING WOOL (REGULAR) BLANKETS

These blankets consist of mineral fibers mechanically formed into a uniform mat of definite dimension and controlled density. One side is enclosed with a strong asphalted paper which also forms nailing flanges. The breather side is enclosed in a durable fire-resistant, porous kraft paper; open-faced batts are available if required. This is a top-efficiency product providing an STC rating as high as 56 for sound isolation in partitions systems. See Chapter 4 for sound test data.

THERMAFIBER Blanket Data

Type	Thickness	Width (Inch)	Length (Feet)
Sound Attenuation	1" 1½" or 2"	16 or 24	4
Regular	2" or 3"	15, 19, or 23	4, 8, or 24
Fast-Fit	2", 3" or 3½"	15	4 or 8
M-S	2", 3" or 3½"	16 or 24	4 or 8

NOTE: Check local availability of package sizes.

THERMAFIBER Fast-Fit Blankets meet the need where quick application is the most important factor. They have no flanges, thus eliminate need for staple fastening; are made slightly wider than normal to give snug friction fit between studs; open-faced on breather side. Used for sidewalls only. Fast-Fit Blankets require a separate vapor barrier, such as Insulating Rocklath or Imperial Plaster Bases, or a 4 mil polyethylene film.

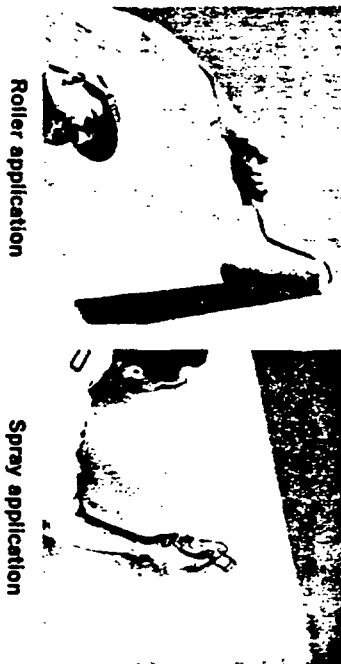
THERMAFIBER M-S Blankets are specially designed for insulating exterior furring and curtain wall assemblies which utilize metal studs. They are flangeless, open-faced on breather side, made like Fast-Fit Blankets for friction fit and require same types of separate vapor barrier.

USG WOOD FIBER SOUND DEADENING BOARD

A $\frac{1}{2}$ " thick, 4' wide, low-density board, it is used with R-5 clips, Rocklath Plaster Base and plaster to reduce sound transmission through a partition. This board is nailed to 2x4 wood studs and provides a resilient base for the R-5 clips. Limited to interior uses only. Lengths: 4', 8', 10' and 12', packaged: 6 pcs. per bd., weight: 750 lbs. per M sq. ft.

paint products

U.S.G. Paints comprise a complete line of latex, alkyd, oil and texture products specially formulated for plaster and other surfaces—made by the company that knows walls and ceilings best. Included are sealers, primers and other surface preparation products; interior flat finishes, matching enamels and texture paints that are especially effective on veneer plaster ceilings. Recommended applications to plaster are listed in the Selector Guide on following page.



SELECTOR GUIDE TO USG PAINT PRODUCTS

Type of Finish Desired	Special Surface Treatment		Finish Product—Description	Thinners	Method Application	Hours Drying Time		One Gal. Coverage (Sq. Ft.)
	New Work	Redecorating				Touch	Recoat	
PLASTERED INTERIOR WALLS								
Velvet	TEXOLITE Primer-Sealer	None	GRAND PRIZE Latex Wall Paint	NR/w	B1, R1, S1	½	24	450
Flat	TEXOLITE Primer-Sealer	None	PRO-KYD Alkyd Flat	NR/ms	R1, S1, B1	1	24	400
Flat	TEXOLITE Primer-Sealer	None	USG Alkyd Flat Enamel	NR/ms	B1, R1, S1	1	24	400
Semi-Gloss	USG Alkyd Primer-Sealer	USG Alkyd Enamel Undercoat	USG Satin-Lustre Enamel	NR/ms	S1, B2, R2	3	24	450-500
Gloss	USG Alkyd Primer-Sealer	USG Alkyd Enamel Undercoat	DIAMOND Lustre Enamel	NR/ms	S1, B2, R2	3	24	450
Epoxy Glaze	USG Penetrating Sealer	USG Epoxy Enamel or ACREPOX Finish	USG Epoxy Enamel or ACREPOX Finish	SS/USG	S1, B2, R2	4	8	190-220
PLASTERED INTERIOR CEILINGS								
Flat	USG Alkyd Primer-Sealer	USG Alkyd Primer-Sealer	PRO-KYD Alkyd Flat	NR/ms	B1, R1, S1	1	24	400
Flat	TEXOLITE Primer-Sealer	None, or TEXOLITE Primer-Sealer	Any USG latex paint shown for int. walls	—	—	—	—	—
Rough Texture	None (smooth where required)	None (smooth where required)	IMPERIAL QT Texture Finish	W	S only	24	not rec.	—

NOTES: "Drying Time" and "Coverage" estimates are based on average conditions. Touch = furniture can be returned to living areas. Abbreviations, Method of Application: B = brush, R = roller, S = spray, T = trowel; 1, 2, 3 = order of preference.

Abbreviations, Thinners: NR/w—Not recommended, use water sparingly; NR/ms—Not recommended, use mineral spirits if needed; SS/USG—Special Solvent manufactured by U. S. Gypsum.