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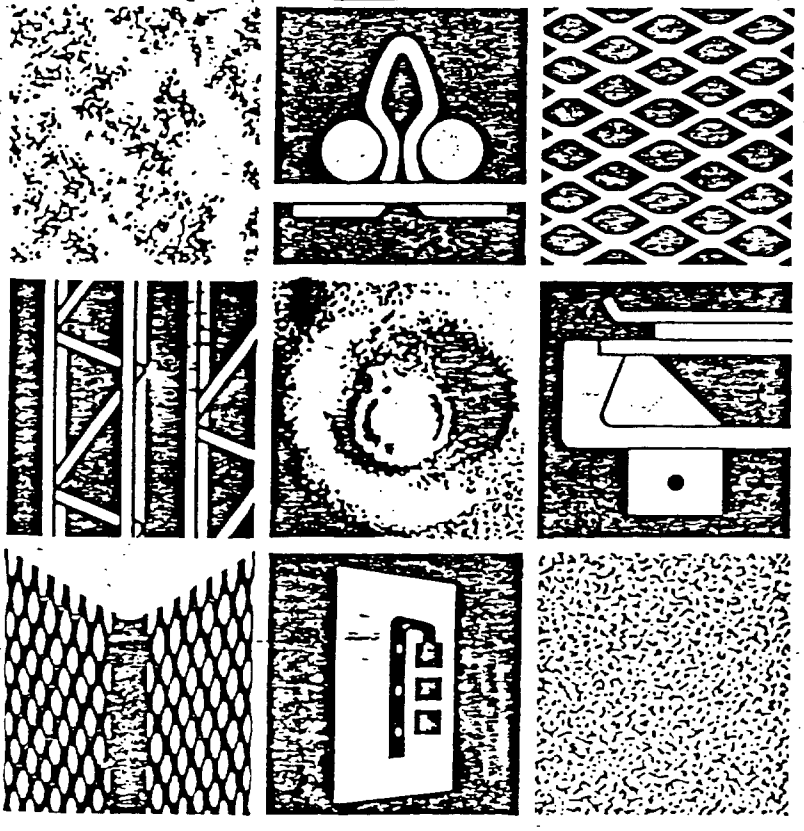
UNITED STATES GYPSUM

#76

27th edition

red book of lathing & plastering

price $1.50



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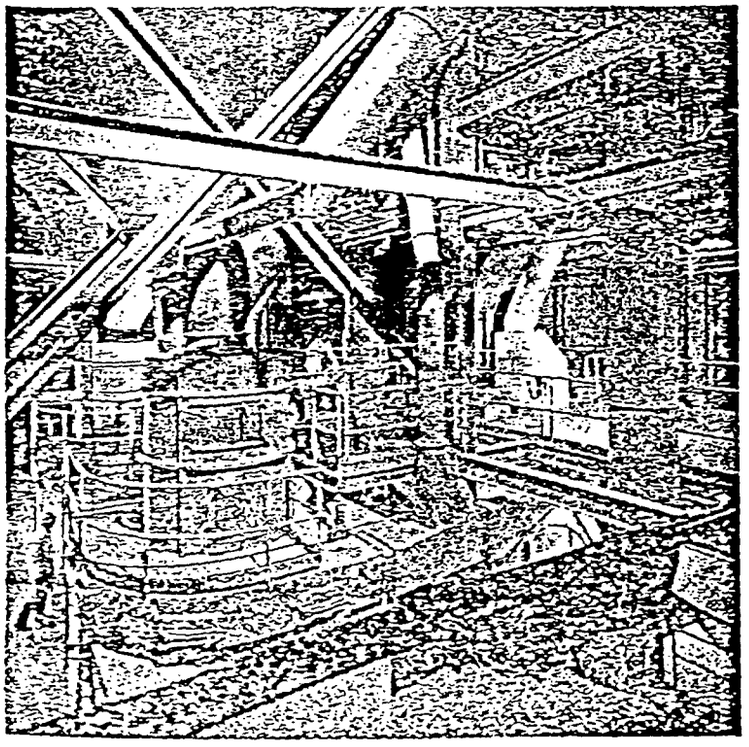
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red book
of lathing & plastering

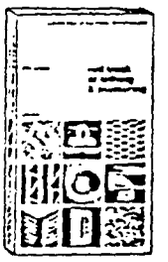
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This RED BOOK is a guide to good lathing and plastering procedures and describes the newest developments in the plastering field—including the time-saving, lower cost methods now booming in popularity.

Versatile and dependable, lath and plaster construction meets the wide range of building requirements including durability and strength, fire resistance and sound isolation. 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.

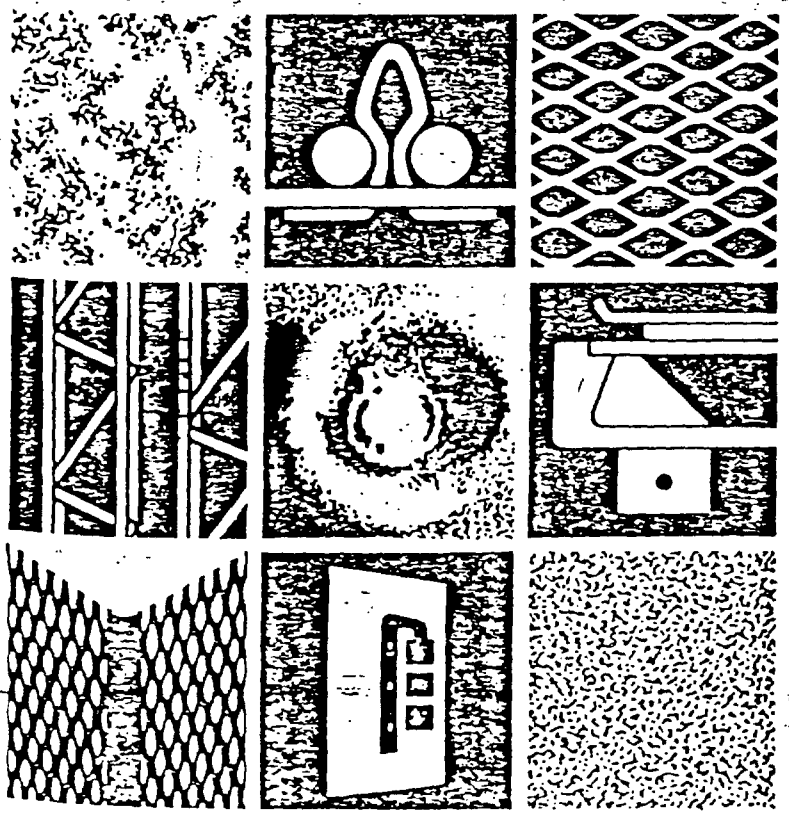
In addition to descriptions of plaster systems and their installation, this book contains new data on products, methods of application and performance ratings. It is designed to serve not only the experienced contractor and journeyman, architect and dealer, but the novice who wishes to better understand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

The United States Gypsum RED BOOK, like the company's plastering products, sets the standard of the industry.

GP042 0665

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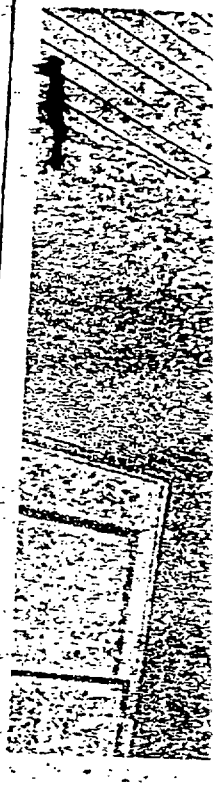
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chapter 1

good lathing and plastering practices



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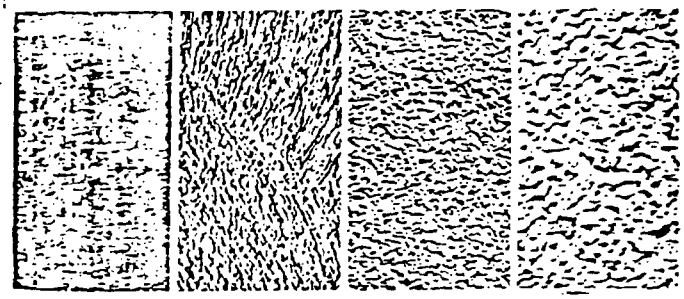
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NICAL DATA

Gauging to Lime, Dry Wt.)	Sq. Yds. per Ton (1)
neat	250-300 ⅛"
100 lbs. gauging 100 lbs. lime	350-425
100 lbs. gauging 200 lbs. lime	400-465
neat	390-445
neat	190-335
neat	190-335
neat	400-500
400 lbs. Keenes 100 lbs. lime	270-350
200 lbs. Keenes 100 lbs. lime	310-425
50 lbs. gauging 100 lbs. lime	325-350
100 lbs. Keenes 50 lbs. lime 400 lbs. sand	260-310
50 lbs. gauging 100 lbs. lime 400 lbs. sand	260-310
neat	150-200 ⅛"

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	Keene's Cement Quick-trowel
1:2	106	75	/	
1:1	231			
2:1			75	112
4:1			88	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 coverings. 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 ½ 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 course 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.

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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.



Machine spray | Dashed and troweled | Hand float

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.

GP042 0669

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.

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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 ½ 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
flasica
added

Produc

HI-LITE

AUDICOT

(1) Noise reduc
taken to mi
(2) Light reflecti
(3) Coverage ba
application.

Stipple

HI-LITE AC

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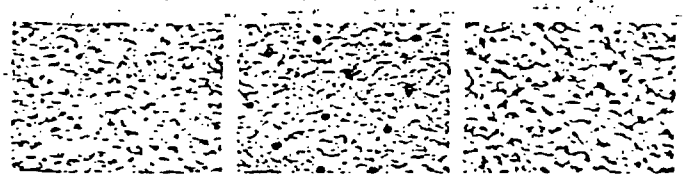
GP042 0671

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 Reflectance (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 apply to uniformly full grounds.
(2) Light reflectance from tests at an independent recognized laboratory.
(3) Coverage based on ½" thickness; amounts shown will vary depending upon method of application. When ordering, specify application method and sq. yds. to be covered.



Stippled Stipple-perforated Machine textured

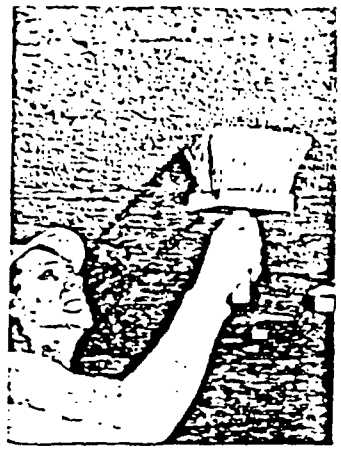
HI-LITE ACOUSTICAL PLASTER

This lime base acoustical plaster is pure white, making it particularly suitable for use in schools and office buildings where light reflectance 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 qts. 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

GP042 0672



Stippling HI-LITE Acoustical Plaster



Perforating 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 ⅛" and double back to a total thickness of ⅜". Use a wood or serrated metal darby for a true, uniform, roughened surface and allow plaster to dry overnight. Apply finish coat ⅛" 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 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 Sa
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Hand Mixing: r
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Perforating is done after stippling

plaster that has been cross-raked. ance to high humidity is required, ter may be applied over a full, cross- lime basecoat. For the first coat of y over a set and dry, partially dry

d double back to a total thickness of ated metal darby for a true, uniform, llow plaster to dry overnight. Apply king from wet edge to avoid joinings.

rface sheen has disappeared (15-30 root stippling brush. Work on areas s first since they dry faster.

-perforated finish, perforate about 30 n surface is hard enough to give clean rator with stainless steel prongs and right angles to plaster surface. Per- 500 per sq. ft.

AL PLASTER

machine or hand application, used ypsum or portland cement basecoats, table, 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 7/16" thick, level with darby and point up with trowel for a smooth, even coat. Allow to dry partially and apply ⅛" thick finish coat.

Hand Application: for the first coat, apply AUDICOTE ⅜" thick. Level with darby to smooth, level base, allow to dry partially and apply ⅛" thick finish coat. After finish coat has taken up sufficiently, it may be stippled, stipple-perforated, floated, darbied 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,

GP042 0674

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	50 100	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 fireproofing 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

bring to the right working co
with ASTM Specs. Do not retem

RED TOP RETARDER AND R

RED TOP Retarder and RED TO
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Avoid especially use of too m
the plaster finish.

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THERMAFIBER SOUND ATT

These are semi-rigid, paperles
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help provide excellent fire rat
STC ratings of partitions.

THERMAFIBER INSULATIN
(REGULAR) BLANKETS

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into a uniform mat of definite
sity. One side is enclosed with a
also forms nailing flanges. The
durable fire-resistant, porous
are available if required. This
viding an STC rating as high
partitions systems. See Chapter

THERMAFIBER

Type	Thickness
Sound Attenuation	1", 1½" or 2"
Regular	2" or 3"
Fast-Fit	2", 3" or 3⅓"
M-S	2", 3" or 3⅓"

NOTE: Check local availability of package sizes.

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