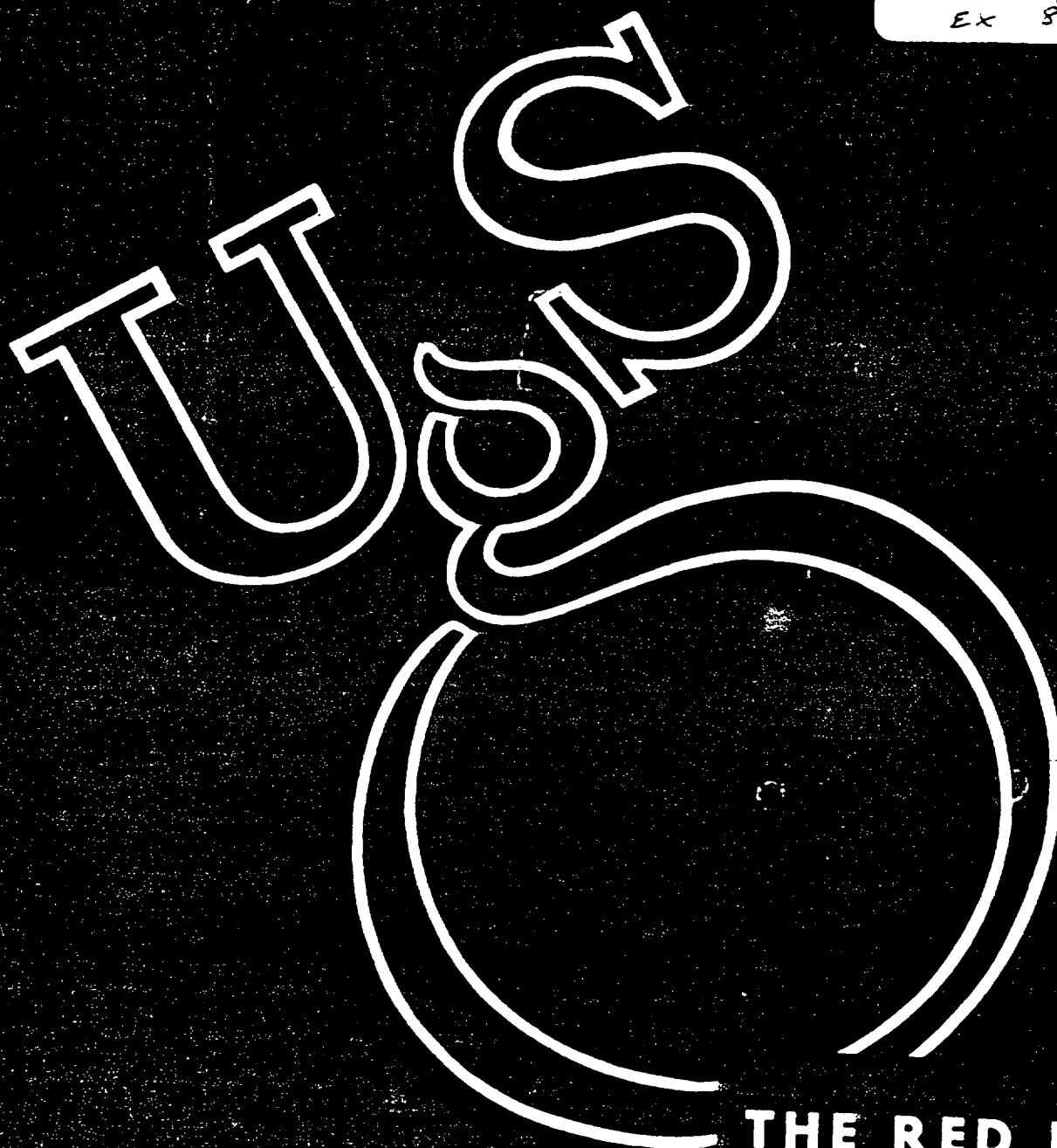


PLAINTIFF'S EXHIBIT

USG-2027

BOWMAN

EX 85



THE RED BOOK
REG. U. S. PAT. OFF.
OF BUILDING MATERIALS

**UNITED STATES
GYPSUM COMPANY**

BB012 2078

A Catalog of
BUILDING MATERIALS
Manufactured by
UNITED STATES
GYPSUM COMPANY



S.M. ANDERSON

REPRINTED FROM SWEET'S CATALOG FILE
WITH ADDITIONAL MATTER



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ADVANTAGES OF GYPSUM IN BUILDING CONSTRUCTION

GYPSUM • THE SOURCE OF MANY UTILITIES

Inherent in Gypsum, and reflected in all of its products are an array of utilities that is rarely found in a single substance. Most of these utilities have a direct bearing on the economics of construction.

Some of these assets are inherent; a few have been built in by research and experience. In Gypsum we have a hydraulic cement:

1. Which is plastic — may be cast or troweled to produce any form.
2. Which possesses a controllable set — from one minute to "hours."
3. Which does not shrink when it sets, but actually expands slightly to fill areas and molds.
4. Whose strength, after setting, is controllable within wide limits — up to 12,000 lbs. per square inch in compression.
5. Which is a useful heat insulator.
6. Which not only does not burn nor support combustion, but provides an unsurpassed fireproofing agent possessing many exclusive advantages.
7. Which supplies no food for vermin or bacteria.
8. Which sets at the predetermined time without need for substances or gases outside of itself to cause set — which requires no aging or curing period.
9. Which, when set, holds nails well.
10. Which can be left in its natural marble-like white state, or can be integrally colored, textured, painted or papered, by any known method.
11. Which bonds to itself, and to any type of lath used for plastering — practically monolithic on Rocklath.*
12. Which contains no alkalies to saponify the oil in paints. Which may be successfully painted with Texolite* as soon as it has set.
13. Which is essentially light in weight — puts no excessive burden on supporting framework.
14. Which has possessed these qualities for centuries under constant test in buildings since the Pyramids were built.

RESEARCH AND CONTROL

With its production predicated on the maximum in quality and leadership in innovations and betterment, the company long ago recognized the value of directed research which could increasingly utilize the inherent properties of Gypsum.

The Building Materials Research Laboratory of the United States Gypsum Company, long a feature of the production program, was consolidated and enlarged in Chicago in 1927. It is housed in a special building providing over 26,000 square feet of laboratories and staffed by 90 technicians and scientists. At this laboratory there is a constant search for better ways of doing those things the company already does well. There is directed research leading toward the invention of new methods of solving building problems more economically, with constructions structurally better, or both. Here, likewise, the possibilities of new raw materials are investigated and control over the adhesion to the specifications of the laboratory for the production of every company product is exercised.

Construction innovations, developed at the laboratories from Gypsum, utilizing these time tested structural assets, are likewise time-tested, and though new, find ready acceptance.

MATERIAL ASSEMBLIES

INTERIOR PARTITION ASSEMBLIES Wood Frame Buildings, Bearing or Non-Bearing, and Fireproof Assemblies	6 to 9
CEILING ASSEMBLIES Including Fireproof Constructions	10 to 13
EXTERIOR WALL ASSEMBLIES Inner and Outer face, Wood Stud and Masonry Constructions	14 to 21

HOW TO USE THIS GUIDE TO SECURE SOUND, SAFE SPECIFICATIONS FOR PARTITIONS, WALLS AND CEILINGS

1. From the tables of material assemblies (pages 6 to 21) select the one which best serves your purpose. Note the type number.

2. From pages 32 to 33 select the plaster and finish you want (if required). Note the type number.

3. Then describe areas involved and your material specification will read:

"... using United States Gypsum Company's 'Type No. C3-B1-F1' all to be applied in full conformance to the Standard Specifications of the American Standards Association for Gypsum Plastering including Requirement for Lathing and Furring."

In the specification above, the Type Nos. given as an example represent the following: C3 (Perforated Rocklath and Plaster), B1 (Neat Gypsum Plaster) and F1 (Prepared Trowel Finish).

The American Standard Specifications are printed in full on pages 34 to 39.

ROCKLATH	22 and 23
METAL LATH	24 and 25
RESILIENT PLASTERING SYSTEM	26 and 27
TRUSSTEEL STUDS	28 and 29
GYPSUM PLASTERS	30-33
AMERICAN STANDARD SPECIFICATIONS <i>Courtesy American Standards Association</i>	34-39
ORIENTAL STUCCO AND ORIENTAL INTERIOR FINISH	40-41
SHEETROCK WALLBOARD	42-43 and 48-53
GYPLAP SHEATHING	44-45

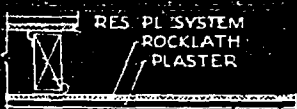
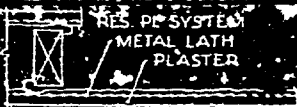
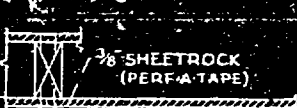
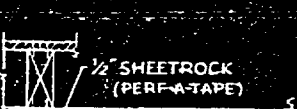
See Complete Index pages 2 and 3 for all materials.

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INTERIOR PARTITION ASSEMBLIES

WOOD FRAME BUILDINGS—Wood Studs, Bearing or Non-Bearing

	Page	Thick- ness (In.)	Wt./sq. ft. Complete Both Sides Plastered	Fire Resistance Including Rough and Finish Floor	Specific Advantages	Average Sound Trans- mission Loss See note page 9	Suggested Decoration	Relative Cost See note page 7	Type No.
 WOOD LATH PLASTER	32	5 1/8	13.8 lbs.	30 min.		32.5	Texolite, other paint or paper	II	P1
 ROCKLATH PLASTER	22 32	5 3/8	13.0 lbs.	55 min.	Added fire protection	39.0	Texolite, other paint or paper	II	P2
 PERF ROCKLATH PLASTER	22 32	5 3/8	13.0 lbs.	1 hr.	Maximum fire pro- tection at low cost	39.0	Texolite, other paint or paper	II	P3
 DIAMOND MESH METAL LATH PLASTER	24 32	5 1/8	16.0 lbs.	1 hr.	Fireproof; resists crack-producing distortions	38.1	Texolite, other paint or paper	VIII	P4
 Z-RIB METAL LATH PLASTER	24 32	5 1/8	15.0 lbs.	1 hr.	Fireproof; resists crack-producing distortions	38.1	Texolite, other paint or paper	VIII	P5
 RES PL SYSTEM ROCKLATH PLASTER	26 22 32	6 1/8	13.0 lbs.	No test	Excellent crack resistance; superior sound insulation	51.9	Texolite, other paint or paper	IX	P6
 RES PL SYSTEM METAL LATH PLASTER	26 24 32	5 7/8	16.0 lbs.	No test	Combines resilient principle with known values of metal lath	No test	Texolite, other paint or paper	XIII	P7
 3/8" SHEETROCK (PERF-A-TAPE)	42	4 3/8	4.8 lbs.	24 1/2 min.	Fire resistive dry wall with con- cealed joints	No test	Texolite, other paint or paper	III	P8
 1/2" SHEETROCK (PERF-A-TAPE)	42	4 5/8	5.8 lbs.	41 1/2 min.	Heavier than P8	No test	Texolite, other paint or paper	IV	P9
 SHEETROCK GRAIN BOARDS (DECORATED Moulding)	50-51	4 3/8	4.8 lbs.	24 1/2 min.	Beauty of natural wood paneling	No test	Self-decorating	XII	P10
 SHEETROCK TILE BOARD (PERF-A-TAPE)	53	4 3/8	4.8 lbs.	24 1/2 min.	Simulates ceramic tile at low cost	No test	Enamel	IX	P11

NOTES

Relative Costs—Higher figures in this column represent higher probable installed costs, lower figures: lower costs. They represent relative position, not proportionate differences. Variations in local material prices, wages and practices make accuracy impossible. The relative costs, labor and material quantities given on these pages, are offered as an aid to preliminary selection only.

Material and labor quantities for all plasters will be found on page 47.

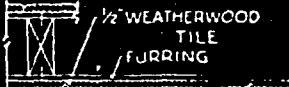
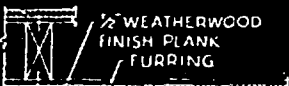
Quantities of material and labor per 100 sq. yds. of partition, both sides.			USE ANALYSIS AND ECONOMICS (All supporting members are on 16" ctrs. unless shown otherwise.)
Material	Quantity	Labor	
Wood Studs Wood Lath	680 lin. ft. 2900 pcs.	9½ hrs. 16 hrs.	Once a standard construction, now largely superseded by Gypsum Lath (below). Plaster on wood lath is less fireproof, more prone to cracking, there is less bracing of the structure. "lath marks" show on plaster, sap and resin exude to stain walls.
Rocklath	1800 sq. ft.	12-14 hr.	Savings in erection and plaster make Rocklath competitive. No slivers or dirt to infect lather's hands. No wetting required. Less nails to buy and drive. Provides stronger bond. Braces the building. Verminproof. Complies with all Building Codes. Keeps moisture of plastering from wood framework. Reduces inspection costs. No small boy thefts. Practically no lath waste as cut pieces can be used.
Perf. Rocklath	1800 sq. ft.	12-14 hr.	All above advantages, plus increased fire protection at no increase in cost for lath. Full ½" of plaster is recommended. Provides full one-hour fire rating for partitions in wood frame buildings at costs of less efficient walls.
Diamond Mesh Lath	210 sq. yds.	16 hrs.	A better construction at a higher price. Strongest plaster construction. Braces building. Resists cracking forces with greater strength. No lath marking. Adds sales values to buildings. One-hour fire rating. Specially recommended for bathrooms and kitchens in homes where lower cost constructions are used in less critical locations. Diamond Mesh Lath assures full specification thickness of plaster, as walls will not be level if plaster is skimmed. Reduces complaints. A plus job for owner, architect, dealer and contractor.
Z-Rib Metal Lath	210 sq. yds.	16 hrs.	Z-Rib Lath produces fewer plaster droppings, saving plaster. The additional rigidity supplied by the ribs permits the use of lighter weight lath on the same spans.
Rocklath Resilient Clips No. 1	1800 sq. ft. 500	24 hrs.	Maximum crack freeness. Walls are "floated" on springs. Movement in supporting framework due to settlement or warping cannot be transmitted to crack plaster until movement exceeds capacity of spring clips. Most sound-insulative construction available for wood frame buildings. Plaster coat cannot be skimmed. A superior construction for the better residence.
Metal Lath Res. Clips No. 200 or No. 100	210 sq. yds. 1350	32 hrs.	The double crack resistance of plaster, reinforced with steel, floated on spring steel clips. All advantages of P6 above plus those of metal lath. A super construction for those who desire the maximum in refinement in plastered walls for wood frame buildings.
Sheetrock Perf-A-Tape* (optional)	1800 sq. ft. 3 boxes*	24 hrs. 20 hrs.	Maximum value in wallboard construction. Fully decorable by any standard method. Joints may be fully concealed, covered by mouldings to produce panel designs or exposed frankly in the modern manner. Use secures faster completion of building. Ideal for alterations and repairs. Resistance to fire and flood exposures has been fully established by an experience record of over 20 years. Requires less paint than other wallboard.
Sheetrock Perf-A-Tape (optional)	1800 sq. ft. 3 boxes*	24 hrs. 20 hrs.	Increased fire protection. More rugged and heavier than construction P8 at nominal cost difference.
Sheetrock	1800 sq. ft.	24 hrs.	See pages 50-51 for illustrations of available wood grain reproductions. A fully predecorated wall in keeping with present demand for natural wood wainscots and wall surfaces. Surfaces may be maintained by waxing or clear lacquer. Reproductions of natural wood grains rival appearance of actual wood. Joints between panels are generally left without treatment and frankly exposed. Nail heads are readily concealed.
Sheetrock Tile Board Perf-A-Tape (rarely needed)	1800 sq. ft. 3 boxes*	24 hrs. 20 hrs.	Effective in bathrooms, kitchens, laundries, long halls, powder rooms, etc. in either wainscot or full ceiling high installations. Impressed mortar joints may be painted a contrasting color. For wainscot work in bathrooms and kitchens sizes of boards are such that little, if any, joint treatment is required.

*Perf-A-Tape combination box for 250 lin. ft. of joint.

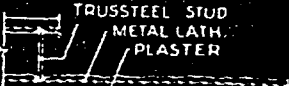
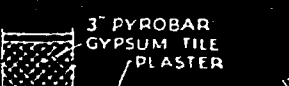
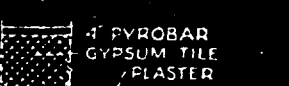
BB012 2084



PARTITIONS (Continued)

	Page	Thick- ness (In.)	Wt./sq. ft. Complete Both Sides Plastered	Fire Resistance Including Rough and Finish Floor	Specific Advantages	Average Sound Trans- mission Loss See note Page 9	Suggested Decoration	Relative Cost See note page 7	Type No.
 WEATHERWOOD BUILDING BD (BATTEN STRIPS)	48	4 $\frac{5}{8}$	3.3 lbs.	No test	Unit wall textured surfaces. Sound absorbent	30.0	Self-decorating. May be painted with Texolite or other paint	I	P12
 1/2" WEATHERWOOD TILE FURRING	48	4 $\frac{5}{8}$	3.4 lbs.	No test	Variations in tile size, texture and color. Sound absorbent	30.0	Self-decorating. May be painted with Texolite or other paint	XI	P13
 1/2" WEATHERWOOD FINISH PLANK FURRING	48	4 $\frac{5}{8}$	3.4 lbs.	No test	Variations in plank width, color and texture. Plank interlock. Sound absorbent	30.0	Self-decorating	VII	P14
 3/4" WEATHERWOOD TILE	48	5 $\frac{1}{8}$	4.2 lbs.	No test	No furring strips. Tile interlock. Sound absorbent	33.0	Self-decorating	X	P15
 WEATHERWOOD HARDBOARD (BATTEN STRIPS)	52	3 $\frac{7}{8}$	3.2 lbs.	No test	Excellent for dadoes and wain- scots	30.0	Unpainted or enamel	II	P16
 WEATHERWOOD HARDBOARD TILE	52	3 $\frac{7}{8}$	3.3 lbs.	No test	Adds simulation of tile to P16	30.0	Enamel	XI	P17

FIREPROOF PARTITION ASSEMBLIES

 2" SOLID PARTITION METAL LATH PLASTER	24 32	2	22.0 lbs.	1 hr.	Space-saving standard partition	37.7	Texolite, other paint or paper	VI	FP1
 TRUSSTEEL STUD METAL LATH PLASTER	28 28 32	Add 1 1/2" to stud size	15.3 lbs. (3 1/4" Studs)	1 hr.	Provides space for ducts and conduits vertically and horizontally	44.8	Texolite, other paint or paper	VII	FP2
 3" PYROBAR GYPSUM TILE PLASTER	54 32	4	20.0 lbs.	2 hrs.	Low cost standard fireproof non- bearing masonry partition	37.6	Texolite, other paint or paper	V	FP3
 4" PYROBAR GYPSUM TILE PLASTER	54 32	5	23.0 lbs.	3 hrs., 59 min.	Increased fire pro- tection over FP3	38.4	Texolite, other paint or paper	VII	FP4

NOTE

SOUND TRANSMISSION—Figures are from laboratory tests on constructions built to standard manufacturers' directions. Confirmation by test under other than laboratory conditions is not guaranteed. Material and labor quantities for all plasters will be found on page 47.

Quantities of material and labor per 100 sq. yds. of partition, both sides.			USE ANALYSIS AND ECONOMICS (All supporting members are on 16" ctrs. unless shown otherwise.)
Material	Quantity	Labor	
Weatherwood Batten strips	1800 sq. ft. 600 lin. ft.	8 hrs. 6 hrs.	Low cost insulative partition for buildings where economy is a major factor. Needs no painting. Mildly textured surfaces in either grayish tan or ivory. May be painted economically with Texolite. See page 70. Batten strips over joints may be omitted.
1x2 Furring Strips (12" ctrs.) Weatherwood Tile	1800 lin. ft. 1800 sq. ft.	8-10 hrs. 16-20 hrs.	Interesting tile patterns in blended colors. Concealed nailing. Ogee edge (see page 48) permits movement in board or structure without producing unsightly gaps at joints—prevents air infiltration at unsupported joints. 12"x12" tile requires cross furring every 12"; 16" tile only when vertical joints are broken. All larger sizes may be applied direct to studding without furring.
Furring (if required 16" ctrs.) Weatherwood	1360 lin. ft. 1800 sq. ft.	8 hrs. 16-20 hrs.	Provides many pleasing variations of decorative treatment at moderate cost. Cross furring on 16" centers is necessary when random width planks are applied vertically. No furring is applied when planks are applied horizontally across the studs or where 16" wide planks are used vertically. (See page 48 for available colors, blends and illustrations of Weatherwood Plank.)
Weatherwood ¾" tile	1800 sq. ft.	14 to 18 hrs.	Heavier tile than P-14. Ogee edges (see page 48) on all four edges of tile. Permits installation without furring strips. Wide variation of decorative tile patterns in blended shades of grayish tan and ivory or in straight colors provide interesting effects.
Weatherwood Hardboard	1800 sq. ft.	18-22 hrs.	Particularly valuable for wainscots and areas where heavy traffic might scuff less rugged material. May be left unpainted or may be varnished, waxed, lacquered or enameled.
Weatherwood Hardboard Tile	1800 sq. ft.	18-22 hrs.	Used wherever a low cost reproduction of ceramic tile is desired. The exceptionally hard surfaces resists wear better. May be given any decorative treatment.

¾" Channels Metal Lath Plaster Sand	910 lin. ft. 105 sq. yds. 4800 lbs. 4.5 cu. yds.	20 hrs. 30 hrs.	Spacing of studs on 12", 13½" or 16" centers is set generally by local ordinances, practices or economy (these calculations are for 12" centers). Their frequency has little effect on the strength of the partition. An ideal, lightweight, quickly built partition for fireproof structures saving many square feet of floor space in buildings with long corridors and many small rooms. Each time a partition is used from 2" to 4" is added to the width of the room. Economical for fireproof housing as its relatively high sound insulation provides much needed isolation between rooms and apartments.
Trussteel Studs 3.4 lb. Z-Rib Lath	680 feet 210 sq. yds.	32 hrs.	Keeps conduits, ducts, etc., within partition spaces. Alterations in conduits may be made at any time after completion without damage to walls as conduits may be placed vertically between studs or horizontally through studs without weakening them. Simple, fast erection. Materials readily transported in passenger elevators for alterations in existing fireproof buildings.
3" Hollow Pyrobar Gypsum Tile Blockset Cmt. Sand	855 sq. ft. 720 lbs. .9 cu. yd.	18 hrs.	An adaptable, highly fireproof, lightweight partition, easily altered. Ideal for office buildings where changes in partition location and new openings in partitions are frequent. Most fireproof partition known for its weight, cost or thickness. Time tested. Clean working. Minimum breakage loss in shipment and erection.
4" Hollow Pyrobar Gypsum Tile Blockset Cmt. Sand	855 sq. ft. 900 lbs. 1.12 cu. yds.	19 hrs.	Twice the fire resistance of FP3, at nominal increase in cost. Ideal partition for stairway and elevator enclosures in fireproof buildings and corridor use where ordinances demand a 4-hour fire rating. Both FP3 and FP4 have been standard construction accepted everywhere for upwards of 40 years. The simplicity with which they may be removed, re-erected and altered to suit changing building occupancy, their full compliance with insurance and ordinance requirements is well known.

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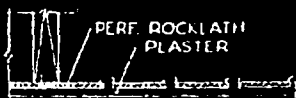
CEILING ASSEMBLIES



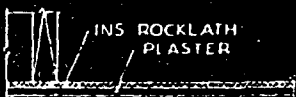
WOOD LATH
PLASTER



ROCKLATH
PLASTER



PERF. ROCKLATH
PLASTER



INS. ROCKLATH
PLASTER



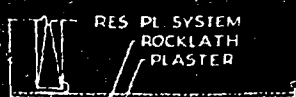
WEATHERWOOD
INS PLAS BASE
PLASTER



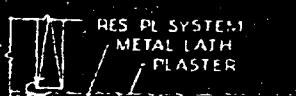
DIAMOND MESH
METAL LATH
PLASTER



Z-RIB
METAL LATH
PLASTER



RES PL SYSTEM
ROCKLATH
PLASTER



RES PL SYSTEM
METAL LATH
PLASTER

Page	Depth to Face of Finished Ceiling (In.)	Weight Sq. Ft.	Fire Resistance Including Rough and Finish Floor	Heat Conductivity per Sq. Ft./Hr./° Diff. in B.T.U's. (Includes 7/8" Yellow Pine Rough Floor)	Suggested Decoration	Relative Cost See note page 11	Type No.
32	3/4	6 lbs.	No test	.28	Texolite, other paint or paper	II	C1
22 32	7/8	5.5 lbs.	No test	.28	Texolite, other paint or paper	II	C2
22 32	7/8	5.5 lbs.	1 hr. with stripped joints	.28	Texolite, other paint or paper	II	C3
22 32	7/8	5.5 lbs.	No test	.21	Texolite, other paint or paper	IV	C4
58 32	1	6.0 lbs.	30 min.	.21	Texolite, other paint or paper	V	C5
24 32	3/4	7.3 lbs.	1 hr.	.30	Texolite, other paint or paper	VI	C6
24 32	3/4	7.3 lbs.	1 hr.	.30	Texolite, other paint or paper	VI	C7
26 22 32	1 1/4	5.5 lbs.	No test	.28	Texolite, other paint or paper	IX	C8
26 24 32	1 1/8	7.3 lbs.	No test	.30	Texolite, other paint or paper	X	C9

NOTES

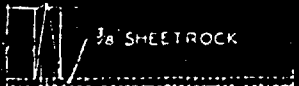
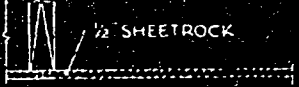
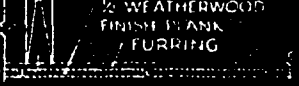
Relative Costs—Higher figures in this column represent higher probable installed costs, lower figures lower costs. They represent relative position, not proportionate differences. Variations in local material prices, wages and practices make accuracy impossible. The relative costs, labor and material quantities given on these pages, are offered as an aid to preliminary selection only.

Material and labor quantities for all plasters will be found on page 47.

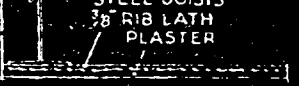
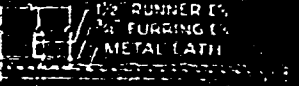
Quantities of material and labor per 100 sq. yds. of partition, both sides.			USE ANALYSIS AND ECONOMICS (All supporting members are on 16" ctrs. unless shown otherwise.)
Material	Quantity	Labor	
Wood lath For plaster see page 47.	1450 pcs.	8 hrs.	Practically displaced for both ceiling and side wall use by gypsum lath because of reduced fire protection and tendency to greater cracking and lath marking, particularly on top floor ceilings.
Rocklath See page 47 for plaster.	900 sq. ft.	6-8 hrs.	A superior ceiling lath and plaster construction at a competitive price. Resistance to bond failures and cracking forces is increased. No wetting required previous to plastering. Uniformly insulative. Wood lath markings do not show on finished work. Available nationally made to the same high standards of excellence; no variations in quality or grade as with wood.
Perforated Rocklath See page 47 for plaster.	900 sq. ft.	6-8 hrs.	Perforations increase fire protection. Full hour rating for ceilings plastered on Perforated Rocklath is secured by applying five $\frac{3}{8}$ "x1 $\frac{1}{8}$ " nails through Rocklath into joists at each bearing and then striping each joint with metal lath strips nailed on with $1\frac{3}{4}$ " galvanized 12 gauge roofing nails every 4", producing low cost 1-hour fireproof ceiling construction for wood frame structures. Joists must be floored with rough and finish floors to secure fire rating.
Insulating Rocklath See page 47 for plaster.	900 sq. ft.	6-8 hrs.	Adds useful insulation at small cost. Metal foil also makes most effective vapor barrier. Excellent method of gaining insulation for low cost homes at increase in cost averaging 1c per sq. ft. of ceiling over regular Rocklath. Since insulation is integral with lath there is no additional cost for installation.
Weatherwood Plaster Base	900 sq. ft.	6-8 hrs.	Weatherwood insulating plaster base is available at about 2c a sq. ft. increase over the cost of Rocklath. This standard type of integral insulation does not require an air space to be effective. Bond with plaster is ample. Lath marks do not show on the ceiling.
Diam. Mesh Metal Lath See page 47 for plaster.	105 sq. yds.	8 hrs.	For full hour fire rating metal lath must be nailed with $1\frac{1}{2}$ " 11 gauge 7/16 head barbed wire roofing nails on 6" centers. Increased crack resistance because of reinforcement afforded by metal. Ideal ceiling construction where spans are long because of greater protection against deflection cracks in plastering. No lath marks on top floor ceilings. Joists must be floored with rough and finish floor to secure fire rating.
Z-Rib Metal Lath See page 47 for plaster.	105 sq. yds.	8 hrs.	Z-Rib Metal Lath slightly more expensive than Diamond Mesh but stiffer construction. Will span joist spaces with less flexing under the application of plaster, consequently, saving some plaster. Cost completed about the same as small Diamond Mesh Lath above. Choice between these constructions is largely a matter of personal opinion.
Rocklath Rocklath Clips No. 1 Clips No. 2 See page 47 for plaster.	900 sq. ft. 400 200	12 hrs.	Supplies resilient system for ceiling constructions. Floated ceilings may be used on long spans with less danger of cracking. Increased sound insulation makes resilient system desirable on ceilings in apartment houses.
Metal Lath No. 200 or No. 300 Resilient Clips	105 yds. 675	16 hrs.	Combines resilient principle of construction C-8 with steel reinforcement for plaster. A superior construction for ceilings in wood frame buildings. Practically complaint-proof ceiling construction.

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	Page	Depth to Face of Finished Ceiling (In.)	Weight Sq. Ft.	Fire Resistance (Minutes) Includes Rough and Finish Floor	Heat Conductivity per Sq. Ft./Hr./° Diff. in B.T.U's. (Includes 7/8" Yellow Pine Rough Floor)	Suggested Decoration	Relative Cost See note page 13	Type No.
 3/8 SHEETROCK	42	3/8	1.5 lbs.	No test	.30	Texolite, other paint or paper	II	C10
 1/2 SHEETROCK	42	1/2	2.0 lbs.	No test	.28	Texolite, other paint or paper	III	C11
 WEATHERWOOD BUILDING BD	48	1/2	.75 lbs.	No test	.22	Optional	I	C13
 1/2 WEATHERWOOD TILE FURRING	48	1 1/2	.75 lbs.	No test	.22	Self-decorating	VIII	C14
 1/2 WEATHERWOOD FINISH PLANK FURRING	48	1 1/2	.75 lbs.	No test	.22	Self-decorating	VII	C15

FIREPROOF CEILING ASSEMBLIES

 BONDCRETE	32	3/8	3 to 5 lbs.	No test	Variations in insulation values of supporting structure prevent fixing heat losses through these constructions	Texolite, other paint or paper	I	C16
 STEEL JOISTS 3/8 RIB LATH PLASTER	24 32	3/4	7.3 lbs.	No test		Texolite, other paint or paper	II	C17
 3/4 FURRING 1/2 METAL LATH PLASTER	24 32	1 1/2	7.4 lbs.	No test		Texolite, other paint or paper	III	C19
 SUSPENDED 1/2 RUNNER 1/2 FURRING 1/2 METAL LATH	24 32	Varies	7.4 lbs.	No test		Texolite, other paint or paper	IV	C20

NOTES

Relative Costs—Higher figures in this column represent higher probable installed costs, lower figures; lower costs. They represent relative position, not proportionate differences. Variations in local material prices, wages and practices make accuracy impossible. The relative costs, labor and material quantities given on these pages, are offered as an aid to preliminary selection only.

Material and labor quantities for all plasters will be found on page 47.

Quantities of material and labor per 100 sq. yds. of partition, both sides.			USE ANALYSIS AND ECONOMICS (All supporting members are on 16" ctrs. unless shown otherwise.)
Material	Quantity	Labor	
Sheetrock Perf-A-Tape (Optional)	900 sq. ft. 1 1/2 boxes*	12 hrs. 10 hrs.	All of the universally recognized and well-known advantages of gypsum wallboard applied to ceiling construction. Either insulating Sheetrock or the inclusion of Red Top Insulating Wool in conjunction with regular Sheetrock is suggested for top floor ceilings.
Sheetrock Perf-A-Tape (Optional)	900 sq. ft. 1 1/2 boxes*	12 hrs. 10 hrs.	Stronger, more rugged construction than that described in C-10 at very slight increase in cost. More fireproof and more rigid.
Weatherwood Batten Strips (Optional)	900 sq. ft. 600 lin. ft.	6 hrs. 6 hrs.	Lowest cost ceiling construction consistent with good building practice. Adds useful amount of heat insulation. Board can be used as it comes from the dealer or painted and decorated immediately after installation or later.
1/2" Weather- wood Tile Furring Strips	900 sq. ft. 900 ft.	8-10 hrs. 4-5 hrs.	Very popular decorative ceiling treatment for new buildings or over old plaster in existing buildings. In new buildings 12 x 12 tile will require furring strips on 12" centers. 16 x 16 tile only require furring strips when joints are broken; for larger sizes furring strips can be omitted. Has all advantages of Ogee Edge described on page 48.
1/2" Weather- wood Plank	900 sq. ft.	8-10 hrs.	Not usually used in ceilings except where special decorative effects are desired, usually in large rooms, public buildings, restaurants, rathskellers, etc. The shape of the plank lends itself readily to rectangular ceiling designs in relief and particularly well for constructions domelike in nature.

Bondcrete	1660-2200 lbs.	6-16 hrs.	Best known, most universally used special plaster for application direct to interior concrete surfaces. Amount of plaster required and labor needed will vary somewhat with nature of the surface to which the material is to be applied. If concrete surface is sufficiently rough and void of greasy and oily materials, plastering costs are increased but slightly over normal plastering materials. Practically eliminates the hazard of applying plaster direct to concrete.
3/8" Rib Lath For plaster see page 47.	105 sq. yds.	12-16 hrs.	The use of 3/8" rib metal lath permits spacing of ceiling supports at not over 19", eliminating use of 3/4" channels for ceiling construction purposes where light, pressed steel beams or bar joists are used. The standard construction in lightweight steel buildings of this type. Rib metal lath may also be laid across the upper flanges of joists of this character to serve both as reinforcement and forms for light concrete slabs, cutting construction costs and definitely reducing the time of construction.
3/4" Furring Channels Metal Lath For plaster see page 47.	750 lin. ft. 105 sq. yds.	20 hrs.	When not spaced over 16" on centers, 3/4" furring channels may be used to support metal lath ceilings where the supports for the channels are not greater than 4' on centers. The difference in economy between the use of rib metal lath and straight metal lath in constructions of this character is best determined after investigation of local prices. Further consideration governing the spans of each will be found on page 38 in paragraph 19 of the American Standard Specifications.
3/2" Furring Channels (16" on centers) 2" Runner Channels Metal Lath	750 lin. ft. 250 lin. ft. 105 sq. yds.	20 hrs.	Standard suspended ceiling construction in fireproof buildings; its supremacy for the purpose has never been contested on either a utility or cost basis. The lightweight channel grillage is flexible in application, ornamental arches, groined ceilings and seemingly difficult framing are executed with ease by any competent lathing and plastering contractor.

*Perf-A-Tape combination box for 250 lin. ft. of joint.

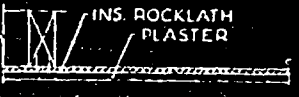
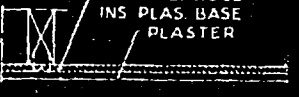
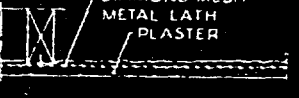
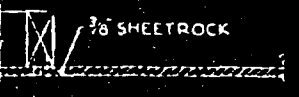
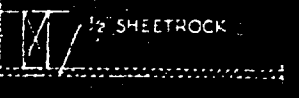
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EXTERIOR WALL ASSEMBLIES

INNER FACE — Wood Studs

	Page	Thickness of Applied Materials (In.)	Wt. of Applied Materials /sq. ft.	Special Characteristics	Suggested Decoration	Type No.
 WOOD LATH PLASTER	32	$\frac{3}{4}$	6.9 lbs.	Standard construction for frame buildings	Texolite, other paint or paper	IW1
 ROCKLATH PLASTER	22 32	$\frac{7}{8}$	6.5 lbs.	Improved fire protection over IW1	Texolite, other paint or paper	IW2
 PERF ROCKLATH PLASTER	22 32	$\frac{7}{8}$	6.5 lbs.	Maximum fire protection in low to medium priced constructions.	Texolite, other paint or paper	IW3
 INS. ROCKLATH PLASTER	22 32	$\frac{7}{8}$	6.5 lbs.	Adds reflective insulation at low cost to IW2	Texolite, other paint or paper	IW4
 WEATHERWOOD INS. PLAS. BASE PLASTER	48 32	1	5.7 lbs.	Adds standard insulation at slight additional costs	Texolite, other paint or paper	IW5
 DIAMOND MESH METAL LATH PLASTER	24 32	$\frac{3}{4}$	8.0 lbs.	Adds crack resistance. Increases plaster thickness.	Texolite, other paint or paper	IW6
 Z RIB METAL LATH PLASTER	24 32	$\frac{3}{4}$	8.0 lbs.	Reduces plaster quantities of IW6. Permits lighter gauge metal because of stiffening rib.	Texolite, other paint or paper	IW7
 RES. PL. SYSTEM ROCKLATH PLASTER	26 22 32	$1\frac{1}{4}$	6.5 lbs.	Spring "floated" wall. Reduced possibility of cracks due to structural movement. No lath or stud markings	Texolite, other paint or paper	IW8
 RES. PL. SYSTEM METAL LATH PLASTER	26 24 32	$1\frac{1}{8}$	8.0 lbs.	Combines excellencies of metal lath with proved advantages of floated wall principle	Texolite, other paint or paper	IW9
 $\frac{3}{8}$ SHEETROCK	42	$\frac{3}{8}$	1.5 lbs.	Dry wall construction reduces time of completion. With unfinished joints costs less than plastering. Joints may be finished to simulate plaster at costs the same or greater than plastering.	Texolite, other paint or paper	IW10
 $\frac{1}{2}$ SHEETROCK	42	$\frac{1}{2}$	2.0 lbs.	More expensive and heavier than IW10. Increases strength and fire protection	Texolite, other paint or paper	IW11

NOTES

RELATIVE COSTS—The variation in possible combinations of materials makes it impossible to usefully relate costs of the constructions shown. The relative cost column for the interior partitions (Pages 6 to 9) will serve if all other conditions are alike.

FIRE RESISTANCE—Similar variations in sheathing, masonry, etc., and lack of tests make comparisons of fireproofness difficult. The figures given under "Interior Partition Assemblies" (Pages 6 to 9) should be helpful if used with discretion.

HEAT INSULATION—Heat loss figures for assemblies of exterior wall materials may be secured by reference to the current "Guide" of the American Society of Heating and Ventilating Engineers where many of them have been calculated. Those which have not may be quickly calculated by following the data and instructions of the "Guide."

Material and labor quantities for all plasters will be found on page 47.

USE ANALYSIS AND ECONOMICS

(All supporting members are on 16" ctrs. unless shown otherwise.)

Quantities of material and labor per 100 sq. yds. of partition, both sides.			
Material	Quantity	Labor	
Wood Lath For Studs see page 6. For Plaster see page 47.	1450 pcs.	8 hrs.	This construction once excellent practice for wood frame structures has been almost entirely superseded by gypsum lath nailed directly to the framing.
Rocklath For plaster see page 47; studs page 6.	900 sq. ft.	6-8 hrs.	A superior, standard construction now available at costs no greater than those of combustible materials. Fire rating almost double. No industrial hazards due to infections from wood lath. No wood lath marking usually noticed on exterior walls.
Perforated Rocklath For plaster see page 47; studs page 6.	900 sq. ft.	6-8 hrs.	Use of perforated Rocklath increases fire rating in wood frame buildings. Should be covered with full 1/2" of plaster to reduce tendency to mark at perforations.
Insulating Rocklath For plaster see page 47; studs page 6.	900 sq. ft.	8 hrs.	Lowest cost method of supplying combination vapor barrier and useful insulation for exterior walls at slight (1c per sq. ft. average) increase in cost for material and no increase in labor quantities. Construction maintains all of the advantages of standard Rocklath as a plaster base and fireproofing material for wood frame structures.
Weatherwood Insulating Plaster Base For plaster see page 47; studs page 6.	900 sq. ft.	8 hrs.	Combines well-known fiber board insulation qualities in an excellent plaster base. Weatherwood insulation does not require an air space to be effective. Increase in cost over standard Rocklath plastering base is about 1 1/2c per sq. ft. Can be used without increase in labor of application as insulation and plaster base are installed simultaneously.
Diamond Mesh Metal Lath For plaster page 47; studs page 6.	105 yds.	8 hrs.	Plaster reinforced with metal. Provides increased protection against cracking forces. One hour fire-rating. Standard construction for the better class job in wood frame buildings.
Z-Rib Metal Lath For plaster see page 47; studs page 6.	105 sq. yds.	8 hrs.	Stiffening rib of Z-Rib Metal Lath permits greater spacing of supports or lighter gauge metal than that normally used for Diamond Mesh Lath. Permits some plaster economy. Priced somewhat higher than construction IW-6. Completely plastered will normally result in a wall no more expensive than that of IW-6.
Rocklath No. 1 Resil. Clips No. 2 Resil. Clips	900 sq. ft. 510 90	12 hrs.	Walls fully floated on springs. Movement in supporting structure due to settlement or twisting of frame much less apt to produce cracks. Floating of wall free from studs eliminates both lath marking and stud marking on exterior wall construction.
Metal Lath Resil. Clips No. 200 or No. 300	105 sq. yds. 775	16 hrs.	All of the advantages of a floated wall, plus the reinforcement received from the metal lath. Maximum in values for plaster work on exterior walls of frame buildings. Costs more and worth it.
3/4" Sheetrock Perf-A-Tape (Optional)	900 sq. ft. 1 1/2 boxes*	12 hrs. 10 hrs.	Standard wallboard construction applied to exterior walls. Shortens time of completing the building. Fully decorable by any means. Use of Perf-A-Tape System seals the joints between adjacent boards, producing a smooth and jointless appearance. Joints may also be covered with batten strips or left untreated in the modern manner.
1/2" Sheetrock	900 sq. ft.	12 hrs.	Heavier, full 1/2" construction, otherwise identical to IW-10. Provides increased rigidity and fire protection.

*Perf-A-Tape combination box for 250 lin. ft. of joint.

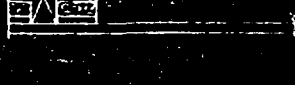
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EXTERIOR WALL ASSEMBLIES (Continued)

WOOD STUDS INNERFACE

	Page	Thickness of Applied Materials (In.)	Wt. of Applied Materials /sq. ft.	Special Characteristics	Suggested Decoration	Type No.
 SHEETROCK GRAIN BOARDS	50	$\frac{3}{8}$	1.5 lbs.	Adds beauty of fine wood grains to incombustible, unit wall construction	Self-decorating	IW12
 SHEETROCK TILE BOARD	53	$\frac{3}{8}$	1.5 lbs.	Deeply pressed tile pattern provides close imitation of ceramic tile when enameled	Enamel	IW13
 WEATHERWOOD BUILDING BD	48	$\frac{1}{2}$	.75 lbs.	Low cost insulating unit wall construction—textured surface—two colors	Left in natural color or painted, especially with Texolite	IW14
 $\frac{1}{2}$ " WEATHERWOOD TILE FURRING	48	$1\frac{1}{2}$	.75 lbs.	Various sizes for interesting tile patterns. Several colors and textures	Self-decorating. May be painted	IW15
 $\frac{1}{2}$ " WEATHERWOOD FINISH PLANK FURRING	49	$1\frac{1}{2}$	.75 lbs.	"Plank" may be varied in width and shade. Ogee edge on long joints	Self-decorating. May be painted	IW16
 $\frac{3}{8}$ " INSULATING SHEETROCK	42	$\frac{3}{8}$	1.5 lbs.	Identical with IW10 but provides bright metal foil insulation and vapor barrier at slight additional cost	Texolite, other paint or paper	IW17
 $\frac{1}{2}$ " INSULATING SHEETROCK	42	$\frac{1}{2}$	2.0 lbs.	Adds bright metal foil insulation and vapor barrier to IW11	Texolite, other paint or paper	IW18
 1" REDTOP INS BLANKET	60	1	2 oz.	Completely inclosed mineral wool blankets with vapor resistive face, automatically forming air space at inner face of studs, and vapor permeable enclosure at outer space. Insulation coefficient .27 B.T.U.'s per sq. ft. per inch of thickness per degree difference in temperature (F.). Insulation added to wood stud wall by blanket and both air spaces is: 1" Blanket192 Medium Blanket112 Thick Blanket086	Specify separately	
 MED REDTOP INS BLANKET	60	Medium	4 oz.			
 THICK REDTOP INS BLANKET	60	Thick	6 oz.			

NOTES

RELATIVE COSTS—The variation in possible combinations of materials makes it impossible to usefully relate costs of the constructions shown. The relative cost column for interior partitions (Pages 6 to 9) will serve if all other conditions are alike.

FIRE RESISTANCE—Similar variations in sheathing, masonry, etc., and lack of tests make comparisons of fireproofness difficult. The figures given under "Interior Partition Assemblies" (Pages 6 to 9) should be helpful if used with discretion.

HEAT INSULATION—Heat loss figures for assemblies of exterior wall materials may be secured by reference to the current "Guide" of the American Society of Heating and Ventilating Engineers where many of them have been calculated. Those which have not may be quickly calculated by following the data and instructions of the "Guide."

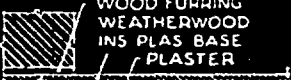
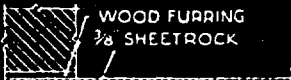
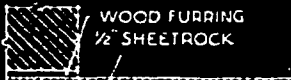
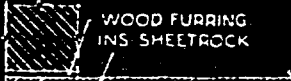
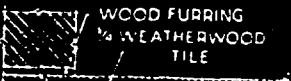
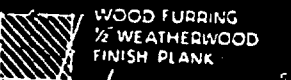
Material and labor quantities for all plasters will be found on page 47.

USE ANALYSIS AND ECONOMICS

(All supporting members are on 16" ctrs. unless shown otherwise.)

Quantities of material and labor per 100 sq. yds. of partition, both sides.			
Material	Quantity	Labor	
Sheetrock Grain Board	900 sq. ft.	12 hrs.	Sheetrock Grain Board (see construction P10 page 7) becomes more useful for exterior walls when backed with bright metal foil insulation which simultaneously provides heat insulation equivalent to 1/2" of fibre board plus a most desirable and efficient vapor barrier on the correct (warm) side for about 1c per sq. ft. more. Insulation integral with the wall finish requires no additional labor for installation.
Sheetrock Tile Board	900 sq. ft.	12 hrs.	For tile-like wainscots or full walls in bathrooms, kitchen, etc. Economical. Easily decorated with enamel.
Weatherwood Bldg. Board For Batten Strips see P-2, page 8.	900 sq. ft.	4 hrs.	Weatherwood Building Board frequently used in low cost building constructions for partition purposes is even more desirable on the inner face of the exterior wall because of the very useful insulation it supplies. Quickly installed, it can be erected with or without batten strips.
1 1/2" Weatherwood Tile 1x2 Furring Strips	900 sq. ft. 680 lin. ft.	8-10 hrs. 4-5 hrs.	This construction, of course, duplicates the partition construction of Type P-13, providing identical values, plus the desirable increase in insulation secured, simultaneously, without extra labor.
Weatherwood Finish Plank For Furring see IW15 above.	900 sq. ft.	8-10 hrs.	Applied vertically or horizontally, this construction adds insulation value to exterior walls and continues the other desirables described in the partition section. Furring strips will not be required if the planks are applied horizontally. If they are applied vertically, planks of less than 16" width will require cross furring on 16" centers.
3/8" Insulating Sheetrock	900 sq. ft.	12 hrs.	The proper exterior wall where Sheetrock is used. The additional insulation afforded by the bright metal foil provides maximum insulation values considering costs plus a most efficient vapor barrier without any additional labor expense. Material and labor quantities for treating joints with Perf-A-Tape are given on page 14 under Type IW-10.
1/2" Insulating Sheetrock	900 sq. ft.	12 hrs.	Identical in type and utilities to IW-17 above, except heavier Sheetrock provides more rugged construction with added fireproofing value at slight additional cost.
Red Top Ins. Wool Blanket either 1" Med. or Thick	844 sq. ft. (Net as sold)	Wall Work 11 1/4 hrs. Ceil. Work applied from above 7 1/2 hrs. Ceil. Work applied from below 15 hrs.	The theoretical heat insulation values added to any construction by Red Top Insulating Wool Blankets are shown in the "Special Characteristics" column on the opposite page. The theoretical advantages of insulation are rarely obtained in structures unless the insulation is properly designed and installed. Red Top Insulating Wool Blankets offer these (in many cases "exclusive") desirables, designed to procure maximum insulative results in actual construction. 1. The insulating wool is firmly attached to the enclosing envelope. The envelope, in turn, is firmly tacked to the supporting wood framework so that the insulation is held in place permanently—no sagging or bare spots. 2. Each blanket is uniformly thick throughout its width. There is no "pinching" or reduction in thickness at the edges. 3. More thorough protection against the entry of vapor (no condensation within wall spaces). 4. Low heat capacity—less heat is retained in the blanket to be fed back to the house in the summertime. 5. Rapid installation. Completely incombustible wool actually increases the fireproofness of any type of wall or ceiling construction. 6. Harmless to health—odorless—provides no food or nesting material for vermin. 7. Three thicknesses—which fit the needs of any climate or pocketbook. 8. More effective insulation per dollar spent.

INNER FACE — Masonry

	Page	Thickness from Face of Masonry to Finished Face (In.)	Wt. of Inner Face Installed /sq. ft.	Special Characteristics	Suggested Decoration	Type No.
 WOOD FURRING ROCKLATH PLASTER	22 32	1 7/8	6.5 lbs.	Best reasonably priced method of finishing interior of masonry wall with plaster	Texolite, other paint or paper	IW19
 WOOD FURRING INS ROCKLATH PLASTER	22 32	1 7/8	6.5 lbs.	Adds reflective insulation and effective vapor barrier to IW19	Texolite, other paint or paper	IW20
 WOOD FURRING WEATHERWOOD INS PLAS BASE PLASTER	58 32	2	5.7 lbs.	Adds standard insulation at small cost	Texolite, other paint or paper	IW21
 WOOD FURRING DIAMOND MESH METAL LATH PLASTER	24 32	1 3/4	8.0 lbs.	Better resistance to crack producing distortions	Texolite, other paint or paper	IW22
 WOOD FURRING Z-RIB METAL LATH PLASTER	24 32	1 3/4	7.5 lbs.	Stiffening effect of Z-Rib reduces plaster quantities.	Texolite, other paint or paper	IW23
 WOOD FURRING 3/8" SHEETROCK	42	1 3/8	1.5 lbs.	On furring strips, this "unit" wall construction reduces completion time. Can be finished to simulate plaster at costs about the same or greater than plaster	Texolite, other paint or paper	IW24
 WOOD FURRING 1/2" SHEETROCK	42	1 1/2	2.0 lbs.	Adds strength, fire protection at slight costs to IW24	Texolite, other paint or paper	IW25
 WOOD FURRING INS SHEETROCK	42	1 3/8	1.5 lbs.	Adds reflective insulation of bright metal foil to IW24	Texolite, other paint or paper	IW26
 WOOD FURRING WEATHERWOOD BUILDING BD	48	1 1/2	.75 lbs.	Low cost insulative unit wall construction	Self-decorating. May be painted, especially with Texolite	IW27
 WOOD FURRING 1/2" WEATHERWOOD TILE	48	1 1/2	.75 lbs.	Decorative and insulative tiles in many sizes for many patterns	Self-decorating. May be painted, especially with Texolite	IW28
 WOOD FURRING 3/4" WEATHERWOOD TILE	48	1 3/4	1.2 lbs.	Heavier, stronger, more insulative than IW28	Self-decorating. May be painted, especially with Texolite	IW29
 WOOD FURRING 1/2" WEATHERWOOD FINISH PLANK	48	1 1/2	.75 lbs.	Interesting blend of colors. "Plank" width may be varied	Self-decorating. May be painted, especially with Texolite	IW30

NOTES

RELATIVE COSTS—The variation in possible combinations of materials makes it impossible to usefully relate costs of the constructions shown. The relative cost column for interior partitions (Pages 6 to 9) will serve if all other conditions are alike.

FIRE RESISTANCE—Similar variations in sheathing, masonry, etc., and lack of tests make comparisons of fireproofness difficult. The figures given under "Interior Partition Assemblies" (Pages 6 to 9) should be helpful if used with discretion.

HEAT INSULATION—Heat loss figures for assemblies of exterior wall materials may be secured by reference to the current "Guide" of the American Society of Heating and Ventilating Engineers where many of them have been calculated. Those which have not may be quickly calculated by following the data and instructions of the "Guide."

Material and labor quantities for all plasters will be found on page 47.

Quantities of material and labor per 100 sq. yds. of partition, both sides.			USE ANALYSIS AND ECONOMICS (All supporting members are on 16" ctrs. unless shown otherwise.)
Material	Quantity	Labor	
Wood Furring Rocklath	680 ft. 900 ft.	4-5 hrs. 6-7 hrs.	Standard furred construction properly safeguards plaster and lath against moisture difficulties, stops efflorescence from masonry appearing on inner plastered wall. Preventing further difficulties with paint and other types of decoration. Adds useful insulation at no cost.
Wood Furring Ins. Rocklath	680 ft. 900 ft.	4-5 hrs. 6-7 hrs.	Insulating Rocklath adds a plus value to construction IW-19 in additional useful insulation at a cost of approximately 1c per sq. ft. Since the insulation is installed integrally with the Rocklath there is no expense for its installation. The effective vapor barrier of the metal foil on the Rocklath minimizes the possibility of deleterious condensation in the air space or within the masonry as entrance of vapor which could condense is restrained.
Wood Furring Weather-wood For plaster see page 47.	680 ft. 900 sq. ft.	4-5 hrs. 6-8 hrs.	Supplies effective insulation of popular insulation board integrally with the plaster base at no cost for installation of the insulation. Additional cost for the material averages 1½c per sq. ft. above Rocklath cost.
Wood Furring Metal Lath For plaster see page 47.	680 ft. 105 sq. yds.	8 hrs.	Adds resistance to cracks because of steel reinforcement. Increased fire protection. A superior construction for the better class building.
Wood Furring Z-Rib Metal Lath For plaster see page 47.	680 ft. 105 sq. yds.	4-5 hrs. 8 hrs.	Z-Rib Metal Lath of equal weight slightly more expensive than small Diamond Mesh but saves sufficient plaster to offset difference. See same construction under Interior Partition Assemblies for more complete analysis and comparison with Diamond Mesh Lath construction.
Wood Furring ¾" Sheetrock	680 ft. 900 sq. ft.	4-5 hrs. 12 hrs.	Standard wallboard construction on the interior of masonry walls for almost 20 years. Air space back of Sheetrock produces insulation value and prevents difficulties from efflorescence from masonry. Either paint or wallpaper may be applied to the construction. Insulating Sheetrock (IW-6) may be substituted for slight increase in material cost.
Wood Furring ½" Sheetrock	680 ft. 900 sq. ft.	4-5 hrs. 12 hrs.	The use of ½" Sheetrock adds additional fire protection, rigidity and ruggedness at a slight increase in cost.
Wood Furring Ins. Sheetrock	680 ft. 900 sq. ft.	12 hrs.	Adds the value of reflective insulation as in construction IW-20 above at a similar increase in cost with no expense for installation labor.
Wood Furring ½" Weatherwood Building Board	680 ft. 900 sq. ft.	4-5 hrs. 8 hrs.	Lowest cost method of properly finishing the interior of a masonry wall. Weatherwood building board may be exposed as it comes to the job or painted. The joints between adjacent units may be covered with batten strips or left frankly exposed. Material and labor quantities for the batten strips will be found on page 9 in the partition section.
Wood Furring ½" Weatherwood Tile	680 ft. 900 sq. ft.	4-5 hrs. 8-10 hrs.	Adds definite decorative effect to construction IW-27 at a slight increase in price. Spacing of furring strips designed for use of 16" tile. 12" tile will require furring spaced on 12" centers, for cost of which see page 9 in the partition section.
Wood Furring ¾" Weatherwood Tile	680 lin. ft. 900 sq. ft.	4-5 hrs. 7-9 hrs.	Thicker construction, increased insulation and greater freedom in decorative design because of the variety of sizes available. Readily fits standard trim used for lath and plaster.
Wood Furring ½" Weatherwood Plank	680 lin. ft. 900 sq. ft.	4-5 hrs. 8-10 hrs.	Wall must be cross furred, placing furring parallel to floor, if Weatherwood plank is installed with long edges vertical. Use vertically applied furring if planks are to be applied horizontally. Shows all of the economy and beauty of partition construction P-4, plus useful insulation for exterior wall use.

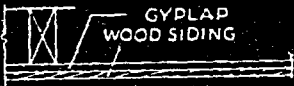
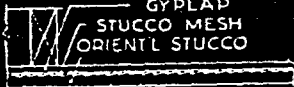
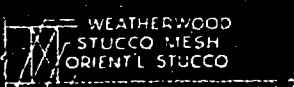
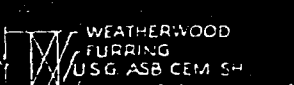
NOTE: The practice of applying plaster direct to the inner face of masonry exterior walls, while common in some parts of the country, is not generally considered as good practice unless masonry is known to be water-tight and well laid on fully bedded mortar joints.

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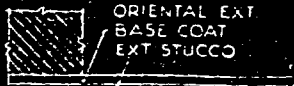
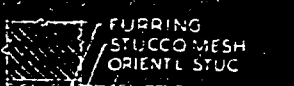


EXTERIOR WALL ASSEMBLIES (Continued)

OUTER FACE — Wood Studs

	Page	Thickness of Applied Materials (In.)	Wt. of Applied Materials /sq. ft.	Special Characteristics	Suggested Decoration	Type No.
 GYPLAP WOOD SIDING	44	1	3 lbs.	Fireproof, strong sheathing. Tight joints, no knots. Does not require building paper. Installed costs less than wood	Paint	EW4
 GYPLAP STUCCO MESH ORIENT'L STUCCO	44 24 40	1½	14 lbs.	With gypsum plaster on Rocklath or metal lath for interior face, this construction provides maximum fire protection in stud exterior walls	Self-decorating	EW5
 GYPLAP FURRING USG ASB CEM SID	44 60	1-1/8 (1-3/8 if Naillex Fasteners are used—see page 67)	3.8 lbs.	All advantages of EW4 plus incombustible siding	Self-decorating	EW6
 WEATHERWOOD ASPH COATED SH WOOD SIDING	58	1	1.8 lbs.	Adds standard insulation. Tongued and grooved long joints plus asphalt coating eliminate need for building paper	Paint	EW7
 WEATHERWOOD STUCCO MESH ORIENT'L STUCCO	58 24 40	1½	12.8 lbs.	Insulative sheathing plus maximum stucco job. Building paper not needed.	Self-decorating	EW8
 WEATHERWOOD FURRING USG ASB CEM SH	58 66	1-1/8 (1-3/8 if Naillex Fasteners are used—see page 67)	2.6 lbs	Insulative sheathing plus advantages of asbestos siding (See EW3). No roofing felt required under siding	Self-decorating	EW9

OUTER FACE — Masonry

		Thickness from Support to Finish Face (In.)	Wt. of Inner Face Installed /sq. ft.	Special Characteristics	Suggested Decoration	Type No.
 ORIENTAL EXT BASE COAT EXT STUCCO	40 40	1	12 lbs.	Low cost stucco with all advantages of mill-mixed product	Self-decorating	EW1
 FURRING STUCCO MESH ORIENT'L STUC	24 40	2	12 lbs.	Best stucco construction. Uniformity and permanence of mill-mixed product	Self-decorating	EW2
 FURRING USG ASBESTOS CEM SIDING	66	1-3/8	1.8 lbs.	Beauty of wood grain and color with permanence and low upkeep of asbestos cement	Self-decorating	EW3

NOTES

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Material and labor quantities for all plasters will be found on page 47.

Quantities of material and labor per 100 sq. yds. of partition, both sides.			USE ANALYSIS AND ECONOMICS (All supporting members are on 16" ctrs. unless shown otherwise.)
Material	Quantity	Labor	
Cyplap	900 sq. ft.	6-7 hrs.	Stronger than horizontally applied wood shiplap (see page 45). Costs less to buy and less to apply than wood sheathing. Adds a full 1/2" of incombustible fireproof material and increases protection against fires which originate from without the building. Tongued and grooved edges of Cyplap fit snugly. Cyplap contains no knot holes or wood shakes, does not rot, warp or exude resinous materials; completely odorless and vermin-proof.
Cyplap Stucco Mesh Oriental Stucco see page 47.	900 sq. ft. 105 sq. yds.	6-7 hrs. 12-14 hrs.	Essentially a fireproof construction for wood stud walls achieved at relatively low cost. All of the economies of Cyplap over combustible constructions are utilized, plus the well known strength, quality, color and texture (see page 40) of Oriental Exterior Stucco. Mill mixed, Oriental colors do not streak. Properly applied, do not show joinings between successive applications. Water resistive. Mixed with mineral colors which do not fade and which are not affected by the cementitious materials in the stucco itself. Becomes stronger and more water resistant with age.
Cyplap Wood Furring (16" centers) USG Asb.-Cem. Siding	900 sq. ft. 680 lin. ft. 9 squares	6-7 hrs. 4 hrs. 18-36 hrs.	This standard construction requires furring strips on which to nail the asbestos-cement siding. Using "Nailex Fasteners" (page 67) the furring strips are omitted, less nails and but 14 to 20 man hours of labor are required.
Weather wood Asphalt Coated Sheathing	900 sq. ft.	6-8 hrs.	Weatherwood asphalt coated sheathing supplies structural bracing ability as well as heat insulation. Water repellent asphalt coating and tongued and grooved long joints (vertical joints made over studing). Eliminates building paper unless lending agency regulations demand it. Use of building paper over Weatherwood does not seriously affect costs.
Weather- wood Sheathing Asbestos Coated Stucco Mesh	900 sq. ft. 105 sq. yds.	6-8 hrs. 12-14 hrs.	Integral insulation applied in sheathing simultaneously for no additional labor cost. The advantages of Oriental Stucco previously mentioned, reinforced with metal. (See construction EW-5 above.)
Weather- wood Sheathing Wood Furring USG Asb.-Cem. Siding	900 sq. ft. 680 lin. ft. 9 squares	6-8 hrs. 4 hrs. 18-36 hrs.	The alternative construction mentioned in EW-6 which eliminates wood furring is as applicable here as it is with Cyplap. Its use results in a similar saving over the construction shown here. Nailex Fasteners hold the shingles very tightly to the sheathing. The resilient nature of Weatherwood provides a cushioning effect resisting rattling tendencies.

Oriental Exterior Base Coat & Oriental Stucco	Quantity and labor figures for Oriental Base Coat and Stucco on page 47.		Hundreds of buildings receive Exterior Stucco coats direct on terra cotta tile, hollow brick, common brick and sufficiently porous types of stone masonry. Direct application of stucco base coat to masonry by proper mechanics can be considered as standard construction and one providing definite economy.
Wood Furring (16" centers) Stucco Mesh For Exterior Stucco costs see page 47.	680 lin. ft. 105 sq. yds.	4 hrs. 12-14 hrs.	A superior construction to EW-1 at the additional cost for furring and stucco mesh. Provides insulation of air space between stucco base coat and masonry, resulting in increased resistance to efflorescence difficulties on stucco and definite reductions in the water hazard in the masonry. All of the well known advantages of a fine mill mixed stucco are attained in the Oriental Stucco finish.
Wood Furring USG Asbestos Cement Siding	680 lin. ft. 9 sqs.	4 hrs. 18-36 hrs.	A simple, low cost method of getting the effect of wood siding on either all or selected exterior masonry walls and attaining the permanence and fireproofness of completely incombustible materials throughout. USG Glatex Asbestos Cement Siding protects against discoloration and accumulations of dirt, providing a surface which can be readily washed when desired simply and at low cost with full restoration of its original beauty.

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U.S. ROCKLATH

Gypsum boards with a tough, fibrous covering, 16 x 32 and 16 x 48 in., $\frac{3}{8}$ in. thick. Readily nailed to construction. Bond perfectly with gypsum plaster.

PLAIN ROCKLATH

Rocklath* does not burn or readily transmit high temperatures and when plastered with gypsum plasters is fireproof. It contains nothing to disintegrate or corrode — no pitch, resin or gum to stain the plaster.

The uniform suction of Rocklath prevents plaster from slipping during application and insures a uniform bond. U. S. Bureau of Standards tests show that an 864 lbs. per sq. ft. pull was required to separate plaster from gypsum lath—a safety factor of 144.

Rocklath is easily erected. A bundle of boards (32 sq. ft.) is easily carried by one man. There are no rough edges or splinters. One piece covers the same area as 9 wood lath and requires half the nails. Boards score and cut without waste.

It is not necessary to wet Rocklath before plastering. Rocklath keeps the moisture of fresh plaster from the frame, which prevents swelling of wood members. Walls and ceilings dry quickly.

Walls of Rocklath and gypsum plaster cost less than metal lath and plaster, and little, if any, more than wood lath and plaster.

Sizes—16x32 in. and 16x48 in., $\frac{3}{8}$ in. and $\frac{1}{2}$ in. thick.

PERFORATED ROCKLATH

By perforating Plain Rocklath at regular intervals, applied plaster is mechanically keyed as well as bonded to the lath. The persistence of this "dual" bond under fire exposure increases the fire rating of wood stud partitions made with Perforated Rocklath and gypsum plaster. It is cut, fitted, and applied exactly like and has all the speed and economy of Plain Rocklath.

ONE HOUR FIRE RATING

At the conclusion of tests conducted in accordance with the American Standards Association Fire Test Specification, a Perforated Rocklath partition was shown to have qualified for a one-hour fire rating. After the fire test, the wall successfully withstood a standard hose stream with a considerable margin of safety.

This achievement makes it possible to construct bearing partitions of wood studs, Perforated Rocklath and Sanded Gypsum Plaster, providing real fire protection for frame buildings at costs comparable to those of combustible designs.

INSULATING ROCKLATH

Fully 75% of the heat lost from or entering buildings is radiant heat. Bright metal foil is both a highly efficient reflector and at the same time a poor radiator of radiant heat.

Insulating Rocklath is made by permanently attaching a sheet of bright metal foil to the back of Plain Rocklath during manufacture. When applied with an air space of not less than $\frac{3}{4}$ in. next to the foil, Insulating Rocklath offers thermal insulation equivalent to that of $\frac{1}{2}$ in. fiber insulation board.

The metal foil provides a highly efficient vapor barrier (on the warm side where one is needed) to control condensation.

Sizes—Same as Plain Rocklath above.

Applied like Plain Rocklath.



Uniform suction of Rocklath prevents plaster from slipping during application.



Perforated Rocklath provides an additional bond for plaster with its regularly spaced perforations.



Foil backing of Insulating Rocklath provides high insulating value and is an effective vapor barrier.

APPLYING ROCKLATH

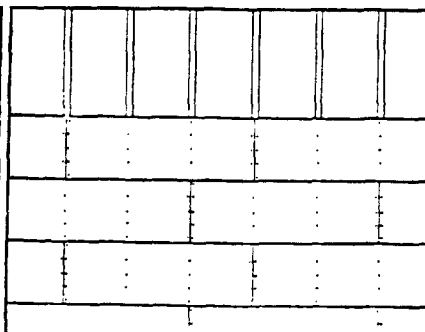
See Also USG Resilient System, Page 16

NAILED ON



Cutting

Specifications—See page 35.



Nail Spacing and Joint Locations



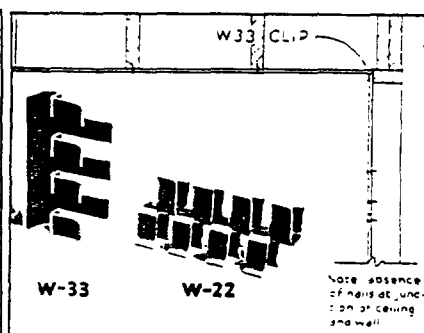
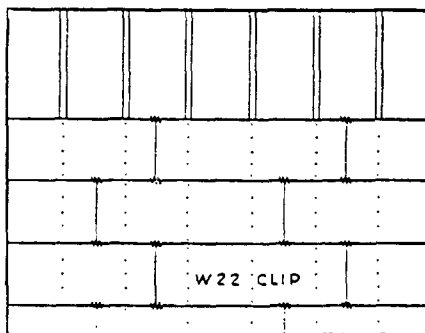
Ready for Plastering

Scale of All Details On This Page: 1/4" = 1' 0"

BRIDJOINT METHOD (Nailed and Clipped On)

In the Bridjoint method, the short ends of each piece of Rocklath meet in the area between the studs or joists and not over the studs. W-22 Bridjoint® Clips are used to attach the loose ends to the Rocklath immediately above and below the joint; otherwise, each piece of Rocklath is nailed with five nails in each support in the regular manner. Rocklath is not nailed to frame in corners. W-33 clip holds the boards together. At ceiling and wall angles two nails are used per board, per stud—see section at right.

Right—Position of Nails, Clips and Joints
Far Right—Clips and Wall-Ceiling Joint



Specifications

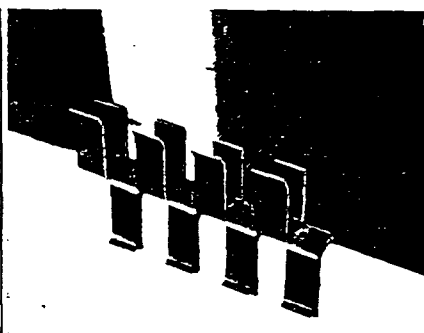
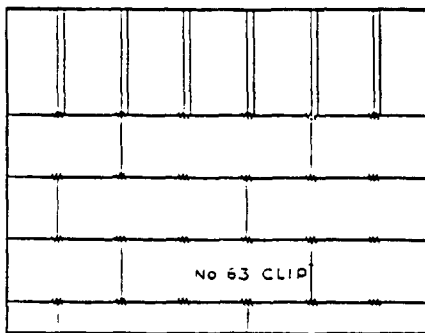
All Rocklath is to be applied to the framework by the Bridjoint method, using W-22 clips in the field and W-33 clips at all angles. Five nails are driven into every stud

each Rocklath unit crosses, except on boards at ceiling and wall angles. Here only two nails are used per stud and these are kept as far away from the angle as possible.

FREFLOTE METHOD (Clipped On)

In the Freflote method, Freflote® Clips (No. 63) take the place of the nails used in the Bridjoint method to fix the Rocklath to the construction. There are, then, less nails to drive and the swiveled clips permit considerable motion in the framework without putting strains on the lath or plaster. At all corners and angles the lath are not attached to the framework in any way but are held to each other by W-33 clips as in the Bridjoint method above.

Right—Position of Clips and Joints
Far Right—No. 63 Clip



Specifications

All Rocklath is to be applied by the Freflote Bridjoint method, using Freflote Clip No. 63 to attach board to

framework in the field and Bridjoint Clip W-22 to attach the short ends of every board, which must not be placed over the studs, to the abutting boards above and below the joint.

APPLICATION METHODS COMPARED

- (1) Nailed On—The standard practice. On average jobs better than wood lath, usually costs as little or less, when plastered.
- (2) Bridjoint—Reduces cracking caused by bulging or warped studding and joist movements; less tendency to crack at corners. Cost—same as or slightly more than the above.
- (3) Freflote—Fully clipped on with swiveling clips; provides air circulation between supports and lath; increased sound insulation of from eight to ten decibels over (1) and (2).

Clips provide plaster grounds on ceilings, insuring full plaster coats; save nails and labor of application. Generally somewhat more expensive than (1) and (2).

- (4) Resilient System—(See page 26)—Fully floated walls which permit maximum frame movement without plaster cracking for both ceilings and walls. Maximum sound insulation. Cost—about 25 per cent more than standard nailed on job.

*Reg. Trade Mark

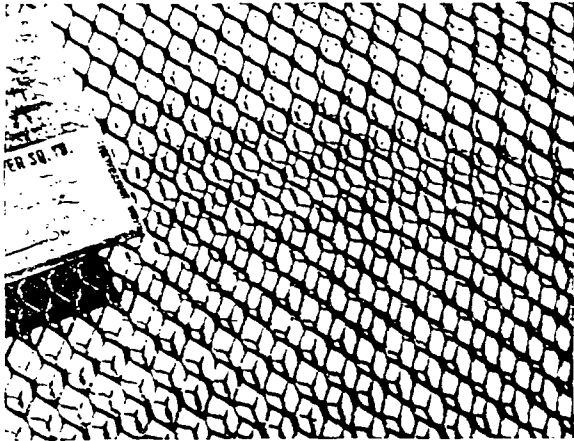
BB012 2100

23

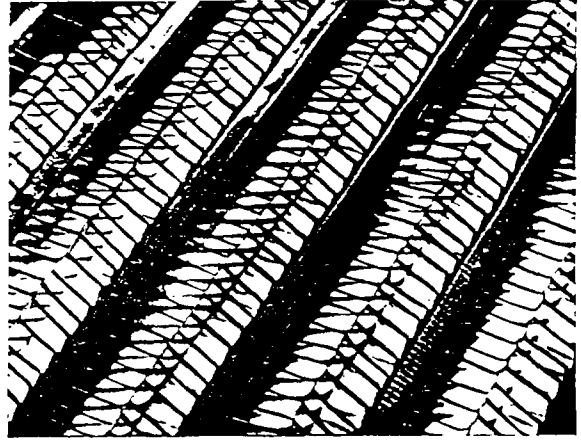


METAL LATH

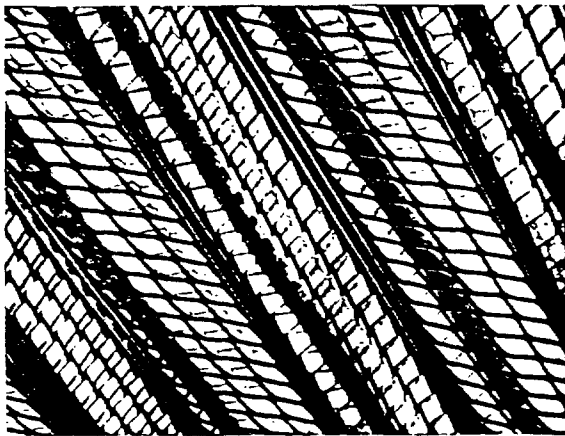
We manufacture metal lath in all types and weights in standard and special metals, and a full line of metal lath accessories, for quick national distribution.



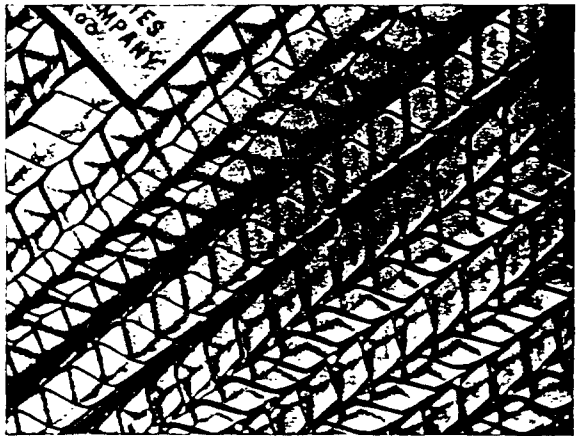
DIAMOND MESH LATH—Small mesh (5/16 in. x 9/16 in.) facilitates application and reduces mortar waste through droppings. Provides perfect key. Also made in self-furring or corrugated types.



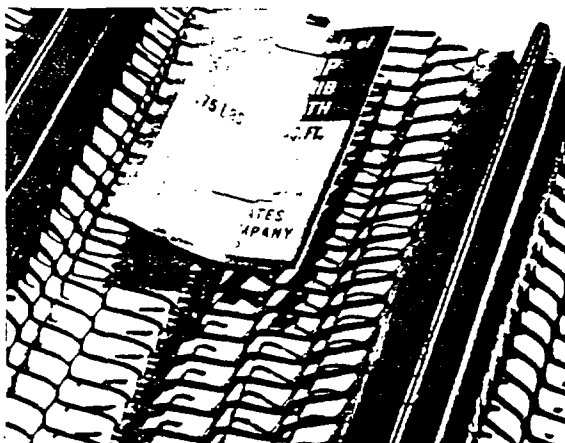
1/8-IN. Z-RIB LATH—Unique "Z" type ribs (1/8 in. deep x 1 1/2 in. o.c.) add rigidity. Provide shelves to hold wet plaster, front and back, without waste.



4-mesh Z-RIB LATH—Companion product to 1/8-in. Z-Rib Lath, but has smaller mesh opening and comes in 27-in. width.



3/8-IN. RIB LATH—Rigid reinforcement for long spans (See table). Provides for nested lap at outside ribs with no humps.



3/4-IN. RIB LATH—For spans longer than 3/8-in. Rib Lath (See table). Ribs 4.8 in o. c.; heavy weight; self-furring.



EXPANDED STUCCOMESH—Diagonal strands provide distribution of steel to overcome initial shrinkage, temperature changes, wind stress-protection against unusual snocks.

	Type of Steel	Weight in Lbs. per Sq. Yd.	Max. Span ^{oo} (Heaviest lath, wood construction)	Rel. cost†	Recommended Uses
DIAMOND MESH LATH Sheet Size: 27x96 in. 24x96 in.	Open hearth steel, painted black Copper bearing steel, painted black Cut from galvanized sheets Armco Ingot Iron, painted black	2.2, 2.5, 3.0, 3.4 2.2††, 2.5††, 3.0, 3.4 2.5, 3.4 2.5††, 3.0††, 3.4	Ceiling, 16 in. Wall, 16 in.	I	All-purpose lath for plain and ornamental plastering.
1/8-IN. Z-RIB LATH Sheet Size: 24x96 in.	Open hearth steel, painted black Copper bearing steel, painted black Cut from galvanized sheets Armco Ingot Iron, painted black	2.75, 3.0, 3.4 3.0††, 3.4 3.4 3.4††	Ceiling, 19 in. Wall, 19 in.	II	For nailing on wood construction or tying on metal furring
4-mesh Z-RIB LATH Sheet Size: 27x96 in.	Open hearth steel, painted black Copper bearing steel, painted black Cut from galvanized sheets Armco Ingot Iron, painted black	2.75, 3.0, 3.4 3.0††, 3.4 3.4 3.4††	Ceiling, 19 in. Wall, 19 in.	II	Especially adaptable for tile backing
3/8-IN. RIB LATH Sheet Size: 24x96 in.	Open hearth steel, painted black Copper bearing steel, painted black Cut from galvanized sheets Armco Ingot Iron, painted black	3.0, 3.4, 4.0 3.0††, 3.4, 4.0†† 3.4, 4.0†† 3.4, 4.0††	Ceiling, 19 in. Wall, 19 in.	II	For floor and ceiling construction with steel joists; ceilings under steel tile construction, and where wide spacing of supports is necessary
3/4-IN. RIB LATH Sheet Size: 24 in. wide x 8, 10, 12 ft.	Open hearth steel, painted black Copper bearing steel, painted black Cut from galvanized sheets Armco Ingot Iron, painted black	.50, .60, .75 .50††, .60††, .75†† .50†† (Figures for 3/4" rib lath in lbs. per sq. ft.) .75††	Since uses are different from foregoing, span figures not applicable	IV	For centering and reinforcement of concrete roofs and floors; plaster partitions and ceilings on extremely wide spacing of supports; special work; columns, balconies, etc.
EXPANDED STUCCOMESH Sheet Size: 48x99 in.	Open hearth steel, painted black Copper bearing steel, painted black Cut from galvanized sheets	1.8, 3.6 1.8, 3.6 1.8††, 3.6††		III	Base reinforcement for exterior stucco

^{oo}Maximum span of maximum weight. Based on wood construction.
††" equals least expensive; "I" equals more expensive, etc.

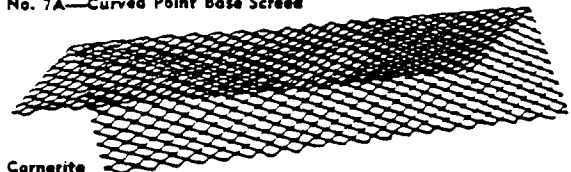
††Made especially to order.

PACKAGING: Dia. Mesh, Z-Rib and 3/8 in. Rib: ten 27x96 in. sheets (20 sq. yds.) per bundle, and nine 24x96 in. sheets (16 sq. yds.) per bundle; 3/4 in. Rib: nine sheets 24 in. x 8 ft., 10 ft., or 12 ft. long per bundle. Stuccomesh: ten 48x99 in. sheets (36 2/3 sq. yds.) per bundle.

METAL LATH ACCESSORIES



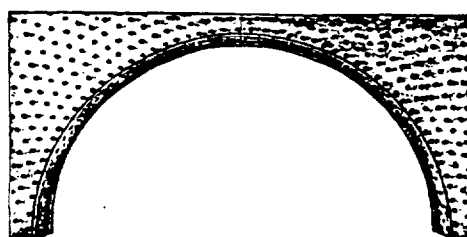
No. 7A—Curved Point Base Screed



Cornerite



No. 1A—Expanded Metal Corner Bead



Red Top Metal Plaster Arches are made in a variety of sizes and shapes.



No. 4A—Flexible Corner Bead for use either as straight or curved corner bead.

*Reg. Trade Mark



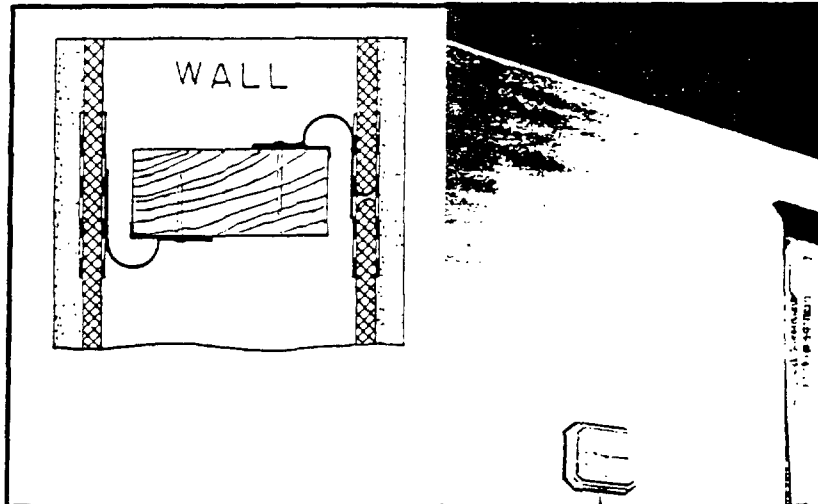
RESILIENT PLASTERING SYSTEM

USG Resilient Clips float standard plastering assemblies to framework—steel, masonry, wood—obviating many disadvantages of older constructions.

LESS STREAKING

Unequal condensation causes the characteristic streaking of plastered walls and ceilings. The condensation is greater where the plaster contacts the supporting frame members.

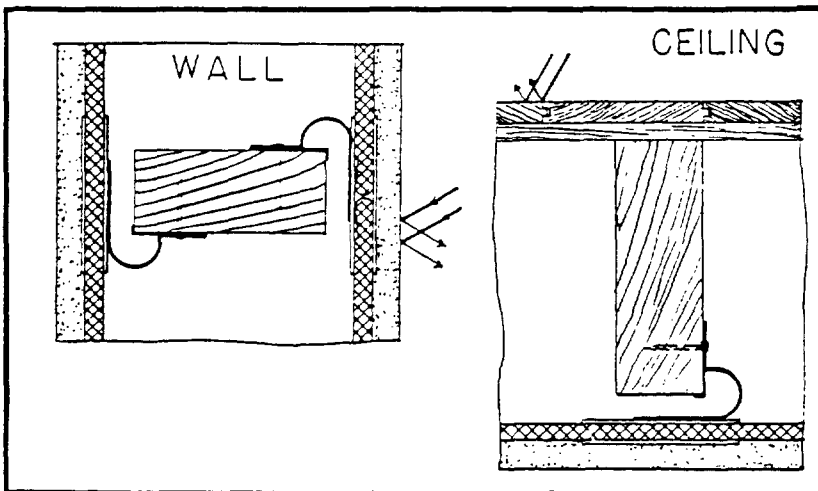
USG Resilient Clips hold the plaster away from the framework permitting almost complete equalization of the condensation. Streaking is thus practically eliminated.



SOUND INSULATION

Sound striking rigid walls sets up vibrations which are transferred to framing members and carried to adjacent rooms. With the USG Resilient Systems a cushioning barrier is thrown in the path of the sound.

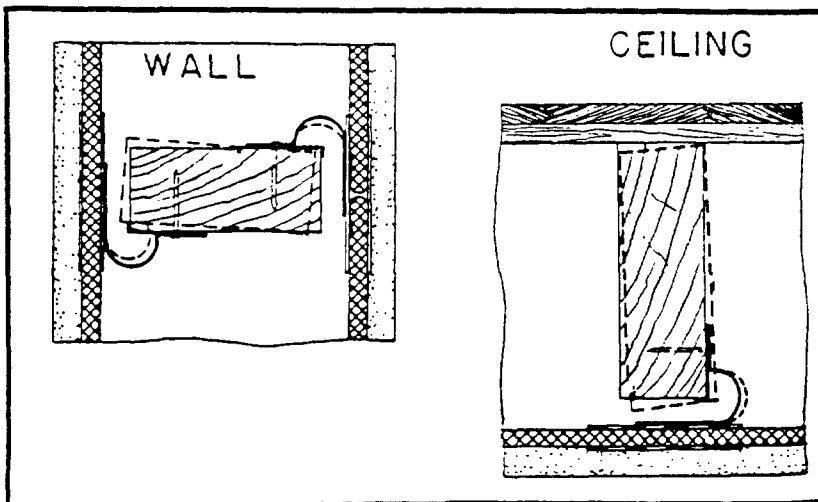
A Rocklath Resilient partition, built according to test specifications of the A. S. A., showed a sound reduction of 51.9 decibels. This is at least equal to two 3-in. tile partitions with 1-in. air space, an accepted satisfactory soundproofing construction.



"FLOATED"

Plaster cracking due to normal frame movement is greatly reduced with the USG Resilient Plastering Systems. When frame movement occurs, it is absorbed by the clips much as road shocks are absorbed by automobile springs.

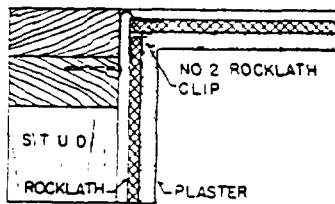
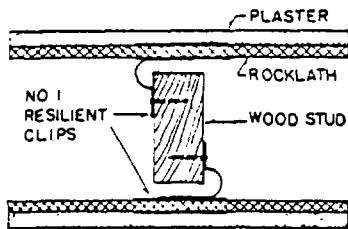
The flexibility of these systems replaces the rigidity of ordinary plastered constructions without sacrificing strength.



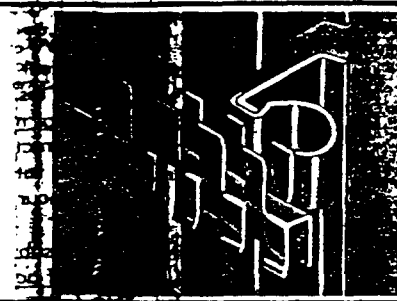
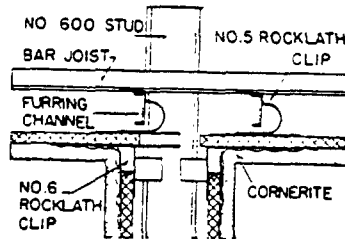
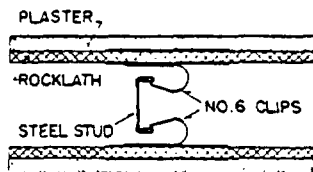
Specifications—All walls (and/or) ceilings are to be installed by means of USG Resilient Plastering System Clips following the directions for installation furnished by the manufacturer.

FOR ROCKLATH

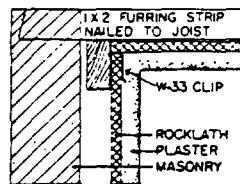
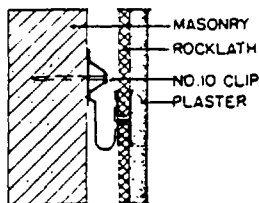
WOOD CONSTRUCTION



STEEL CONSTRUCTION

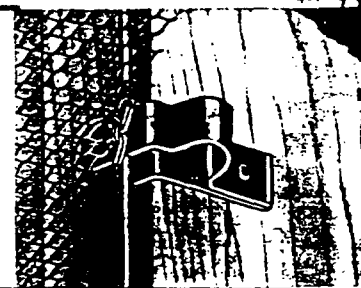
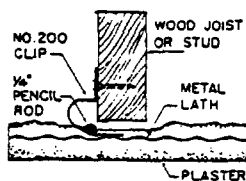
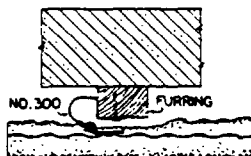


MASONRY CONSTRUCTION

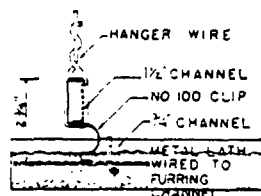
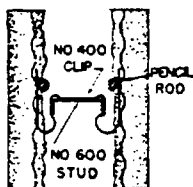


FOR METAL LATH

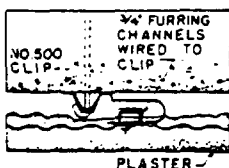
WOOD CONSTRUCTION



STEEL CONSTRUCTION



MASONRY CONSTRUCTION



BB012 2104

USG TRUSSTEEL STUDS

USG T
rically

Studs permit enclosure of pipes, conduits, air ducts, both ver-
tically, within the finished wall.

ADVANTAGES

Ducts, conduits and pipes can be installed during construction or at any time later. Ducts may be as large as 12 in. in diameter—see sizes below.

USG Trussteel Studs are very light in weight—a fully plastered 12 in. (3 1/4 in.) partition weighs only 15 lb. per square foot. Dead load on members is less than with other partitions.

With gypsum plaster on both, a fire-resistant partition is provided. Fire rating is provided.

Attachment shoes provide substantial attachment and allow for adjustment over actual stud spacing to varying ceiling heights. Studs may be hung by wiring or crimping method. Crimping is equally satisfactory.

Runners are easily cut to any length. They are fastened to concrete with stub nails. Bolts are required.

Studs, 2 in. apart, are in the track for tying metal lath at intervals. These also provide a convenient method for stud spacing.

Slots in the web of the runner track facilitate tying track to metal lath ceiling.

Because USG Trussteel Studs provide a rigid support for the metal plaster base,

plastering is as easy as with the usual metal lath job. The type of lath to be used depends upon the stud spacing.

STRENGTH TESTS

Results of tests conducted by the Raymond G. Osborne Laboratories, Los Angeles, during November 1937 proved that USG Trussteel Studs had more than adequate strength for building construction practices and were accordingly granted approval for use under the Pacific Coast Uniform Building Code requirements.

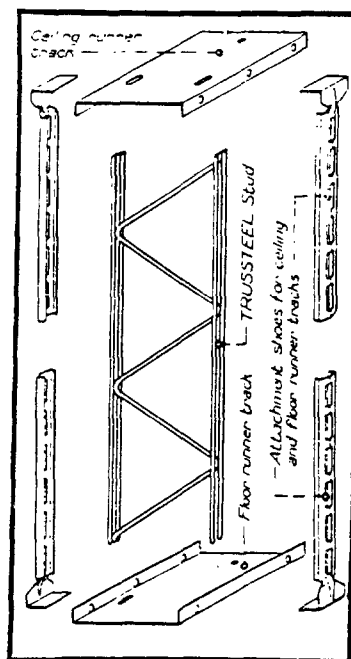
Tests conducted by the USG Laboratories in December 1939 indicated USG Trussteel Studs to be far stronger than punched channel studs at the failure point, and a negligible difference at the first plaster crack point.

SIZES

USG Trussteel Studs are made in lengths from 7 ft. to 20 ft., inclusive, in increments of 3 inches. Lengths of from 14 to 20 ft. are supplied in two sections, complete with splicing feature. These are the stock or "fixed" lengths. The adjustable feature on each of these lengths permits adjustment to 4 inches over the stock length.

Widths are 2, 3, 3 1/4, 4 and 6 in.

Runner tracks are made in 8 ft. 2 in. lengths.



Trussteel Partitions are easy to erect because there are only 3 simple elements.

Ducts and Conduits—Deduct 3/8 in. from nominal width of stud for maximum duct size partition will accommodate.

ENGINEERING DATA

Stud Spacings—The following types and weights of metal lath are recommended for various stud spacings:

Type and Weight of Red Top Metal Lath	Recommended Trussteel Stud Spacing
2.5 lb. Diamond Mesh	12 inches
3.0 lb. Diamond Mesh	13 1/2 inches
3.4 lb. Diamond Mesh	16 inches
2.75 lb. 1/8" Z-Rib Lath	16 inches
3.0 lb. 1/8" Z-Rib Lath	16 inches
3.4 lb. 1/8" Z-Rib Lath	19 inches
3.0 lb. 3/8" Rib Lath	24 inches
3.4 lb. 3/8" Rib Lath	31 1/2 inches
4.0 lb. 3/8" Rib Lath	31 1/2 inches

SPECIFICATIONS

Materials—USG Trussteel Studs, Runner Tracks and Attachment Shoes of size shown on drawings.

Method—Fasten Runner Tracks to concrete with 1/2-in. stub nails; wire to suspended ceilings every 16 in. Align Runner Tracks accurately. Space studs 16 in. o.c. (rib lath), 12 in. o.c. (diamond mesh lath); fasten each stud to Runner Track with two Attachment Shoes at both top and bottom, each wired or

Length Limits—Maximum ceiling heights recommended for various size Trussteel Studs are 2-in. Stud, 10 ft.; 3 and 3 1/4-in. Studs, 16 ft.; 4-in. Stud, 18 ft., and 6-in. Stud, 20 ft.

Studs exceeding 12 ft. in length should also be braced horizontally with a 3/4-in. channel at 4 to 6 ft. vertical intervals, to give the partitions lateral strength.

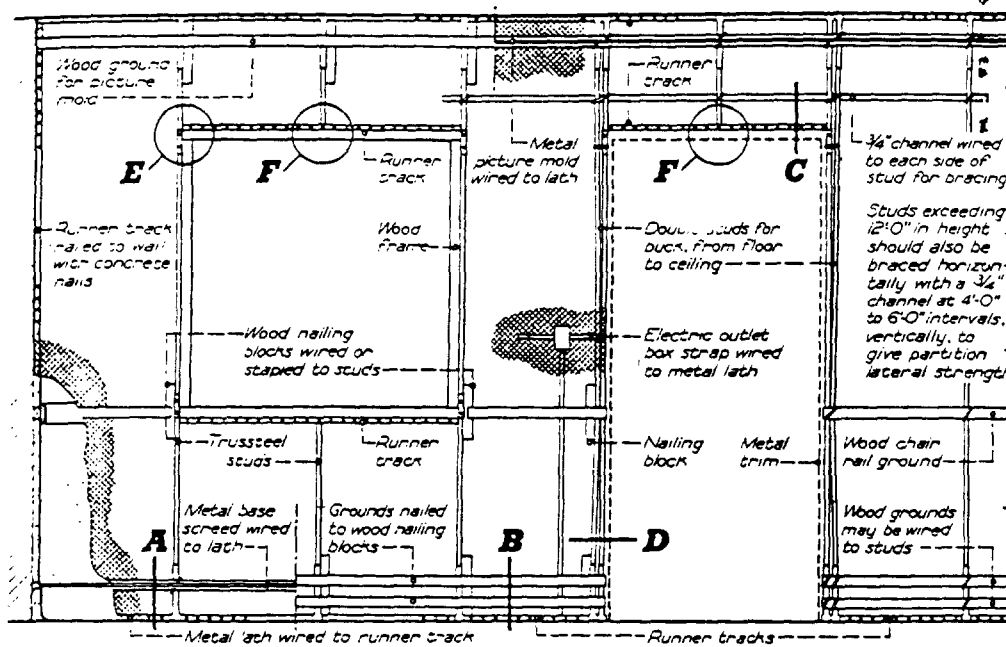
Finished Wall Thickness—Based on plastering to a 3/4-in. ground measured from face of stud, USG Trussteel Stud walls will finish to the following out-to-out wall thicknesses:

2 in. Trussteel Stud	3 1/2-in. Finished Thickness
3 in. Trussteel Stud	4 1/2-in. Finished Thickness
3 1/4-in. Trussteel Stud	4 3/4-in. Finished Thickness
4 in. Trussteel Stud	5 1/2-in. Finished Thickness
6 in. Trussteel Stud	7 1/2-in. Finished Thickness

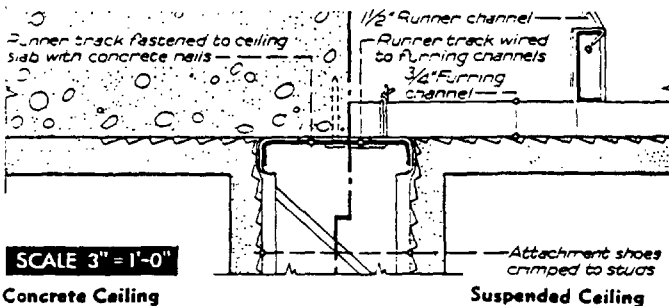
Millwork should be ordered to fit the above wall thicknesses.

crimped to stud. Partitions 12 ft. 0 in. or more in height to be braced by row of horizontally applied 3/4-in. channels wired across studs. Rows of bracing to be not over 6 ft. 0 in. on centers. Where Trussteel Stud Partitions abut other constructions, nail or toggle bolt a Runner Track vertically to the wall at each abutment. All corners and intersections of Partitions to be formed with four Trussteel Studs.

CONSTRUCTION DETAILS

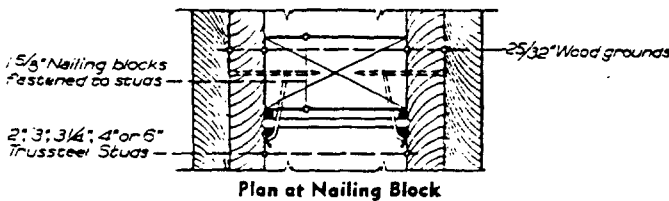


Elevation of Truss Steel Stud Partition.
At Far Right Are Details of Metal Door Buck and Trim

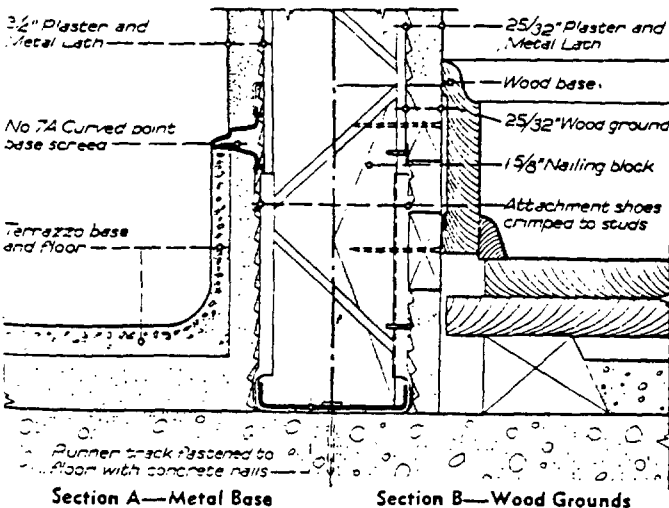


SCALE 3" = 1'-0"
Concrete Ceiling

Suspended Ceiling

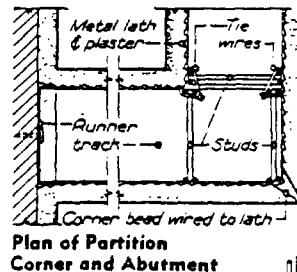


Plan at Nailing Block

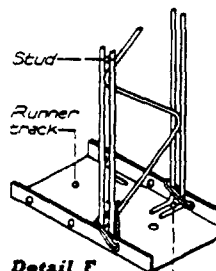


Section A—Metal Base

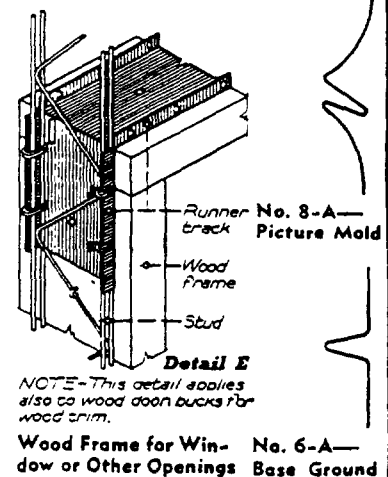
Section B—Wood Grounds



Plan of Partition
Corner and Abutment

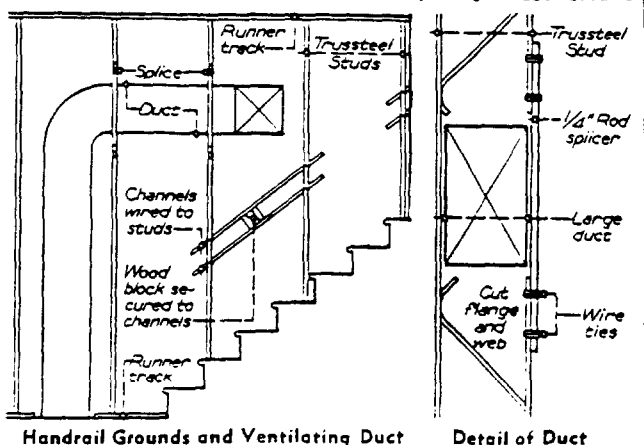


Detail F
Bend one or both legs of stud to form shoe which is wired to runner track.
Short Studs Over Opening



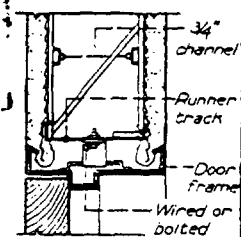
Detail E
NOTE—This detail applies also to wood door bucks for wood trim.

Wood Frame for Window or Other Openings
No. 6-A Base Ground

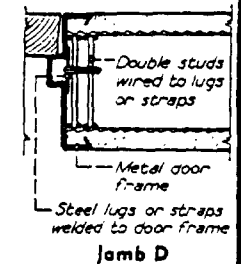


Handrail Grounds and Ventilating Duct

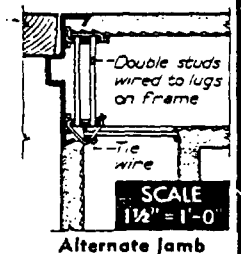
Detail of Duct



Head C



Jamb D



Alternate jamb

BB012 2106



GYPSUM PLASTERS

ADVANTAGES

Time Saving

Quick, positive set coupled with rapid drying saves time. Buildings can be decorated and occupied quickly.

Fireproof

Gypsum plasters provide fire protection at no additional cost.

Applicable

Work with equal facility on any type of lathing material. Plasticity and slip ease the plasterer's job.

Adaptable to Decoration

Gypsum plasters are adaptable to decoration with any material ordinarily used on plastered surfaces.

Uniform

Laboratory control insures that plasters manufactured at all USG mills will produce like results.

Comply with Standards

All USG plasters comply with standards of the American Society for Testing Materials, Federal Departments and construction agencies.

GYPSUM

Gypsum is a sedimentary rock, technically, "hydrous calcium sulphate." When found in proper purity it is quarried or mined, crushed, ground and calcined (partially dehydrated) to produce a cement. Its time of set is controllable between wide limits through the use of chemical accelerators and retarders. Special processes developed through long research have created a series of wall plasters made of gypsum which will consistently answer every building need; available in like quality everywhere.

FIREPROOF

Gypsum plaster sanded according to standard specifications in standard thickness, provides a full hour fire rating for wood stud partitions when applied on gypsum Rocklath (perforated) or metal lath. Gypsum plastering has long served as a real fire protection for frame buildings.

GYPSITE

Gypsite is an eroded form of gypsum, containing small amounts of clay or similar erosion products. Quarried like gypsum, it is the source of the "Gypsite" or "Dark" plasters of the Southwest. Base coats and finishes made of Gypsite vary in color from reddish yellow through pink shades to almost white. Gypsite plasters are fully acceptable for the best work but carry slightly less sand for equal strength and hardness.

FINISHING MATERIALS

Finishing materials are available "ready-mixed" or finishing lime and gauging plaster may be job mixed to produce any type of finish from the hard, smooth trowel finish through sand float finishes in various degrees of surface sanding to the deep texture surfaces in white or color obtainable with Oriental Interior Finishes.

PLASTERING

Good plastering involves good lath and three coats of properly specified plaster. The scratch or first coat is followed by the brown or second—straightening coat—which brings the face of the wall or ceiling to its final position. The brown coat may carry increased sand—3 parts to 1 (by weight) without loss of strength or fireproofness. The final finish coat is hard, dense, thin and self-decorating, or can be decorated with Texolite (see page seventy-two) when dry without danger of difficulty from dampness or lime in the finish coat.

FINISHING LIMES

Finishing limes are manufactured in three types and from two sources of raw materials. Raw or quicklime usually requires careful and longer soaking to secure complete hydration. Hydrated lime has been fully or partially hydrated before shipment—it soaks quickly into a useful putty. Pressure hydration (a new process) permits practically complete hydration of all of the oxides in limes containing magnesium. In older hydration methods, the magnesium oxide did not hydrate during the mill hydration process but hydrated slowly on the job, occasionally producing difficulty due to the expansion which followed. With USG pressure hydration, over 92% of the lime is fully hydrated. Finishing limes are produced both from high calcium deposits of limestone, containing at least 93% of calcium carbonate, and from dolomite limestone, containing additions of not over 45% of magnesium carbonate.

BB612 2107

FINISHING LIMES (Continued)

The choice between quicklime and hydrated lime, made from dolomite or high calcium stone, should be governed largely by the local practices of plasterers in the vicinity in which a building is to be built. All types will produce acceptable finishes in the hands of properly experienced mechanics.

GAUGING PLASTERS

Gauging Plasters are made solely for admixture to lime putty to secure hard trowel finishes. They lend greater strength and density to finish plaster and are ground to the correct particle size for quick assimilation and even dispersion through the putty that must be accomplished if a prime finish is to result. Available in white (at slightly higher prices in some localities) or light shades local to producing mill in either quick set or slow set types.

KEENE'S CEMENT

Keene's Cement is a very hard, slow setting, dense cement, made from gypsum rock of great purity and whiteness, found at only a few places in the United States. Unlike other hydraulic cements, Keene's Cement may be retempered. Its slow setting property permits scoring the plaster finish to create masonry joints in the surface. Plaster finishes made with fine Keene's Cement are stone-like in character and appearance. They may be polished to a gloss as high as that given marble. Keene's Cement is an excellent material to use in the production of colored interior finishes and for imitations of Travertine and Caenstone. By variations in grinding and mill treatment it has been possible to produce several special types of Keene's Cement, particularly adapted for special purposes.

Type	Purpose	Brand	Type No.
Standard Keene's Cement	Used with small amounts of lime putty for the production of hard, white finishes.	Red Top Keene's Cement	K-1
Casting Keene's	For casting applied ornament; sets in about 2 hours.	Red Top Casting Keene's	K-2
Scagliola	For imitation marble slabs and columns in color and veining by the Scagliola process.	Red Top Scagliola Keene's	K-3
Quick Troweling	For gauging lime putty to produce a quick setting Keene's plaster finish. The gauging will set in about 2 hours.	Red Top Quick Troweling Keene's	K-4

One ton used neat according to specifications will cover about 400 to 500 square yards.

*Reg. Trade Mark

COVERAGE

The covering capacity of USG plasters is as great for each type of material as it is possible to obtain. The area of wall which can be produced by a given quantity of plaster varies with the following factors: The mechanic, the thickness of the wall, the kind and trueness of the surface to be plastered, the size and number of keys in the lath, the quality of the sand, the amount of sand used, etc. The covering capacities given in the table for each variety of plaster are based on average conditions and are quite conservative.

ARIDIZE* MOULDING PLASTER

Aridize Moulding Plaster may be used for both "run" moulds or cast ornament. Particularly smooth working and of uniform setting quality, Aridize Moulding Plaster is ground much finer than other similar products, assuring more thorough solution and finer surface of the finished work. Its cooler working and slower setting qualities account for low expansion and the absence of warped moulds. Slow generation of heat in setting protects gelatin or glue moulds from quick deterioration. Slow setting gives time for blending and working out entrapped air bubbles and for working the plaster into angles and corners of moulds. Even when green, moulds of Aridize have great strength. Breakage in handling and manipulation in the moulding and casting stages is reduced. Aridize Moulding Plaster is sold under the following trade names in different localities: Red Top (local color), Red Top No. 1 (white), Red Top Kings Diamond (white), Golden Seal (white).

BLOCKSET CEMENT

Blockset Cement is specially designed for preparing mortar for setting interior partitions of clay tile or gypsum tile. Blockset Cement sanded with three parts of sand by weight to one part cement on the job provides a mortar with definite set, fine bedding qualities, and amply strong for any non-bearing partition work at a low price. Its use speeds constructions, maintains the high quality of fire protection of Pyrobar Gypsum Tile (see pages 54 and 55) and should be the mortar required in every specification involving the use of clay or gypsum partitions and fireproofing.

SABINITE* ACOUSTICAL PLASTER

Sabinite Acoustical Plaster substitutes a sound-absorbent wall or ceiling finish for regular sound-repellent plaster finishes. Available in white, ecru, buff, ivory and cream. In three types: Sabinite 38 for damp places (swimming pools, etc.); Sabinite F, a general purpose float finish that also may be troweled; Sabinite M, a trowel finish not quite as smooth as regular finishing plaster which also may be floated. See pages 88 and 89 for acoustical data. 10 for acoustical data.

A USG PLASTER FOR EVERY BUILDING PURPOSE

FOR INTERIOR USE ONLY

BASE COAT PLASTERS

Type		Used For	Sand	Advantages
Neat Gypsum Plaster (Also called: Cement, Hard-wall, Patent, Rock, etc., in various parts of the country)	Fibered with manila, sisal, goat hair, mixed or straight.	Scratch (1st) and brown (2nd) coats of plastering on any lath or base or open or closed type except concrete.	Added at job. See pg. 35, Clause 5a, for specifications and quantities. Good sand in proper quantity is essential for good plastering.	Most used plaster. Strong, rugged, stabilized set and quick-drying, fire-proof. Economical where good sand is available. Maximum coverage per ton. Uniform setting time. Available anywhere.
	Not fibered.	All scratch (1st) coats on closed lath: Rocklath, Pyrobar, insulation board, etc. and brown (2nd) coats.	Use sand as specified in A.S.T.M. Specifications, page 39.	
	Extra fibered.	Scratch coats on metal and wire lath. The fiber prevents excessively heavy keys in lath of these types.		
Sanded Gypsum Plaster (Also called Prepared)	Regular.	Scratch (1st) and brown (2nd) coats on all bases except masonry.	Mill mixed. Add no sand at job. Add water only. See pg. 35, Clause 5b, for specification.	Selected dry sand thoroughly mixed in mill. Recommended for use where good sand is not available. Prevents oversanding. Avoids winter troubles with frozen sand. Assures correct sanding grade and quantity.
	Masonry.	Scratch (1st) and brown (2nd) coats on brick, tile, Pyrobar. Not over concrete.		
	Sanded Wood Fiber.	Scratch (1st) and brown (2nd) coats on lath only. See "Wood Fiber" for advantages.		
Wood Fiber Gypsum Plaster (Also called Pulp)		Scratch (1st) and brown (2nd) coats on all bases except masonry.	Mill mixed. Shreds of selected wood fiber replace sand. Add water only. See pg. 35, Clause 5c, for specification.	All advantages of sanded plaster (above) plus maximum quantity of gypsum per yard of wall. Hence, superior fireproofing, strength, toughness, and insulating. Withstands vibration better. Holds nails and screws better — the choice of most gypsumists for their own homes.
Bondcrete Plaster		Bonds over monolithic concrete.	Add water only. See pg. 36, Clause 11d, for specification.	Highly cementitious, low volume change material designed to stick to clean, dry, roughened concrete. Brown coat of ne. plaster sanded not over 3 to 1 may be used over Bondcrete on ceilings as well as sidewalls. See directions on box. Should be cross-raked to receive finish coat. For interior use only.

FINISHING PLASTERS

PREPARED FINISHING PLASTERS

Type	Used For	Sand	Advantages
Prepared Trowel Finish White Gray (local) Slate	Hard smooth finish for enamels, paint, wall-paper. May be left undecorated. (For stairway and kitchen dados, low cost blackboards, etc. Needs no paint but may be painted.	Add water only	Mill mixed—will not streak, contains no lime; "pop" or saponify paint. Positive set. Does not shrink. No alkali to burn workmen. Best bond to gypsum plasters. May be polished—produces dense, hard, a most grainless finish. Can be decorated when dry.
Prepared Float Finish White Light Gray, Gray	Floated Sand Finish for paints (Texolite). Not for wallpaper. Degree of sand texture can be varied by type of float used. (See page 36, Clause 12b).	Add water only	Same as above except plaster produces a matte sand finish under the plasterer's float. Excellent wall and ceiling treatment where flat paints are to be used. Can be decorated when dry.
Oriental Colored Finish White and Twelve Shades See page 40.	For textured or floated finish coats which are self-decorating. Trowel finish made to order only.	Add water only	Carefully graded and sized aggregates plus selected pigments; produces a stone-like floated job or a variety of texture in white or color. Mill mixing and control of color provides full assurance against streaking and color differences. Exceptionally hard, durable finish. May be washed.
Sabinite Acoustical Plaster Three types, white and four shades	Acoustical correction	Add water only	Inexpensive, fireproof, amply sound-absorbent

JOB-MIXED FINISHING PLASTERS

TROWEL FINISHES—Many plasterers prefer to mix their own finishes "on the job." The smooth stone-like trowel finish, variously known as: White Coat, Skim Coat, Gauged Finish, Lime-Putty Finish and more commonly as Lime-Putty—Plaster-of-Paris Finish is made by gauging lime with gauging plaster in the ratio of 1 part gauging plaster to two parts hydrated lime by weight. (See page 36, Clause 12a for specification). Lower

amounts of gauging plaster may result in weak, slow-setting finishes that will craze crack. The practice of sifting the fiber from neat wall plaster using the plaster to gauge lime for finishing is no longer necessary. Specially made gauging plasters are available everywhere, which serve better and cost no more. Available USG Lime and Gauging Plasters are listed below.

LIMES AND GAUGING PLASTERS FOR JOB-MIXED FINISHES

Limes					
Brand	Type No.	Type	Color	Relative Cost †	Advantages
Farnam's Chesire™ (High Calcium)	L1	Quick lime	White	††	Large putty production. High Strength.
Blue Label Chesire (High Calcium)	L1	Quick lime	White	††	Large putty production. High Strength.
Plastimax™ High Calcium	L3	Hydrated	White	†††	Stores better. No pop dangers.
Red Top®	L3	Hydrated	White	†††	Fine Hydrated Finishing Lime.
Ivory®	L3	Hydrated	White	†††	Fine Hydrated Finishing Lime.
Grand Prize®	L3	Hydrated	White	†††	Fine Hydrated Finishing Lime.
Sampson® Hydrate	L3	Hydrated	White	†††	Fine Hydrated Finishing Lime.
USG® Hydrated Lime	L5	Pressure Hydrated	White	†††	Fine Hydrated Finishing Lime.
Blue Valley®	L5	Pressure Hydrated	White	†††	Over 92% Hydration. A super lime, mixing, easy working, economical.

Coverages per ton, when mixed with proper proportions of gauging plaster:
Quick Lime, 1000 sq. yds. Hydrated Lime, 500-700 sq. yds. Pressure Hydrated, 500-700 sq. yds.

Plaster Base	Ground Size	Plaster Thickness Over Lath	Coverage Per Ton—Ready for Finish Coat	Type No. (See Page 5)	Relative Cost †	USG Brands Used Locally
Wood lath	3/4"	1/2"	180-210 sq. yds.	B1	I †	Red Top®
Rock lath	3/4"	1/2"	225-240 sq. yds.		Economical.	Red Top Big Four®
Galvalith	3/4"	1/2"	105-135 sq. yds.	Add brand and fibering	Standard construction on same lath generally shows lower costs than Sanded or Wood Fiber.	Red Top Niagara Peerless
Galvalith on lath	1"	1/2"	225-240 sq. yds.			Red Top Ivory®
Brick or tile	5/8"	1/2"	165-200 sq. yds.			Red Top King's Windsor®
Pyrobar Gypsum tile	1/2"	1/2"	235-255 sq. yds.			Red Top Eldorado®
Note: 2 parts of sand, by weight, to one of plaster were used in all of the applications above except those over brick, tile and Pyrobar which require 3 to 1						
Wood lath	3/4"	1/2"	60-70 sq. yds.	B2	II †	Red Top®
Rock lath	3/4"	1/2"	75-80 sq. yds.		Cost slightly more than "Near" in place on identical lath.	Red Top Brown Mortar
Insulation lath	1"	1/2"	75-80 sq. yds.	B2M for masonry		Red Top Lath Mortar
Galvalith	3/4"	1/2"	35-45 sq. yds.			Red Top Niagara Peerless
Brick or tile	5/8"	1/2"	45-55 sq. yds.	B2W for Sanded Wood Fiber.		Red Top Ivory®
Pyrobar Gypsum tile	1/2"	1/2"	65-70 sq. yds.	Add brands.		Red Top King's Windsor®
						Red Top Big Four®
						USG Niagara Peerless
Wood lath	3/4"	1/2"	90-100 sq. yds.	B3	III †	Red Top® Red Top Ivory®
Rock lath	3/4"	1/2"	115-120 sq. yds.		Costs more in place than "Near" or Sanded on same lath.	Red Top Big Four®
Galvalith	3/4"	1/2"	55-65 sq. yds.	Add brand		Red Top Eldorado®
Insulation lath	1"	1/2"	115-120 sq. yds.			(Gypsite, see pg. 30)
						Red Top Overland®
						Red Top King's Windsor®
						Red Top Niagara Peerless
						Ivory®
For application direct to air-free roughened concrete surface only.	3/8"	3/8"	90 to 120 sq. yds. depending on roughness of surface.	B4	IV †	Bondcrete®
					Costs about the same as Wood Fiber on Rocklath.	

PACKAGING: Base Coat Plasters and Prepared Finishes in 100-lb. paper bags.

Gauging Plasters in 100-lb. paper bags and 230- or 300-lb. (net) bbls.

Coverage Per Ton	Type No. (See Page 3)	Relative Cost †	USG Brands
0-400 sq. yds.	F1 Add brand.	I †	Red Top® and Red Top Universal White Trowel Finish
		White finishes are slightly higher.	Red Top Adamant White Trowel Finish
			Red Top Adamant Slate Trowel Finish
			Red Top Adamant IXXX Trowel Finish
			Red Top Badger® Gray Trowel Finish
0-275 sq. yds.	F2 Add brand.	II †	Red Top Adamant Gray Sand Float Finish
		White finishes are slightly higher.	Red Top Adamant White Sand Float Finish
			Red Top Sand Float Finish (Light Gray)
			Red Top White Silico® Sand Float Finish
			Red Top Gray Silico Sand Float Finish
0-300 sq. yds. varying with kind of texture	F3 Specify color	III †	Oriental® Interior Colored Finish
1 sq. yds. in. thick	F4 Specify type and color.	IV †	Three types. See pages 88 and 89.

NOTES

† **RELATIVE COSTS**—Higher figures in this column represent higher probable installed costs, lower figures—lower costs. They represent relative not proportionate differences. Variations in price, wages and local practices make accuracy impossible. Architects should get accurate figures from local contractors before drawing final specifications. The "Relative Costs" given here are offered as an aid for preliminary selection only and should not be used in any calculation or estimate.

PACKAGING: Quicklimes in 50, 80, 90 or 100-lb. paper bags; 180 or 280-lb. (net) bbls.

Hydrated Limes in 40 or 50-lb. paper bags and bulk.

FLOAT FINISHES—Float finishes are made on the job by adding sand of selected color and size to unfibred neat plaster. (See page 36, Clause 8e). When a white float is desired, the Lime-Sand-Keene's Finish of page 36, Clause 8f is recommended.

KEENE'S CEMENT FINISHES—Several very hard water-resistant finishes may be prepared "on the job" with Keene's Cement and Fine White Finishing Lime (see page 31 and page 35, Clause 8c), providing maximum physical perfection in plaster finishes. They set slowly, may be scored to resemble ceramic tile or masonry. The more Keene's in the mixture, the harder and denser the finish.

NOTE: For Mason's Limes see pages 56 and 57.

Gauging Plasters

Id	Type No.	Set	Color	Relative Cost †	Advantages
Top Slow Set	G2	Slow	Local	I †	Low cost, high strength, slow setting.
Top Quick Set	G4	Quick	Local	I †	Low cost, high strength, quick setting.
Top Champion®	G8	Quick	White	II †	Fine, high purity, white.
Top Star®	G6	Slow	White	II †	Fine, high purity, white.
Valley Slow Set	G2	Slow	Local	I †	Low cost, high strength.
Valley Quick Set	G6	Slow	White	II †	High purity, white gauging plaster.
Valley Local	G2	Slow	Local	I †	Low cost, high strength.
Valley Quick Set	G8	Quick	White	II †	High purity, white.
Valley Local Quick Set	G4	Quick	Local	I †	Low cost, high strength.
Top Diamond®	G8	Quick	White	II †	High purity, white.
Top Subertine	G6	Slow	White	II †	High purity, white.

Page, 1 ton mixed with 2 tons (dry) Hydrated Lime covers from 1000 to 1400 sq. yds.

Trade Name



AMERICAN STANDARD SPECIFICATIONS

For Gypsum Plastering Including Requirements for Lathing and Furring

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A fully competent specification is a major essential for good plaster work. The American Standard Specifications, which follow, are recommended. We suggest their inclusion, in full or by reference, in all building specifications where plastering and lathing is involved.

They are printed here through the courtesy and permission of the American Standards Association and the sponsoring organizations: The American Institute of Architects and the American Society for Testing Materials. The personnel of the committee which produced them is sufficient evidence of their merit.

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GENERAL NOTES ON PLASTERING

To obtain the best results it is essential that all operations connected with plastering and lathing shall be in accordance with the best practices of the industry. Attention is specifically directed to the following:

Tools used for mixing and applying plaster must be kept clean. Dirty tools accelerate the "set" of plaster.

Water must be clean. Water containing salt or alum, or water in which tools have been washed, accelerates the "set." Water from stagnant pools and wells frequently contains organic or vegetable matter which may retard the "set."

Sand is not a cementitious material. It is, however, a very important ingredient. Extreme care must be exercised in its selection. Fine sand should never be used. The finer the sand the larger the total surface area in relation to the volume of particles and the greater the amount of gypsum required to coat each grain. Sand used in plaster must be well graded from fine to coarse. Oversanding weakens the plaster proportionately, and usually accelerates the "set."

Fine sand, having rounded particles, uniform in size (frequently called "quicksand") must not be used. It can be easily detected since it settles in the bottom of the mixing box, gives the mixture a watery appearance and causes it to work "short," and produces a weak plaster.

In the accompanying specifications for gypsum plastering all formulas for plaster mixes are based on the use of sand conforming to the requirements of the Standard Specifications for Sand for Use in Plaster (A.S.T.M. Designation: C35-39) of the American Society for Testing Materials.¹

Drying—A portion of the water used for mixing plaster is necessary for the chemical reaction which sets and hardens plaster. Therefore, plaster must not be permitted to dry out before setting has taken place. It must be protected from blasts

of wind and from drying unevenly or too rapidly. If glazed sash are not in place, and it is necessary to enclose the building, exterior openings of the building shall be screened with cheesecloth, or similar material. In cold, damp, or rainy weather, properly regulated heat must be provided, but precautions must be taken against too rapid drying before set has occurred. As soon as the plaster has set, free circulation of air shall be provided to avoid sweat-outs. After the plaster has set, heating shall be continued to insure as rapid drying as possible. Plaster must not be allowed to freeze before it has set. Alternate freezing and thawing must be avoided.

Bituminous Coatings—Because bituminous compounds do not provide ideal bases for plaster, the applying of plaster to masonry or concrete which has been coated with such compounds should be discouraged.

Plastering on Monolithic Concrete Surfaces, regardless of the type of plaster used, requires care and the taking of certain precautionary measures. The use of dressed (smooth) lumber, metal, and plywood forms, oiling or greasing of same, and the vibrating of concrete produces concrete surfaces which are so smooth that mechanical bond necessary for plaster is absent.

The adhesion of plaster to concrete depends largely upon the condition of the concrete surfaces at the time of application of the plaster, type of plaster used, and workmanship employed.

Concrete surfaces which are to be plastered should be rough. The desired character of surface may be procured by using rough forms which have not been oiled or greased, or by hacking or bush-hammering the surface to be plastered after the forms are removed and before the concrete has become too hard, or by applying a dash-coat of portland-cement grout.

¹See Note Page 39.

STANDARD SPECIFICATIONS FOR GYPSUM PLASTERING Chapter 1

NOTE—These specifications are intended to describe minimum requirements. The use of equivalents, or better, is permissible.

GENERAL PROVISIONS

1. (a) The work includes all labor, materials, services, equipment, and scaffolding required to complete the lathing and plastering of the project in accordance with the drawings and specifications.

(b) Scaffolding shall be constructed and maintained in strict conformity with applicable laws and ordinances, and so as not to interfere with and obstruct the work of others.

(c) The work shall be properly coordinated with the work of other trades.

DESCRIPTION OF TERMS

2. (a) The term "attached" or "furred" as applied to ceiling construction, means that the furring members are attached directly to the structural members of the building.

(b) The term "suspended," as applied to ceiling construction, means that the furring members are suspended below the structural members of the building.

(c) The term "main runners," as applied to metal construction, means the runners which are attached to or suspended from construction above.

(d) The term "cross furring," as applied to metal construction, means the furring members which are attached at right angles to the underside of main runners or other structural supports.

SCOPE OF WORK

3. (a) The following work shall be included:

(b) The following work shall not be included:

MATERIALS

4. (a) The materials shall conform to the following specifications of the American Society for Testing Materials, or any subsequent revisions thereof:

MATERIALS	A.S.T.M. DESIGNATIONS
SAND FOR USE IN PLASTER ¹	C 35 - 39
LIME ² { Hydrated Lime for Structural Purposes ²	C 6 - 31
Quicklime for Structural Purposes ²	C 5 - 26
GYPSUM PLASTER ² { Ready-sanded.....	C 28 - 30
Neat.....	
Wood-fibered.....	
Calcined gypsum for finishing coat.....	
MOLDING PLASTER ²	C 59 - 30
KEENE'S CEMENT ²	C 61 - 30
WATER.... shall be clean, fresh, suitable for domestic consumption, and free from such amounts of mineral and organic substances as would affect the set of the plaster.	

¹ The requirements for plasticity prescribed in Standard Specifications C 6 - 31 shall apply to hydrated lime and quicklime used for lime putty in finishes, and all lime used shall be suitable for base and finish coat plastering.

(b) All manufactured materials shall be delivered in the original packages, containers, or bundles bearing the name of the manufacturer and the brand.

(c) Plaster and all cementitious materials shall be kept dry until ready to be used; they shall be kept off the ground, under cover, and away from sweating walls and other damp surfaces. Metal goods shall be protected against rusting.

BASE COAT PROPORTIONS

5. Base coat plaster shall be proportioned as follows:

(a) Gypsum Neat Plaster:

NOTE—The term "neat" as applied to gypsum plaster means that the material, as shipped by the manufacturer, does not contain sand. Sand must be added at the job. Neat plaster may be fibered or unfibered.

Scratch (first) coat on all types of lath shall be mixed in the proportions of 1 part of gypsum neat plaster to not more than 2 parts of sand, by weight.

Base (first) coat on masonry surfaces (except monolithic concrete) and brown (second) coat in all three-coat work shall be mixed in the proportions of 1 part of gypsum neat plaster to not more than 3 parts of sand, by weight.

(b) Gypsum Ready-Sanded Plaster:

Gypsum ready-sanded plaster shall be used without the addition of sand.

For scratch (first) coat on all types of lath, scratch-coat gypsum ready-sanded plaster shall be used.

For application to masonry surfaces (except monolithic concrete) and for brown (second) coat in all three-coat work, either scratch-coat or brown-coat gypsum ready-sanded plaster may be used.

(c) Gypsum Wood-Fiber Plaster:

For two- and three-coat work on all types of lath, gypsum wood-fiber plaster shall be used without the addition of sand.

For two- and three-coat work on masonry surfaces (except monolithic concrete), gypsum wood-fiber plaster shall be mixed in the proportions of 1 part of plaster to 1 part of sand, by weight.

HAND MIXING

6. Material which has partially set shall not be retempered or used. Frozen, caked, or lumpy material shall not be used. The mixing boxes shall be watertight and thoroughly cleaned of all set or hardened material. If mixing is done in the building, waterproof protection shall be provided under the mixing boxes and water barrels. Tools shall be cleaned after mixing each batch.

(a) Gypsum Neat Plaster—Sand shall be added at the job. Plaster and sand shall be mixed dry to a uniform color at one end of the box, hoed into water at the other end, and thoroughly mixed to the proper consistency.

(b) Gypsum Ready-Sanded Plaster—Sand shall not be added. Plaster shall be placed at one end of the box, hoed into water at the other end, and thoroughly mixed to the proper consistency.

MECHANICAL MIXING

7. Material which has partially set shall not be retempered or used. Frozen, caked, or lumpy material shall not be used. 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.

(a) Gypsum Neat Plaster—Sand shall be added at the job. The following cycle of operations shall be followed while the mixer is in continuous operation:

Put in the approximate amount of water,

Add approximately half the amount of sand,

Add all the plaster,

Add remainder of the sand,

Mix to the proper consistency, adding water if necessary, and

Dump the entire batch and use.

NOTE—When the mixer is used intermittently, small amounts of sand and water shall be added after dumping each batch and the mixer run for a few minutes. After dumping the sand and water, the mixer will be clean and ready for a new batch.

(b) Gypsum Ready-Sanded Plaster—Sand shall not be added. The following cycle of operations shall be followed while the mixer is in continuous operation:

Put in the approximate amount of water,

Add the plaster,

Mix to the proper consistency, adding water or plaster, if necessary, and

Dump the entire batch and use.

NOTE—When the mixer is used intermittently, a small amount of water shall be added after dumping each batch and the mixer run for a few minutes. After dumping the water, the mixer will be clean and ready for a new batch.

(c) Lime Putty—Quicklime shall be thoroughly slaked, allowed to cool and then let stand not less than 24 hr. Hydrated lime shall be soaked at least 24 hr. All lime putty shall be kept moist until used and shall be screened through a No. 10 sieve before being used.

FINISH COAT PROPORTIONS

8. (a) Gypsum Lime-Putty Trowel Finish shall be mixed in the proportions of 3 parts of lime putty to 1 part of gaging plaster, by volume.

(b) Prepared Gypsum Trowel Finish shall be mixed with water to the proper consistency in accordance with the manufacturer's directions.

(c) Keene's Cement Finish:

MEDIUM HARD FINISH shall be mixed in the proportions of 1 part of lime putty to 1 1/2 parts of Keene's cement, by volume.

NOTE—If mixed mechanically, the proportions shall be 2 cu. ft. of lime putty, 1.5 cu. ft. of Keene's cement, and 10 lb. of fine white, washed sand, mixed as follows:

Put in approximately 24 qt. of water,

Add lime, sand, and Keene's cement,

Mix for not less than 15 min. nor more than 20 min., and

Dump entire batch and use.

HARD FINISH shall be mixed in the proportions of 1 part of lime putty to 3 parts of Keene's cement, by volume.

(d) Prepared Gypsum Sand Float Finish shall be mixed with water to the proper consistency in accordance with the manufacturer's directions.

¹ The A.S.T.M. Standard Specifications for Sand for Use in Plaster (C 35 - 39) are appended, see p. 39.

² These standard specifications of the American Society for Testing Materials are published in the 1936 Book of A.S.T.M. Standards, Part II, pp. 30, 21, 89, 364, and 255, respectively.

STANDARD SPECIFICATIONS Continued

(e) Gypsum Sand Float Finish shall be mixed in the proportions of 1 part of gypsum neat unfibered plaster to not more than 2 parts of sand, by weight. Sand shall pass a No. 12, 16, or 20 sieve, depending on the texture of the surface desired.

(f) Keene's Cement—Lime Sand Float Finish shall be mixed in the proportions of 2 parts of lime putty, 1½ parts of Keene's cement, and 4½ parts of sand, by volume.

(g) Colored Finishes for Float and Texture Work shall be mixed with water to the proper consistency in accordance with the manufacturer's directions.

THICKNESS OF PLASTER

9. (a) Grounds shall be installed so as to provide for the following thicknesses of plaster, from face of plaster base to finished plaster surfaces:

	THICKNESS OF PLASTER
LATH { Metal, Wire Lath, and Wire Fabric	5/8 in., min.
{ All other types	1/2 in., min.
UNIT MASONRY AND CONCRETE WALLS	5/8 in., min.
MONOLITHIC CONCRETE CEILINGS	1 1/8 in., min. 3/4 in., max.

NOTE.—If monolithic concrete ceiling surfaces require more than 3/4 in. of plaster to produce desired lines or surfaces, metal lath or wire lath shall be attached thereto. In extreme cases metal furring may be required.

(b) Wood Grounds will be furnished and installed by others.

(c) Metal Grounds shall be furnished and installed by the plastering contractor.

PREPARATIONS FOR PLASTERING

10. (a) Temperature and Ventilation.—Plaster shall not be applied to surfaces which contain frost. A minimum temperature of 40 F. shall be maintained in the building for an adequate period prior to the application of the plaster, while plastering is being done, and until it is completely dry. If the maintaining of this minimum temperature requires the furnishing of heat, it shall be provided by Salamanders shall not be used. Adequate, properly regulated ventilation shall be provided.

(b) Masonry Surfaces on which suction must be reduced shall be properly wet down immediately before the plaster is applied.

NOTE.—This is particularly important if wood-fiber plaster is used.

(c) Wood Lath shall be thoroughly wet down from 12 to 24 hr., and in very dry weather again from 1 to 3 hr., before the plaster is applied.

(d) Gypsum and Fiber Insulation Lath shall not be wet down.

(e) Monolithic Concrete Surfaces shall be cleaned of all dust, loose particles, and other foreign matter. Laitance and efflorescence shall be removed by washing first with a 10 per cent solution of commercial muriatic acid and water and then with clean 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 necessary the surface shall be evenly wetted, not saturated, to provide proper suction. If surfaces are not rough, they shall be hacked or bush-hammered, or a dash-coat of portland cement grout, composed of 1 part of cement and 1½ parts of fine sand mixed to a mushy consistency shall be applied. The portland cement grout shall be forcibly dashed on the concrete surface, using a stiff fiber brush, 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 plaster, the surface shall be evenly dampened if necessary to provide proper suction.

(f) Surfaces shall be carefully examined before the plaster is applied thereto, and the proper authorities notified of any and all unsatisfactory conditions. Application of the plaster shall not then proceed until such unsatisfactory conditions have been satisfactorily remedied or adjusted.

(g) Metal Grounds and other accessories such as corner beads, screeds, picture molds, etc., shall be carefully examined to see that they are straight, curved, plumb, level, square or true to the required angles, as the case may require, before the plaster is applied.

APPLICATION OF BASE COATS

11. (a) Two-Coat Work.—Base (first) coat shall be applied with sufficient material and pressure to form good full keys on wood lath, and good bond on gypsum or fiber insulation 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 true surface with rod and darby and left rough, ready to receive the finish (second) coat.

(b) Three-Coat Work.—Scratch (first) coat shall be applied with sufficient material and pressure to form good full keys on wood

and metal lath, wire lath, and wire fabric, and good bond on gypsum or fiber insulation lath or masonry, as the case may be, and to cover well, and then be scratched to rough surface.

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.

NOTE.—For best results, plaster screeds should be applied to the scratch coat prior to the application of the brown coat.

(c) Solid Plaster Partitions shall be not less than 2 in. in thickness and shall have scratch, back-up, brown, and finish coats.

Scratch coat shall be applied on the lath side with sufficient material and pressure to form good keys and to cover well, and then be scratched to a rough surface. Temporary bracing of studs shall be furnished on the channel or rib side of the partition and maintained until the scratch coat on the lath side has set.

Back-up coat shall be applied on the channel or rib side, after the scratch coat on the lath side has set firm and hard, in not less than two operations, the first to adequately cover the keys of the scratch coat, and the other coat or coats to bring the plaster out to grounds. It shall then be straightened to true surface with rod and darby and left rough, ready to receive the finish coat.

Brown coat on the lath side shall be applied over the scratch coat, after the back-up coat on the channel or rib side has set, and shall be rodde, darbied, and left rough, as specified for the back-up coat.

Plaster shall extend to the floor. All spaces between grounds shall be filled. Hollow metal bucks shall be filled solid. Wherever possible, plastering shall be commenced at the bottom of the partitions.

(d) Plastering on Monolithic Concrete.—Plaster shall be specially prepared bond plaster for use on concrete. Sand shall not be added.

Surfaces of walls and columns shall have a scratch coat of bond plaster, followed by a brown coat of gypsum plaster (in the proportions of 1 part of gypsum neat plaster to not more than 3 parts of sand, by weight) trowelled into the scratch coat before it has set. The brown coat shall be brought out to grounds, straightened to a true surface with rod and darby, and left rough, ready to receive the finish coat.

Surfaces of ceilings shall have a coat of bond plaster scratched in thoroughly, doubled back, and filled out to a true, even surface and left rough, ready to receive the finish coat.

APPLICATION OF FINISHES

12. (a) Trowel Finishes.—In the application of trowel finishes the use of excessive water shall be avoided:

Gypsum Lime-Putty Trowel Finish shall be applied over a base coat which has set and is surface-dry, scratched in thoroughly, laid on well, doubled back and filled out to a true, even surface. The thickness shall be from 1/16 to 1/8 in. The finish shall be allowed to draw a few minutes and then it shall be well trowelled with water to a smooth finish, free from cat faces and other blemishes.

Prepared Gypsum Trowel Finish shall be applied in accordance with the manufacturer's directions.

Keene's Cement Finish shall be applied over a thoroughly set base coat which is nearly, but not quite dry, scratched in thoroughly, laid on well, doubled back and filled out to a true, even surface. The thickness shall be from 1/16 to 1/8 in., unless the finish coat is marked off or jointed, in which case the thickness may be increased as required by the depth of marking or jointing. The finish shall be allowed to draw a few minutes and then it shall be well trowelled with water to a smooth finish, free from cat faces and other blemishes.

NOTE.—If the base coat has dried out, it shall be sprayed with water, but not soaked, before the finishing coat is applied.

(b) Float Finishes.—The following float finishes shall be applied over a thoroughly set base coat which is nearly but not quite dry, laid on with a trowel to an even surface, and then floated (with wood, carpet, cork, rubber, or other type float, depending on the texture desired) to a true, even surface, free from slick spots and other blemishes:

Prepared gypsum sand float finish,
Gypsum sand float finish, and
Keene's cement-lime sand float finish.

NOTE.—If the base coat has dried out, it shall be sprayed with water, but not soaked, before the finishing coat is applied.

(c) Colored Finishes for Float and Texture Work shall be applied in accordance with the manufacturer's directions.

(d) Acoustical and Other Special Purpose Plasters shall be applied in accordance with the manufacturer's directions.

SPECIFICATIONS FOR LATHING AND FURRING

NOTE:—These specifications are intended to describe minimum requirements. The use of equivalents, or better, is permissible. For some types of structures it may be desirable to use metal lath and supporting members heavier than the minima listed in these standard specifications.

MATERIALS

13. (a) Gypsum Lath shall conform to the Standard Specifications for Gypsum Lath (A.S.T.M. Designation: C 37 — 34) of the American Society for Testing Materials, or any subsequent revision thereof.

Gypsum lath shall conform to the following dimensional requirements:

Thickness.....	5/16, 3/8, or 1/2 in.
Width.....	48 in.
Length.....	32 or 48 in.

(b) Wood Lath shall be No. 1 grade, reasonably clear, evenly manufactured, and free from detrimental defects.

A few worm holes, small pitch pockets, well set or firm knots, not more than 3/4 in. in diameter and not bunched, and wane not more than one-third the thickness and one-third the width for one-third the length on one side of the lath, or its equivalent otherwise located, when not in combination with any other defect, shall be permitted.

Wood lath shall conform to the following dimensional requirements:

	MINIMUM	MAXIMUM
Thickness.....	3/8 in.	3/8 in.
Width.....	15 in.	15 3/4 in.
Length.....	47 1/2 in.	48 in.
	31 1/2 in.	32 in.

(c) Fiber Insulation Lath shall be manufactured from wood or other vegetable fiber subjected to such drying temperature as to effect complete destruction of rot-producing fungi.

Surfaces shall be free from cracks, lumps, excessive departure from planeness, or other defects.

Fiber insulation lath shall conform to the following dimensional requirements:

	DIMENSION	PERMISSIBLE VARIATIONS
Thickness.....	1/2 in., 3/4 in., and multiples of 1/2 in.	± 1/16 in.
Width.....	15, 18, or 24 in.	± 1/4 in.
Length.....	48 in.	± 1/4 in.

Fiber insulation lath may be either single or multiple ply board. The individual plies shall be joined in such manner as to prevent separation under normal use.

Fiber insulation lath 1/2 in. in thickness shall have a transverse strength lengthwise of not less than 14 lb. and crosswise of not less than 12 lb. The strength of other thicknesses shall be in direct proportion. The deflection at the specified minimum load (12 lb. or 14 lb.) shall not exceed 0.85 in. and the deflection at the maximum load shall be not less than 0.25 in. Tests to determine strength and deflection shall be in accordance with the Federal Specification for Insulating Fiber Board (LLL-F-321a).

(d) Metal Lath, Expanded, Ribbed, and Sheet shall be of steel, coated with rust-inhibitive paint after cutting, or cut from zinc-coated sheets.

(e) Wire Lath shall be not lighter than No. 19 W. & M. gage wire, 2 1/2 meshes per inch, coated with zinc or rust-inhibitive paint.

(f) V-Stiffened Wire Lath shall be not lighter than No. 20 W. & M. gage wire, 2 1/2 meshes per inch, with No. 24 U. S. gage V-rib stiffeners spaced not to exceed 8 in. apart, coated with zinc or rust-inhibitive paint.

(g) Paper-Backed Wire Fabric shall be not lighter than No. 16 W. & M. gage, zinc-coated wire, with not to exceed 2 by 2-in. mesh, with No. 26 U. S. gage V-ribs or No. 13 W. & M. gage, zinc-coated wire stiffeners spaced not to exceed 4 in. apart, and absorptive paper backing securely attached to metal in such a manner as to provide full embedment of at least 1/16 in. of plaster for at least one-half of the total length of the strands and one-half of the total weight of the metal. The design shall be such as to provide a mechanical bond and continuous metallic reinforcement in at least two directions, for plaster.

(h) Metal Accessories such as corner beads, base screeds, concealed picture molds, etc., shall be not lighter than No. 26 U. S. gage steel, zinc coated, with perforated or expanded flanges or clips shaped so as to permit complete embedment in the plaster.

(i) Channels shall be hot-rolled or cold-rolled steel, free from rust, of the following minimum weights per thousand lineal feet:

SIZE	HOT-ROLLED	COLD-ROLLED
3/4 in.....	300 lb.	276 lb.
1 in.....	410 lb.	332 lb.
1 1/2 in.....	530 lb.	442 lb.
2 in.....	720 lb.	553 lb.

NOTE.—Coating with rust-inhibitive paint is an added precautionary measure.

LATHING

14. All lath shall be applied with the long dimension at right angles to the supports, except that furnished in rolls which may be applied with the long dimension parallel to the supports.

APPLICATION OF GYPSUM LATH

15. (a) Gypsum lath shall be securely nailed to wood supports (spaced not to exceed 16 in. on center) at intervals not to exceed 4 in. with No. 13 gage, 1 1/8-in., 3/8-in. flat head, blued nails. The nails shall be driven with the under side of the head flush with the face of the lath.

(b) Joints between walls and ceilings shall be staggered. Lath shall be applied with the long dimension at right angles to the framing members, with joints broken in each course. Lath shall not be butted tightly together, nor be more than 1/4 in. apart.

(c) Cornerite shall be securely nailed through lath to supports at all interior angles.

(d) Gypsum lath shall be attached to horizontal or vertical metal supports by means of special clips.

(e) Special erection systems, on either wood or metal supports, which afford equal carrying strength may be used, in which event lath shall be erected in accordance with the specifications therefor.

NOTE.—On ceilings and other large unbroken areas it is recommended that lath be applied in rectangular herringbone fashion.

APPLICATION OF WOOD LATH

16. (a) Wood lath shall be spaced 3/8 in. apart at the edges, 1/4 in. apart at the ends, and shall be nailed securely at right angles to wood supports (spaced not to exceed 16 in. on center) with 3d fine, No. 16 gage blued nails, full driven.

(b) Joints shall be broken every seventh lath.

(c) Lath shall not run through from one room to another.

(d) Cornerite shall be securely nailed through the lath to the supports at all interior angles.

APPLICATION OF FIBER INSULATION LATH

17. (a) Fiber insulation lath shall be nailed securely to wood supports (spaced not to exceed 16 in. on center) at intervals of not more than 4 1/2 in., with blued or bright nails of the following sizes:

For 1/2-in. lath..... 1 1/8-in. blued fiber-board nails or 4d box nails.
For 3/4-in. lath..... 1 3/4-in. blued fiber-board nails or 6d box nails.

(b) Nails shall be placed not less than 3/8 in. from the ends and not less than 1/2 in. from ship-lapped, tongued-and-grooved, or interlocking edges.

(c) End joints (except interlocking type) shall be approximately 3/16 to 1/4 in. Ship-lapped, tongued-and-grooved, or interlocking edges shall be fitted to moderate contact.

(d) Cornerite shall be securely nailed through the lath to the supports at all interior angles.

APPLICATION OF METAL LATH, WIRE LATH AND WIRE FABRIC

18. (a) The weight of metal lath, wire lath, and wire fabric shall conform to the requirements prescribed in Table I.

(b) Metal lath (except ribbed), wire lath, and wire fabric shall be attached to horizontal wood supports with not less than 6d common nails or 1 1/4-in. roofing nails driven to a penetration of at least 1 in., or 1 1/4-in. No. 14 W. & M. gage wire staples driven home; and shall be attached to vertical wood supports with not less than 4d common nails or 1-in. roofing nails driven to a penetration of at least 3/4 in., or 1-in. No. 14 W. & M. gage wire staples driven home. The 3/8-in. rib lath, stiffened wire lath, and sheet lath shall be attached to horizontal and vertical wood supports with nails or staples 3/8 in. longer than required for the aforementioned bases, unless attachments are through the ribs, in which event nails or staples shall be of such length as to provide at least 1-in. penetration in horizontal wood supports and 3/4-in. penetration in vertical wood supports. Common nails shall be bent over to engage at least three strands of lath. Other methods of attachment which afford equal carrying strength may be used.

1936 Book of A.S.T.M. Standards, Part 11, p. 97.

STANDARD SPECIFICATIONS Continued

(c) Metal lath, wire lath, and wire fabric shall be securely attached to horizontal and vertical metal supports with No. 18 W. & M. gage, galvanized, soft annealed wire ties.

(d) All attachments for securing metal lath, wire lath, and wire fabric shall be spaced not more than 6 in. apart.

(e) Side laps of metal lath, wire lath, and wire fabric shall be secured to supports and be tied between supports at not to exceed 9-in. intervals.

(f) Flat expanded metal lath and wire lath shall be lapped $\frac{1}{2}$ in. at the sides and 1 in. at the ends. Ribbed lath shall be lapped at the sides by nesting, and 1 in. at the ends. Sheet lath shall be lapped at the sides and ends by nesting. Stiffened wire lath and fabric shall be lapped by nesting ribs or selvage 1 in. at the sides, and 1 in. at the ends.

(g) Special erection systems which afford equal carrying strength may be used, in which event lath shall be erected in accordance with the specifications therefor.

(h) Application of flat expanded metal lath shall be started one support away from a corner and be bent into or around the corner and carried on to the support on the abutting surface. Lath shall first be applied to ceilings and the sheets carried down 6 in. on to the walls and partitions. If lath is not used on ceilings the lathing may be started at the top of the wall and may be bent and carried up 6 in. on to the ceiling joists. Wherever possible the ends of the sheets of lath shall be staggered. Ribbed and sheet lath, and stiffened wire lath, and fabric shall be butted at internal corners.

(i) Where ribbed, sheet lath, or stiffened wire lath, or fabric are attached to metal supports, cornerite shall be securely tied to lath at all internal corners; such ties shall be applied only at edges of cornerite. Cornerite used on wood supports shall be securely nailed through the lath.

Length of wire hangers shall not exceed 150 times their diameter, unless suitable stiffener-separators are provided for at least every alternate hanger.

Where 1 by $\frac{3}{16}$ -in. inserts are used, the lower end shall be punched for $\frac{3}{8}$ -in. bolts and allowed to project a sufficient distance below the bottom of the slab to permit the attachment of the hanger proper.

Flat steel hangers shall be bolted to 1 by $\frac{3}{16}$ -in. inserts with $\frac{3}{8}$ -in. bolts. Inserts used in cinder concrete or tile arch construction shall be toggled, with 7-in. cross pieces bearing on top of reinforcing steel in cinder concrete or on top of tile arch construction. In slabs of other kinds of concrete, inserts shall be secured to steel reinforcement or looped and embedded 2 in. in concrete.

Wire or rod hangers shall be saddle tied or wrapped around main runners so as to develop the full strength of the hangers.

Lower ends of flat hangers shall be bolted with $\frac{3}{8}$ -in. bolts to runner channels, or bent tightly around runners and bolted to the main part of the hanger.

(b) Main Runners for the various spacings of hangers shall be of the following minimum sizes:

DISTANCE CENTER TO CENTER OF HANGERS	SIZE OF MAIN RUNNERS
Up to 3 ft.	$\frac{1}{2}$ -in. cold-rolled channels
Up to 4 ft.	$\frac{1}{2}$ -in. 12-lb. hot-rolled channels
Up to 5 ft.	2-in. hot-rolled channels or $\frac{1}{2}$ by $\frac{1}{2}$ by $\frac{3}{16}$ -in. angles

NOTE.—Other shapes of hot- or cold-rolled members of equal strength may be substituted in lieu of the above.

(c) Cross Furring for various spacings of main runners shall be of the following minimum sizes, but the maximum spacings for various types of lath shall not exceed those listed in the last column of Table I (Section 18 (a)):

TABLE I.—WEIGHTS OF METAL LATH, WIRE LATH, AND WIRE FABRIC.				
Maximum Spacing of Supports for Weights of Lath Listed	Minimum Weights per Square Yard in Pounds			
	Vertical Supports		Horizontal Supports	
	Wood	Metal	Wood	Metal
12 to $13\frac{1}{2}$ in.		Flat expanded, 2.5 lb.	Flat expanded, 3.0 lb. Wire lath, 2.48 lb.	Flat expanded, 3.0 lb. ^a Flat expanded, 3.4 lb. Wire lath, 2.48 lb.
16 in.	Flat expanded, 2.5 lb. Flat rib, 2.75 lb. Wire lath, 2.48 lb. Wire fabric ^c	Flat expanded, 2.5 lb. ^a Flat rib, 2.75 lb. Wire lath, 2.48 lb. Wire fabric ^c	Flat expanded, 3.4 lb. Flat rib, 2.75 lb. Wire fabric ^c	Flat rib, 3.0 lb. V-Stiffened, flat expanded, 3.0 lb. Wire fabric ^c
19 in.	Flat rib, 3.0 lb. $\frac{3}{8}$ -in. rib, 3.0 lb. ^d V-Stiffened, flat expanded, 3.0 lb. V-Stiffened, wire lath, 3.3 lb. Sheet lath, 4.5 lb.	Flat rib, 3.0 lb. V-Stiffened, flat expanded, 3.0 lb. V-Stiffened, wire lath, 3.3 lb.	Flat rib, 3.0 lb. $\frac{3}{8}$ -in. rib, 3.0 lb. ^d V-Stiffened, flat expanded, 3.0 lb. V-Stiffened, wire lath, 3.3 lb. Sheet lath, 4.5 lb.	Flat rib, 3.4 lb. V-Stiffened, flat expanded, 3.4 lb. V-Stiffened, wire lath, 3.3 lb. Sheet lath, 4.5 lb.
$23\frac{1}{2}$ in.		Flat rib, 3.4 lb. ^a $\frac{3}{8}$ -in. rib, 3.0 lb. ^d V-Stiffened, flat expanded, 3.4 lb. Sheet lath, 4.5 lb.		$\frac{3}{8}$ -in. rib, 3.0 lb. ^d

^a 3.0-lb. flat expanded lath permissible for 12-in. spacing.

^b 2.5-lb. flat expanded lath permissible for this spacing only for solid plaster partitions.

^c Paper-backed wire fabric No. 16 gage wire 2 by 2-in. mesh, with stiffener.

^d Rod-ribbed flat expanded lath of equal rigidity and weight is permissible on same spacings as $\frac{3}{8}$ -in. rib lath.

^e 3.4-lb. flat rib lath permissible for this spacing only for solid plaster partitions.

METAL CEILING CONSTRUCTION

19. (a) Hangers shall be of ample length. They shall be secured to steel reinforcement in concrete with cinder aggregate and may be secured to steel reinforcement or looped and embedded 2 in. in concrete with other types of aggregates. For attaching carrying members directly to concrete or steel joists or beams, they shall be of the following sizes:

TYPE OF CONSTRUCTION	AREA SUPPORTED	SIZE OF HANGERS
Concrete	12 sq. ft., max.	No. 10 W. & M. gage galvanized wire
	16 sq. ft., max.	No. 8 W. & M. gage galvanized wire
Bar joists		2 strands of No. 14 W. & M. gage galvanized wire
Steel beams		Special clips

NOTE.—Inserts or other devices of equal strength may be substituted in lieu of the above.

For supporting main runners of suspended ceilings, they shall be not less than the following sizes:

AREA SUPPORTED	SIZE OF HANGERS
12 sq. ft., max.	$\frac{3}{16}$ -in. round, mild-steel rods or No. 6 W. & M. gage galvanized wire
16 sq. ft., max.	$\frac{7}{32}$ -in. round, mild-steel rods or No. 5 W. & M. gage galvanized wire
25 sq. ft., max.	1 by $\frac{3}{16}$ -in. flats

NOTE.—It is highly recommended that all rod hangers be protected with a galvanized or cadmium coating and that flat hangers be similarly coated or protected with a rust-inhibitive paint.

DISTANCE CENTER TO CENTER OF MAIN RUNNERS	SIZE OF CROSS FURRING	MAXIMUM SPACING
Up to 2 ft.	$\frac{1}{4}$ -in. pencil rods or $\frac{3}{4}$ -in. channels	12 in.
Up to 2 ft.	$\frac{3}{8}$ -in. pencil rods or $\frac{3}{4}$ -in. channels	19 in.
Up to 2 ft. 6 in.	$\frac{3}{8}$ -in. pencil rods or $\frac{3}{4}$ -in. channels	12 in.
Up to 3 ft.	$\frac{3}{8}$ -in. cold- or hot-rolled channels	$23\frac{1}{2}$ in.
Up to 3 ft. 6 in.	$\frac{3}{8}$ -in. cold- or hot-rolled channels	19 in.
Up to 4 ft.	$\frac{3}{8}$ -in. cold- or hot-rolled channels	16 in.
Up to 4 ft.	1-in. cold- or hot-rolled channels	$23\frac{1}{2}$ in.
Up to 4 ft. 6 in.	1-in. cold- or hot-rolled channels	19 in.
Up to 5 ft.	1-in. cold- or hot-rolled channels	12 in.

NOTE.—Other shapes of hot-rolled or cold-rolled members of equal strength may be substituted in lieu of the above.

Cross furring shall be securely attached to the main runners by special clips or by not less than 2 strands of No. 16 W. & M. gage galvanized wire or equivalent attachments.

STEEL STUDS FOR SOLID PLASTER PARTITIONS

20. Steel studs for solid plaster partitions shall be of such size and number and so located as to provide solid backing at all corners. They shall be set to the required dimensions, properly aligned, made plumb and true, securely anchored to the floor and ceiling construction and temporarily braced. Studs adjacent to openings shall be doubled and securely anchored to the frames or bucks. Heads of openings shall be adequately reinforced.

METAL WALL FURRING

21. (a) Attachments shall consist of nails driven securely into concrete or into masonry joints, or short pieces of $\frac{3}{4}$ -in. channels used as anchors driven into masonry joints. They shall be spaced not to exceed 2 ft. on center, horizontally, and in accordance with the spacing of horizontal channels, vertically, and shall project a proper distance from the face of the wall to permit ties to be made.

NOTE.—Where damp-proofing has been damaged, in installation of attachments, it shall be painted with the same material before proceeding with the installation of the furring.

(b) Horizontal Members shall be not less than $\frac{3}{4}$ -in. hot- or cold-rolled channels. They shall be spaced not to exceed 4 ft. 6 in. on center with the lower and upper channels not more than 6 in. from the floor and ceiling, respectively, and not less than $\frac{1}{4}$ in. from the face of the wall. They shall be securely tied to attachments with No. 14 W. & M. gage galvanized wire or with 3 strands of No. 18 W. & M. gage galvanized soft annealed wire, or equivalent devices.

(c) Vertical Members shall be not less than $\frac{3}{4}$ -in. hot-rolled or cold-rolled channels. They shall be spaced in accordance with requirements for spacing of supports in Table I (Section 18 (a)). They shall be securely tied to horizontal members with No. 14 W. & M. gage galvanized wire or saddle tied with 3 loops of No. 18 W. & M. gage galvanized soft annealed wire, or equivalent devices, at each crossing, and securely anchored to the floor and ceiling construction. Where furring is a considerable distance from the face of the wall, channel braces to the wall shall be provided approximately 2 ft. on center, and, where the height exceeds 16 ft., special truss bracing shall be provided to prevent concentration of load on the floor construction.

NOTE.—Special devices which are the equivalent of, or better than, the nail or channel attachments may be used in lieu thereof.

Special devices, securely attached to concrete or masonry, in lieu of horizontal members, may be used for support of vertical members.

(d) Band-Iron Furring shall be $\frac{3}{4}$ -in. or 1-in. crimped and painted band iron not lighter than No. 22 U. S. gage metal. Such furring shall be stapled to the wall with brick staples not more than 24 in. on centers. Spacing of band-iron furring shall not exceed 16 in. on centers. The wire or metal lath shall be stapled over such band-iron furring with staples providing a penetration of not less than $\frac{3}{4}$ in. into the masonry.

WORKMANSHIP

22. All metal construction and lathing shall be erected so that finished plaster surfaces may be true to line, level, plumb, square, curved, or as otherwise required, without excessive thickness of plaster.

Standard Specifications for SAND FOR USE IN PLASTER¹

A.S.T.M. Designation: C35-39, Adopted 1939²

This Standard of the American Society for Testing Materials is issued under the fixed designation C 35; the final number indicates the year of original adoption as standard or, in the case of revision, the year of last revision.

QUALITY OF SAND.—It is recognized that for certain purposes satisfactory results may be obtained with sands not conforming to these specifications. In such cases the use of sand not conforming to these specifications may be authorized only under special provisions based upon laboratory studies of the possibility of designing a mixture of materials to be used on the job that will yield plaster equivalent in quality to the specified mixture made with sand complying with these specifications in all respects.

Definition

1. Sand³ for use in plaster shall consist of fine granular material composed of hard, strong, durable, uncoated particles which are free from injurious amounts of saline, alkaline, organic, or other deleterious substances.

Grading (Sieve Analysis)

2. (a) Sand for use in plaster shall be uniformly graded from fine to coarse within the following limits:

	PERCENTAGE RETAINED	
	MAX.	MIN.
Retained on Sieve:		
No. 4 (4760-micron)	0	..
No. 9 (2380-micron)	10	0
No. 30 (590-micron)	80	15
No. 50 (297-micron)	95	70
No. 100 (149-micron)	..	95

(b) The amount of material finer than a No. 200 (75-micron) sieve, shall not exceed 5 per cent.

(c) The sieves shall conform to the requirements of the Standard Specifications for Sieves for Testing Purposes (A.S.T.M. Designation: E11) of the American Society for Testing Materials.

Organic Impurities

3. The sand when subjected to the colorimetric test for organic impurities shall show a color not darker than the standard color, unless it is shown by adequate tests that the impurities causing the color are not harmful in plaster.

Methods of Testing

4. The properties enumerated in these specifications shall be determined in accordance with the following methods of test of the American Society for Testing Materials:

(a) **SIEVE ANALYSIS**—Standard Method of Test for Sieve Analysis of Fine and Coarse Aggregates (A.S.T.M. Designation: C 136).

(b) **MATERIAL FINER THAN No. 200 SIEVE**—Standard Method of Test for Amount of Material Finer than No. 200 Sieve in Aggregates (A.S.T.M. Designation: C 117).

(c) **ORGANIC IMPURITIES**—Standard Method of Test for Organic Impurities in Sands for Concrete (A.S.T.M. Designation: C 40).

¹ Under the standardization procedure of the Society, these specifications are under the joint jurisdiction of the A.S.T.M. Committee C-7 on Lime and Committee C-11 on Gypsum.

² Prior to their present adoption as standard, these specifications were published as tentative from 1921 to 1925, being revised in 1924 and 1925. They were adopted in 1925, revised in 1930, but withdrawn and republished as tentative in 1936.

These specifications are in effect a revision and consolidation of, and replace the former Standard Specifications for Sand for Use in Gypsum Plaster (A.S.T.M. Designation: C35) and the Tentative Specifications for Sand for Use in Lime Plaster (A.S.T.M. Designation: C 66-31 T), which specifications were accordingly discontinued in 1936.

³ The term sand is defined in the Standard Definition of the Term Sand (A.S.T.M. Designation: C 58) of the American Society for Testing Materials.



ORIENTAL STUCCO AND FINISH

Factory mixing of Exterior Stucco and Interior Finish insures uniformity of color and mix. Only water is added on the job.

ORIENTAL* EXTERIOR STUCCO

ADVANTAGES

Streaking, due to insufficient mixing of stucco "on the job" is eliminated with USG factory-mixed stuccos. With job-mixing, proportions of materials used are likely to vary, producing stuccos of varying qualities. With factory mixing quality is always standard.

Uniformity of color in successive batches is obtained so that joinings between separate applications will not show if proper precautions are taken.

USG Oriental Stucco is water-resistive and its water-resistance and strength increase with age.

The mineral colors do not fade, nor are they affected by the other ingredients used to make stucco a plastic material.

Setting time is slow enough to provide a sufficient interval between application and set to permit smooth-troweled, stippled, sponged, rough cast, period textures or spatter finishes.

Since only water is added, time is saved on the job.

COVERING CAPACITY

Base Coat—The approximate covering capacity of one ton of Oriental Exterior Stucco Base Coat (scratch and brown coats) under average conditions, is as follows:

Plastering Surface	Brick and clay tile	Metal lath	Wire fabric	Cement and cinder tile	Concrete
Sq. yd. per ton	20 to 25	25 to 30	22 to 28	20 to 22	20 to 25

Finish Coat—One ton of Oriental Exterior Stucco, 1/4 in. thick, will cover from 150 to 200 sq. yds., depending on the texture selected.

APPLICATION

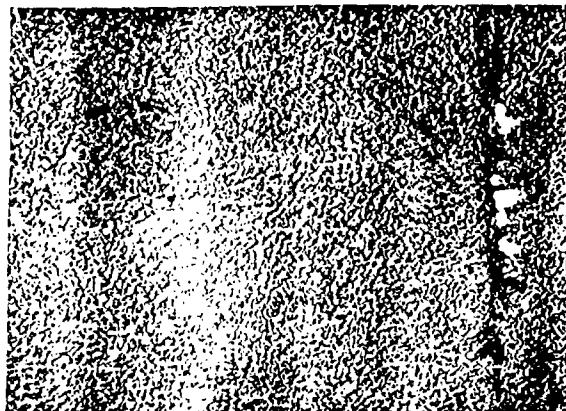
Oriental Exterior Stucco should be applied over USG Expanded Metal Stuccomesh, weighing not less than 1.8 lbs. per sq. yd., or USG Self-Furring Diamond Mesh Metal Lath, weighing not less than 3.4 lbs. per sq. yd.

ORIENTAL INTERIOR FINISH

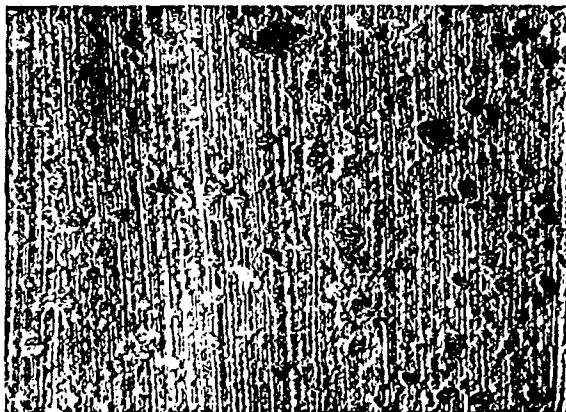
Oriental Interior Finish supplies similar beauty in texture and color for interior plastered surfaces. It may be floated to various degrees of coarseness by varying the float used. It may be textured with stippling brushes, sponges, brooms and other tools to resemble the illustrations of Textured Oriental Stucco on this page. Spots of Oriental Interior Finish in contrasting color may be applied at random to the wall and blended into the surface with float or wadded burlap. Oriental Interior Finish will cover 250 to 300 yards per ton depending on the texture used.

*Reg. Trade Mark

COLONIAL
Light stipple—
troweled
slightly to
produce
highlights



OAK BARK
Vertical brush-
ing—light
dash of same
color—dashed
spots flattened
with trowel



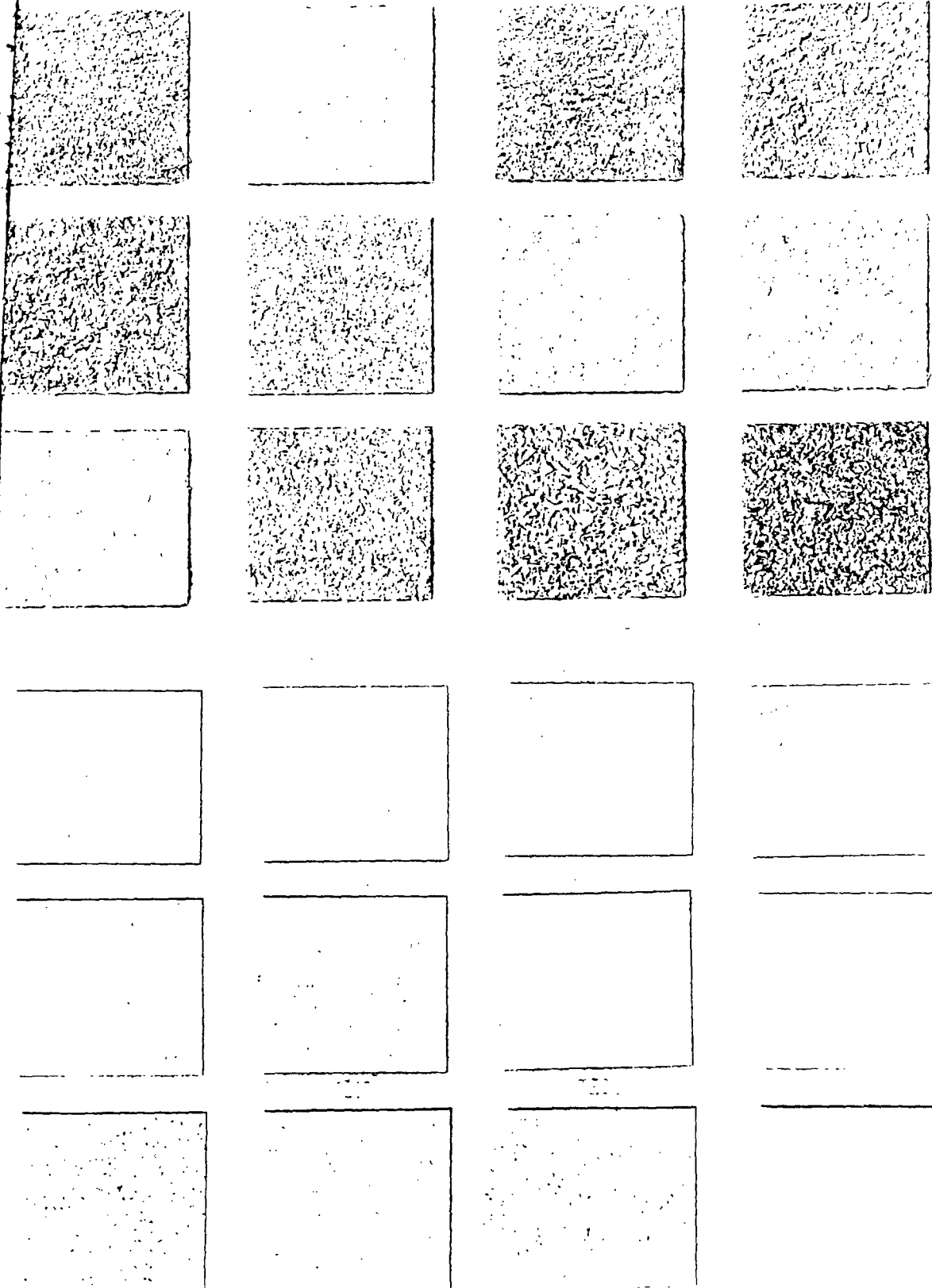
MODERN CALIFORNIAN
Stippled—
medium heavy
dash—flat-
tened vigor-
ously with
trowel



VERTICAL GRAIN
Vertical brush-
ing—flattened
with vertical
trowel strokes



G O R I E N T A L C O L O R S



BB012 2118



SHEETROCK

THE FIREPROOF WALLBOARD

DESCRIPTION AND TYPES

What It Is—Sheetrock, composed of a rugged core of gypsum enclosed in tough paper, is an all-purpose, fireproof wallboard. When applied, it produces a finished surface ready to be decorated (for predecorated types, see pages fifty and fifty-one). Used in new buildings, nailed directly to framework, for all walls and ceilings; and in existing structures for remodeling. The 1/4-in. thickness is ideal for application over old plaster surfaces. The joints between boards may be left frankly visible, may be covered with batten strips or mouldings of various sorts, or may be completely concealed. Sheetrock will take any form of decoration including wallpaper. Sheetrock produces a strong, rugged wall or ceiling which is completely incombustible. A standard construction material, accepted and approved as such for over 20 years.

Recessed-Edge Sheetrock—Recessed-Edge* Sheetrock used with Perf-A-Tape* provides an improved permanent reinforcement at the joint between boards and simultaneously conceals the joint. Because of the "channel" prepared by the recessed edge, Perf-A-Tape reinforcement and the cement used when finished are flush with the face of the board, eliminating any bulge or shadow to indicate the presence of the joint.

The strength of the joint is as great as that of the board and, consequently, it will permit horizontal application of the boards (the long edge parallel to the floor) in walls and similar application across the joists in ceilings without the necessity for, or expense of, headers. Such horizontal construction effects many economies and as well produces a stronger construction more resistant to building frame movement. Recessed-Edge Sheetrock may also be applied vertically (long edges parallel to supports).

Insulating Sheetrock—Any type of Sheetrock, decorated or plain, may be obtained with a sheet of bright metal foil attached to its back surface, providing at once both an insulation value against heat loss or entrance, equivalent to that of 1/2-in. fiber insulation board, and a highly efficient vapor barrier. The coefficient of heat conductivity is approximately .66 B.t.u.'s per hour, per square foot, per degree difference in temperature.

Finishes—Regular Sheetrock is furnished in a cream, almost white finish for the exposed face. There is also available Wood Grained Sheetrock in Walnut, Knotty Pine and Bleached Mahogany which are described and pictured on pages fifty and fifty-one and Sheetrock Tile Board on page fifty-three.

SIZES AND RELATIVE COSTS

	Thickness	Width	Length	Relative Cost **
Recessed-Edge	3/8, 1/2 in.	4 ft.	6, 7, 8, 9, 10, 11 and 12 ft.	I
Square Edge	1/4, 3/8 in.	4 ft.	6, 7, 8, 9, 10, 11 and 12 ft.	I
Walnut Finish Knotty Pine Finish Bleached Mahogany	3/8 in.	4 ft.	6, 7, 8, 9 and 10 ft.	II
Insulating	Any of the above are available with insulating foil back in sizes given at slight additional cost.			
Tile Board	3/8 in.	4 ft.	6, 7, 8, 9 and 10 ft.	III

*Reg. Trade Mark.

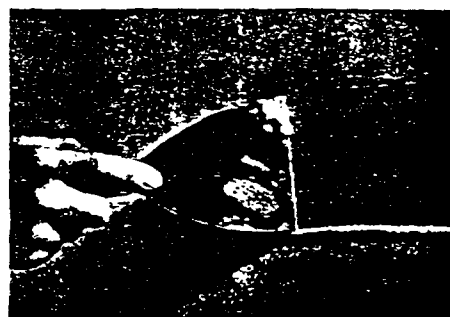
**"I" indicates least expensive; "II" indicates more expensive than "I", etc.



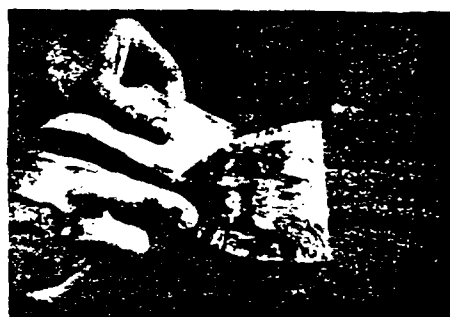
Recessed-Edge offers a wall-board construction that makes possible stronger, smoother, and better-looking wallboard jobs.



When sheets are nailed in place, recessed edges form a channel at each joint.



Channel is filled with special cement, quickly and easily applied.



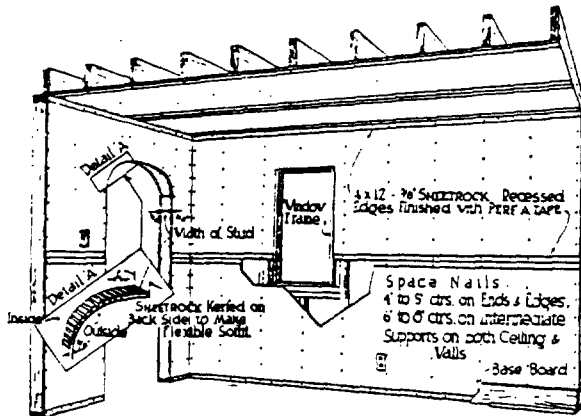
Perf-A-Tape, strong, perforated fiber, with chamfered edges is embedded in cement.



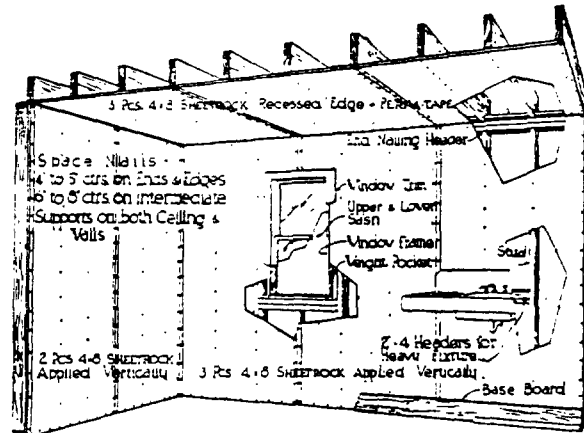
After drying, cement is sand-papered, assuring smooth surface for any decoration.

BB012119

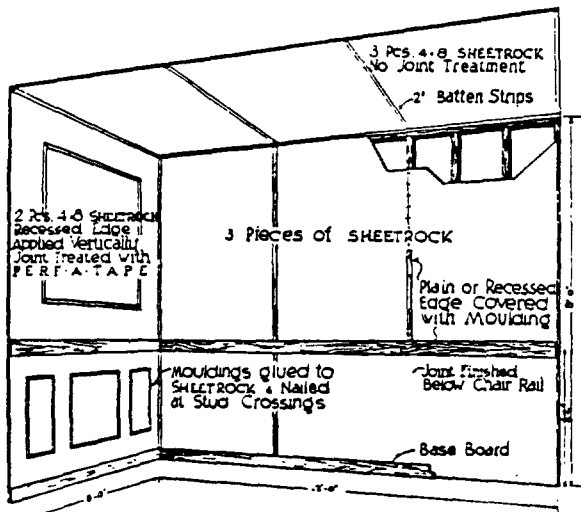
SHEETROCK® CONSTRUCTIONS



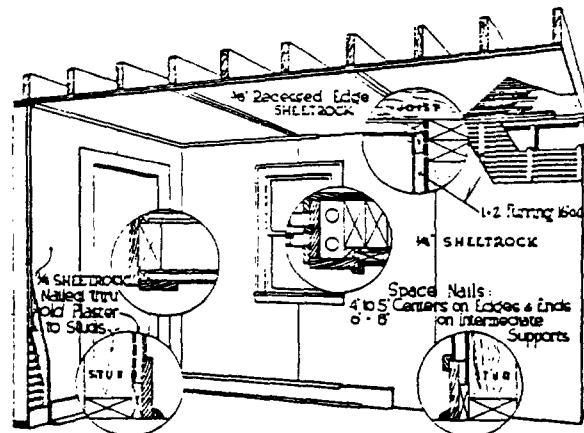
APPLICATION OF SHEETROCK "HORIZONTALLY"
(Across Joists and Studding)



APPLICATION OF SHEETROCK "VERTICALLY"
(Long Edges Parallel to Supports)



PANELED SHEETROCK



APPLICATION OF SHEETROCK
OVER OLD PLASTER

PACKAGING: Two boards per bundle except 1/4 in. which has three boards per bundle.



Sheetrock takes any decoration, modern or traditional treatment



1/4 in. Sheetrock is readily bent to produce curved surfaces

*Reg. Trade Mark

40 YEARS OF PROGRESS THROUGH RESEARCH

BB012 2120

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GYPLAP

THE FIREPROOF SHEATHING

WHAT IT IS

Gyplap, as its name implies, is a rugged, tongued and grooved, unit sheathing material. Made in large sheets 1/2-in. thick, 24-in. wide and 6 ft. 8 in. or 8 ft. 0 in. long, with a tough, fireproof core of gypsum enclosed in a water- and wind-resistant, heavy paper envelope. The long edges are alternately tongued and grooved.

WHAT IT DOES

Gyplap is nailed directly to exterior wall studding to form a tight enclosure for the building—free from knots and cracks. Twenty-four inches deep instead of 8 inches, Gyplap sheathing stiffens the framework against overturning moments. Can be used without building paper covering, but building paper may be used when required by ordinances or lending agencies, without destroying the price or structural advantages which Gyplap offers over shiplap. Conventional wood siding, brick veneer, stucco on metal lath, shingles or USG Glatex Asbestos Cement Siding (see pages sixty-six and sixty-seven) may be applied over Gyplap as detailed on the next page. All vertical joints are made over studding or framework. All horizontal joints are tongued and grooved.

ADVANTAGES

Gyplap supplies sheathing superior to wood shiplap at lower costs both to buy and apply. It increases fire protection and resistance to wind stresses. Gyplap is more easily and accurately cut and fitted. There is no waste; one thousand square feet of Gyplap cover one thousand square feet of sheathing area, as no allowance need be made for the laps required by shiplap. Made of rock, it will not rot, contains no sap, resin or oily materials. Gyplap is odorless. It provides no fibrous nesting material for vermin. Gyplap does not shrink, warp, or swell as wood does with atmospheric changes.

Investigations of hundreds of homes where Gyplap has been in use for from ten to twelve years, have proved conclusively that there was no looseness around the nails, no rot, evidence of invasion by rodents or other vermin, no disintegration or lessening of value.

PACKAGING: Not packaged. Shipped in carload lots properly piled and braced.

NAILEX FASTENERS

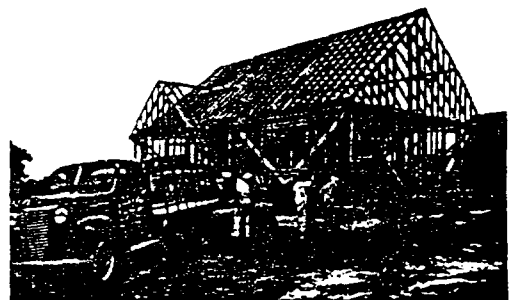
Nailex Fasteners (new . . . see page 67) permit nailing directly to Gyplap, avoiding older method requiring furring strips when wood or asphalt shingles are to be applied to the siding.

*Reg Trade Mark

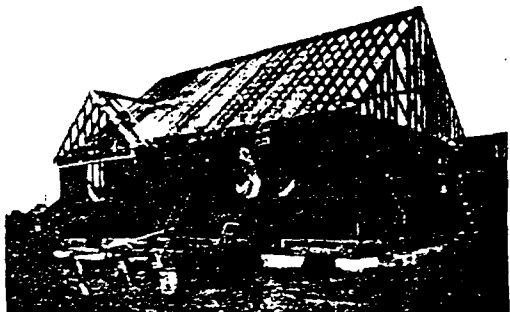
Five rooms.
27' 0" x 36' 0"
ready for Gyplap



Job started
by four mechanics

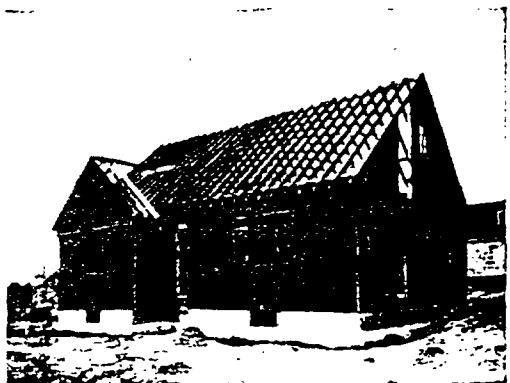


Thirty-five
minutes later



Two hours later:
fully sheathed
and ready for
brick veneer

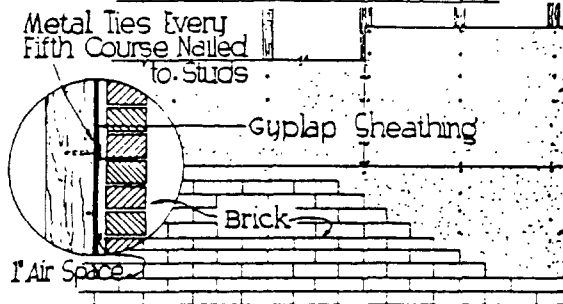
Eight hours labor for
1524 sq. ft. of fire-
proof sheathing.
Larger buildings, more
speed—lower costs.



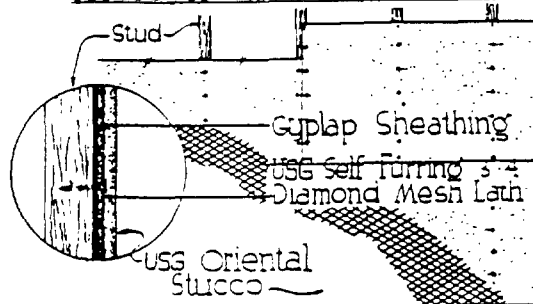
BB012 2121

GYPLAP CONSTRUCTIONS

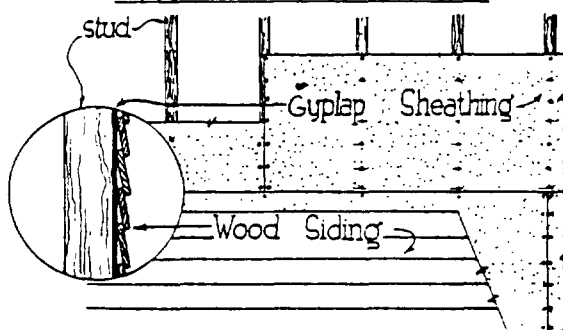
BRICK VENEER CONSTRUCTION



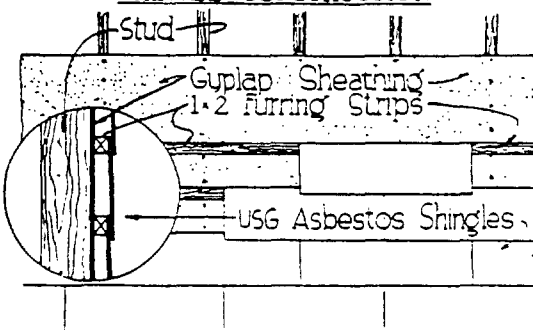
STUCCO ON FRAME CONSTRUCTION



WOOD SIDING CONSTRUCTION



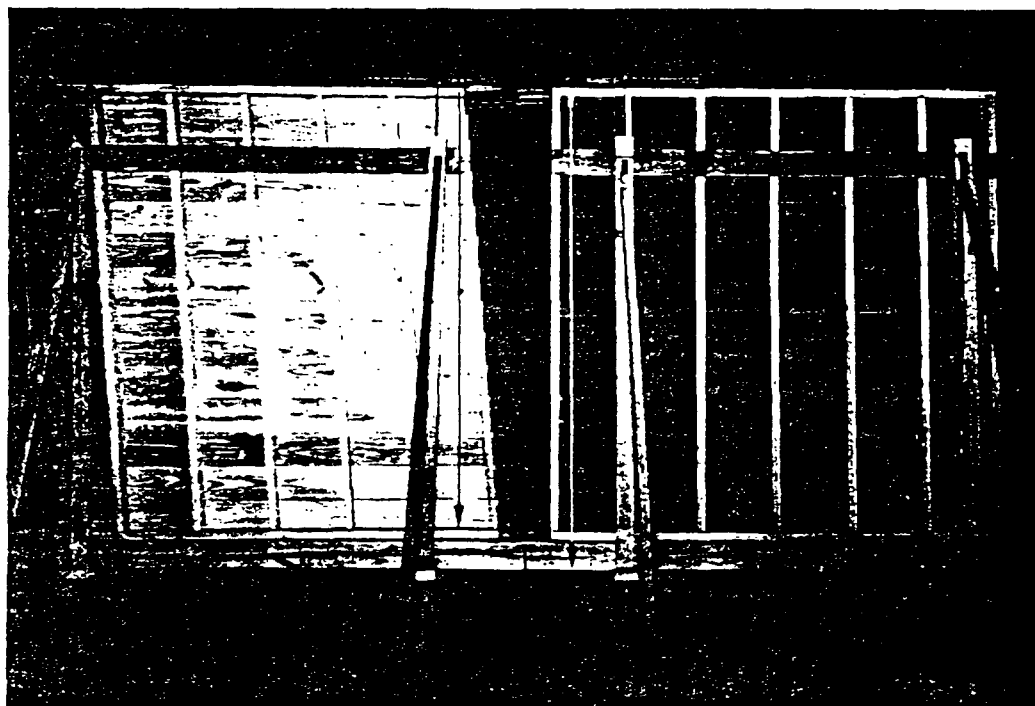
SHINGLE CONSTRUCTION



Gyplap Sheathing $\frac{1}{2}$ " Thick, 24" Wide, 6'-8" or 8'-0" Long. Nail to Studs: 4" o.c.
Scale: $\frac{3}{8}$ " = 1'-0"

BETTER BRACING

Two identical 8 ft. 0 in. x 8 ft. 0 in. stud walls—one sheathed with Gyplap, the other with 8-in. No. 1 Yellow Pine Shiplap—were tested comparatively by inserting a hydraulic jack between them at their top plates. Shown at right is the deflection from the perpendicular in the wood sheathed panel as compared with that of the Gyplap panel under identical loading.



BB012 2122

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NAILS FOR LATH PRODUCTS

Material to be Applied	Nail Type	Length	Gauge	Head	Point	No. Per Lb.	Maximum Spacing	Minimum Penetration
Rocklath	Blued	1 $\frac{1}{8}$ "	13	$\frac{3}{8}$ " flat	Smooth Diamond	448	4"	$\frac{3}{4}$ "
Metal Lath flat-expanded or flat rib (walls)	4d. Common*	1 $\frac{1}{2}$ "	12 $\frac{1}{2}$			316	7"	$\frac{3}{4}$ "
	1" Rfg. Galv. or blued	1"	10	$\frac{1}{16}$ "		232	7"	$\frac{3}{4}$ "
Ceilings	6d. Common*	2"	11 $\frac{1}{2}$			174	7"	1"
	1 $\frac{1}{4}$ " Rfg.	1 $\frac{1}{4}$ "	10	$\frac{1}{16}$ "		190	7"	1"
$\frac{3}{8}$ " Rib and Sheet Lath	6d. Common*	2"	11 $\frac{1}{2}$			174	7"	1 $\frac{1}{4}$ "
	1 $\frac{1}{4}$ " Rfg.	1 $\frac{1}{4}$ "	10	$\frac{1}{16}$ "		190	7"	1 $\frac{1}{4}$ "
Any lath for Exterior Stucco	6d. Common*	2"	11 $\frac{1}{2}$			174	7"	1 $\frac{1}{4}$ "
	1 $\frac{1}{2}$ " Rfg.	1 $\frac{1}{2}$ "	10	$\frac{1}{16}$ "		160	7"	1 $\frac{1}{4}$ "
Weatherwood Ins. Lath $\frac{1}{2}$ "	Blued Plaster Board	1 $\frac{1}{8}$ "	13	$\frac{5}{16}$ "	Long Diamond	448	5 $\frac{1}{2}$ "	
Weatherwood Ins. Lath 1"	Blued Plaster Board	1 $\frac{3}{4}$ "	13	$\frac{5}{16}$ "	Long Diamond	241	5 $\frac{1}{2}$ "	
USG Furring Runners	6d. cut case hardened Com.	2"				160	12"-18"	
Runner Track (Trussteel Studs)	Oil quench hardened concrete stub nails.	$\frac{1}{2}$ "						

*All common nails driven to minimum penetration and bent over two strands of lath (walls) and three on ceilings.

NAILS FOR BOARD PRODUCTS

						Maximum Spacing
$\frac{1}{4}$ " & $\frac{3}{8}$ " Sheetrock	4d. Cement Coated	1 $\frac{3}{8}$ "	14	$\frac{1}{4}$ " flat	488	Edges & Ends 3" [†] Intermediate Walls 9" Ceils. 6"
$\frac{1}{2}$ " Sheetrock applied parallel to supports (Vertical).	5d. Cement Coated When applied across supports (horizontal) maximum spacing is 4".	1 $\frac{5}{8}$ "	13 $\frac{1}{2}$	$\frac{1}{4}$ " flat	364	Edges & Ends 3" [†] Intermediate Walls 9" Ceils. 6"
Sheetrock Tileboard	4d. Cement Coated	1 $\frac{3}{8}$ "	14	$\frac{1}{4}$ " flat	488	Edges: in every square [†] Intermediate: in every other square.
Wood Grain Sheetrock	4d. Finishing Nail	1 $\frac{1}{2}$ "	15	Brad Head	584	Same as $\frac{3}{8}$ " Sheetrock but nail at 45° angle.
Gyplap	Barbed Galv. Roofing	1 $\frac{3}{4}$ "	10 $\frac{1}{2}$	$\frac{1}{16}$ "	147	5" Max. on all supports.

Notes: [†]All edge and end nails not less than $\frac{3}{8}$ " from edge of board. Do not stagger nails at abutting edges of adjacent boards.

PLASTERING COSTS

MATERIALS AND LABOR PER HUNDRED YARDS USG PLASTERS AND FINISHES

BASE COAT PLASTER-ON-LATH		Grounds	Plaster Thick- ness	Lath	Plaster Tons	Sand Yds.	Labor Mixing	Plaster Hrs.			
NEAT GYPSUM PLASTER	Wood Lath	3/4"	1/2"	1450 pcs.	0.6	1.0	8 hrs.	8 hrs.			
	Metal Lath	3/4"	5/8"	105 yds.	0.9	1.8	12 hrs.	12 hrs.			
	Rocklath (a)	7/8"	1/2"	900 sq. ft.	0.5	1.0	8 hrs.	8 hrs.			
	Weatherwood Insulation Lath (a)	1"	1/2"	900 sq. ft.	0.5	1.0	8 hrs.	8 hrs.			
	Brick or Tile (a)	5/8"	1/2" +	900 sq. ft.	0.6	1.5	8 hrs.	8 hrs.			
	Pyrobar (a)	1/2"	1/2"	559 sq. ft.	0.425	1.0	8 hrs.	8 hrs.			
SANDED GYPSUM PLASTER	Wood Lath	3/4"	1/2"	1450 pcs.	1.5	0.0	8 hrs.	8 hrs.			
	Metal Lath	3/4"	5/8"	105 yds.	2.5	0.0	12 hrs.	12 hrs.			
	Rocklath	7/8"	1/2"	900 sq. ft.	1.3	0.0	8 hrs.	8 hrs.			
	Weatherwood Insulation Lath	1"	1/2"	900 sq. ft.	1.3	0.0	8 hrs.	8 hrs.			
	Brick or Tile	5/8"	1/2" +	900 sq. ft.	2.0	0.0	8 hrs.	8 hrs.			
	Pyrobar	1/2"	1/2"	559 sq. ft.	1.5	0.0	8 hrs.	8 hrs.			
WOOD FIBRE GYPSUM PLASTER	Wood Lath	3/4"	1/2"	1450 pcs.	1.1	0.0	8 hrs.	8 hrs.			
	Metal Lath	3/4"	5/8"	105 yds.	1.7	0.0	12 hrs.	12 hrs.			
	Rocklath	7/8"	1/2"	900 sq. ft.	0.85	0.0	8 hrs.	8 hrs.			
	Weatherwood Insulation Lath	1"	1/2"	900 sq. ft.	0.85	0.0	8 hrs.	8 hrs.			
BOND-CONCRETE	Concrete	3/8"	3/8" -	900 sq. ft.	1.0	0.0	8 hrs.	8 hrs.			
ORIENTAL EXTERIOR BASE COAT	Brick or Tile	3/4"	3/4" to 1"	900 sq. ft.	4.0 to 5.0	0.0	18 hrs.	20 1/2 hrs.			
	Metal Lath	3/4"	3/4" to 1"	105 yds.	4.0 to 5.0	0.0	18 hrs.	20 1/2 hrs.			
	Paper Backed Wire Fabric	3/4"	3/4" to 1"	110 yds.	4.0 to 5.0	0.0	18 hrs.	20 1/2 hrs.			
	Cinder Block	3/4"	3/4" to 1"	900 sq. ft.	4.0 to 5.0	0.0	18 hrs.	20 1/2 hrs.			
	Concrete	3/4"	3/4" to 1"	900 sq. ft.	4.0 to 5.0	0.0	18 hrs.	20 1/2 hrs.			
									Gauging Plaster (tons)	Hydrated Lime (tons)	Keene's Cement (tons)
PREPARED FINISHES	Float				0.40	0.0	5 hrs.	10 hrs.			
	Trowel				0.31	0.0	5 hrs.	10 hrs.			
	Oriental Int.				0.30	0.0	5 hrs.	10 to 15 hrs.			
	Oriental Ext.				0.60	0.0	12 hrs.	24 hrs.			
	Sabinitite		1/2"		1.00	0.0	7 hrs.	11 hrs.			
JOB MIXED FINISHES	Gauged Lime Putty						4 hrs.	8 hrs.	0.075	0.150	0.0
	Sand Float				0.16	6.0 cu. ft.	5 hrs.	10 hrs.	0.0	0.0	0.0
KEENE'S CEMENT FINISHES	1. Extra Hard						5 hrs.	12 hrs.	0.0	0.0	0.22
	2. Medium						5 hrs.	12 hrs.	0.0	0.08	0.20
	3. Hard						5 hrs.	12 hrs.	0.0	0.025	0.20
	4. Sand Float					16.00 cu. ft.	6 hrs.	12 hrs.	0.0	0.1	0.20
	5. Quick Troweling						5 hrs.	10 hrs.	0.0		0.20

(a) Unfibred plaster.

SAND FOR PLASTER

Sand is used in plaster to reduce cost and to make the plaster easier to apply. The sort of sand used is very important. Each grain should be sharp and angular in nature. The sizes of the grains must be maintained within specified limits if the plasterer is to produce a good job.

The American Society for Testing Materials has established a very exacting specification for sand. The United States Gypsum Company believes that it should be in every architect's specification and that the use of specification sand should be insisted upon on every construction job. A simplified form of that specification follows:

SAND—Sand used for plastering in which gypsum is employed shall consist of fine granular material, naturally or artificially produced by the disintegration of rock containing not less than 80 per cent by weight of silica, feldspar, dolomite, magnesite or calcite, and shall be free from saline, alkaline, organic or other deleterious substances graded from fine to coarse within the following limits.

	Percentage retained	Maximum	Minimum
Retained on a No. 4 sieve.....	0%		
Retained on a No. 8 sieve.....	10%	0%	
Retained on a No. 30 sieve.....	30%	15%	
Retained on a No. 50 sieve.....	95%	70%	
Retained on a No. 100 sieve.....		95%	

Weight removed by decantation. Not more than 5%.

The sieves shall conform to the requirements of the Standard Specifications for Sieves for Testing Purposes of the American Society for Testing Materials (Designation: E11).

PLASTER GROUNDS

Plaster grounds are used wherever plaster is used. They serve several purposes in construction. First, they fix the thickness of the plaster. Second, they provide a useful wooden member to which trim can be nailed.

With few exceptions the wood grounds, which are simply strips of wood of a specified thickness, are nailed directly to the studs or wired to metal studs before lath is applied. Their dimensions, therefore, are governed by two things, the thickness of the lathing material used, and the thickness of plaster coat desired. Should we have a lathing material 1/2" thick, such as Weatherwood Insulating Lath, and desire a 1/2" of plaster over it, our grounds would be 1". With 1/4" Rocklath the ground would be 3/4" thick if a half inch of plaster is to be applied.

Thus to get the correct ground size (when the grounds are nailed to studding) simply add the thickness of the plaster base to the thickness of plaster desired.

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BB012 2124



PREDECORATED WALL AND CEILING BOARDS

WEATHERWOOD TILE AND PLANK

Weatherwood® products build; insulate; decorate; and quiet sound; in one low-cost operation. Made of wood fibres, felted into board form and knit together by a process which permits accurate control of strength and insulating value. Due to diversity of sizes, many decorative effects are obtainable. Weatherwood requires no decoration, but it can be painted to achieve effects other than those permitted by its own coloring.

ADVANTAGES

The insulating value of 1 in. of Weatherwood is equal to a 15-in. brick wall, 3 in. of lumber or 37 in. of concrete. It possesses efficient sound absorbing properties.

Weatherwood is strong. Its rigidity adds structural strength. The tough surface resists scuffing and marring. Tests on Weatherwood Hi-Lite finish gave an average light reflection factor of 70%.

Economy is provided since all these advantages are combined in one material and are, therefore, applied at one time. Painting is economical. Weatherwood absorbs paint slowly, requiring less than similar fibrous products.

Conforms to Government Specifications—Weatherwood meets all requirements of Federal Specifications LLL-F-321a — Insulating Fibre Board.

ACOUSTICAL TREATMENT

Special low density Weatherwood tile is available where additional sound absorption is required.

USES

Weatherwood is used in a wide variety of buildings, including homes, stores, offices, theatres, churches, auditoriums, restaurants, taverns and mortuaries.

COLORS AND TEXTURES

Weatherwood is made in shades of ivory, grey and tan, to harmonize with most interiors. These colors are designated: as Hi-Lite; Blendtex, a mixture of greys and tans; and Grey-Tan. Textures are: Regular, which is a plain but not ironed finish; and Textured, a slightly roughened finish.

TILE

Size	Thickness	Color, Surface	Edge
12 x 12 in. 12 x 24 in. 16 x 16 in. 16 x 32 in.	½ in. regularly; 1 in. on order	½ in. Hi-Lite in Textured or Regular; 1 in. Hi-Lite Textured only	Ogee

PANELTILES

These sizes may be cross-scored** 12 x 24 in. 16 x 32 in. 24 x 48 in.	¾ in.	Hi-Lite or Blendtex, Textured only	Ogee
1 x 4 ft. 4 x 4 ft. 2 x 8 ft. 4 x 8 ft.	¾ in.	Hi-Lite Textured only	Ogee

PLANK

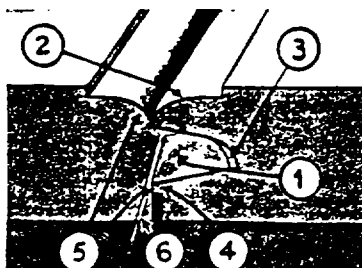
8, 10, 12 or 16 in. wide x 6, 8, 10 or 12 ft. long.	½ in.	Blendtex Textured only; Hi-Lite on order	Ogee Long Edges
---	-------	--	-----------------

BOARD PANELS

4 ft. wide x 7, 8, 9, 10 or 12 ft. long	¾, ½ in. regularly; 1 in., 1 ½ in. or 2 in. on order	Hi-Lite in Regular; Grey-Tan in Textured; Hi-Lite Textured, on order only	Square
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**CROSS SCORED TILE

Tile and Paneltile indicated may be cross scored to represent two square tiles. Advantages are that two tiles are applied with the speed of one and they may be applied without regard to joist spacing.



Provides strong key between tile due to increased size and taper of tongue and groove — and more uniform, neater appearance. 1. Tapered tongue and groove allow fast erection. 2. Precision molding joint gives accepted architectural effect. 3. Room for expansion. 4. Self-spacing rib acts as positive stop in erection — under expansion it crushes, allowing true expansion joint. 5. Infiltration of dust-laden air prevented. Joints stay clean longer. 6. Nails completely hidden.



Cross scored tile applied without regard to joist spacing.



Weatherwood Tile applied with adhesives to flat surfaces.

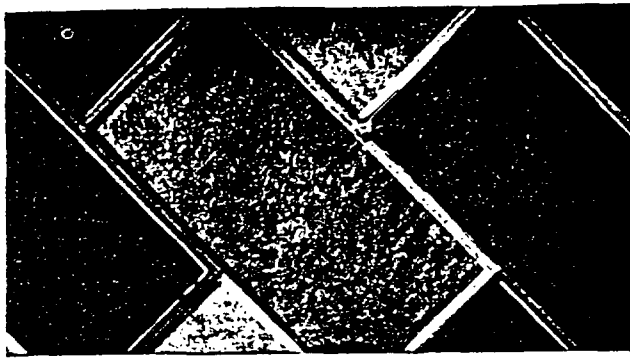
48

USG Self-Spacing, Floating Joint with Ogee Edge.

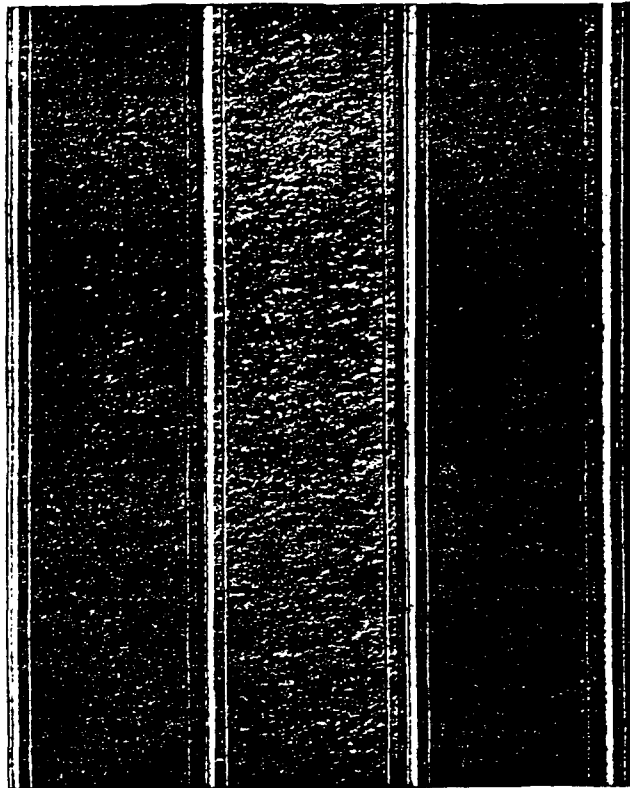
*Reg. Trade

UNITED STATES GYPSUM COMPANY

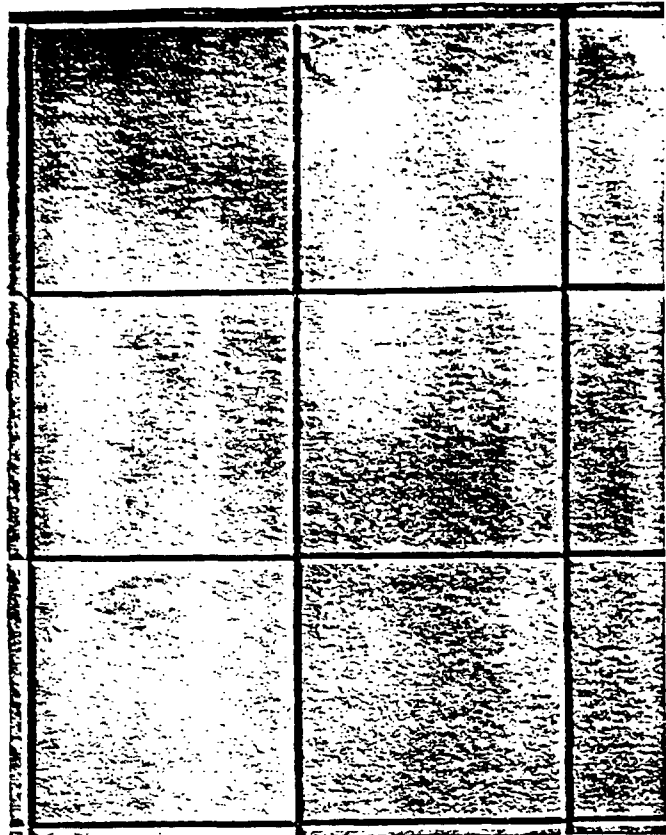
BB012 2125



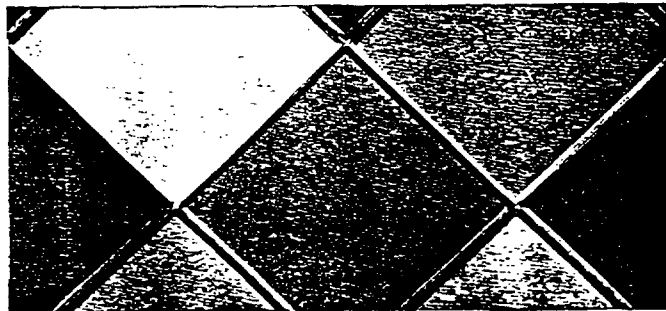
Blendtex Tile



Blendtex Plank

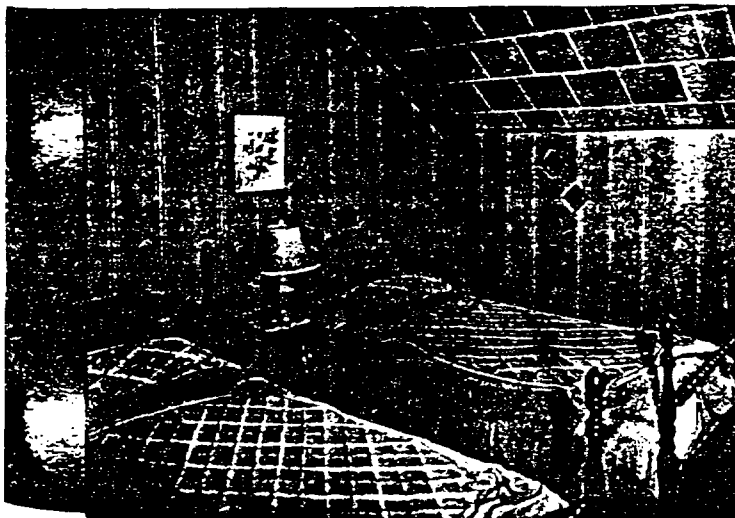


Hi-Lite Regular

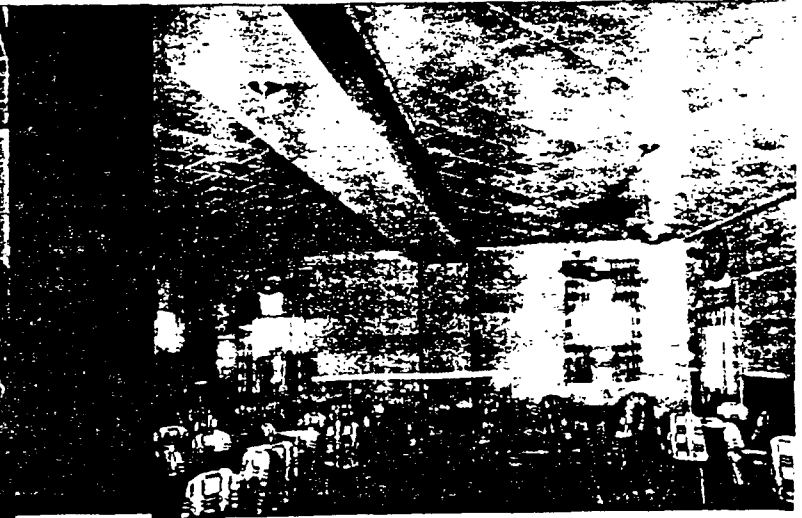


Blendtex Tile

PACKAGING: Tiles: 8 to 32 pcs. per bundle. Paneltiles: 4 to 12 pcs. per bundle. Plank: 12 pcs. per bundle.



Random width plank walls and tile ceiling in Blendtex.



Selected plank applied horizontally on walls. Tile ceiling.

BB012 2126

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40 YEARS OF PROGRESS THROUGH RESEARCH



SHEETROCK GRAIN BOARDS

Bleached Mahogany Finish

USG Sheetrock® Grain Boards present the appearance of wood with the advantages of gypsum. The graining, knots and coloring peculiar to Bleached Mahogany, Walnut or Knotty Pine are transferred to the face of the Sheetrock by photographic and printing processes, permitting faithful reproduction. The final finish is a factory applied lacquer which protects and preserves this surface. The durability and non-warping qualities of Sheetrock are present in Sheetrock Grain Boards. They will not burn nor support combustion, thereby adding fire protection.

FINISH AND CLEANABILITY

One of the most important advantages of Sheetrock Grain Board is that it can be used without decoration. Where excessive wear is expected, or a glossy finish is desired, the panels may be waxed or varnished, after the application of a coat of sheilac.

Grain Boards are easily cleaned with a mild soap and water solution.

ECONOMICAL . . . QUICKLY APPLIED

The low cost of Sheetrock combined with the saving in decoration cost make Sheetrock Grain Boards economical. Further savings accrue through ease and speed of application.

Since Sheetrock Grain Boards are available in large size sheets which reach from floor to ceiling and span three spaces between studs placed 16 inches on centers, application is rapid. The boards are easily nailed and cut, reducing erection time.

SIZES AND RECOMMENDED USES

Sizes, 4x6, 4x7, 4x8, 4x9, and 4x10 feet. Thickness, 3/8 in. Approximate shipping weight, 1500 pounds.

Sheetrock Grain Boards are used in libraries, dens, hallways, finished basement and attic rooms, shops, offices, restaurants, clubs and display rooms.

MOULDINGS

Although Sheetrock Grain Boards may be used without panel strips, wood paneling is more faithfully simulated by using a typical panel design. Such designs can be simple and inexpensive.

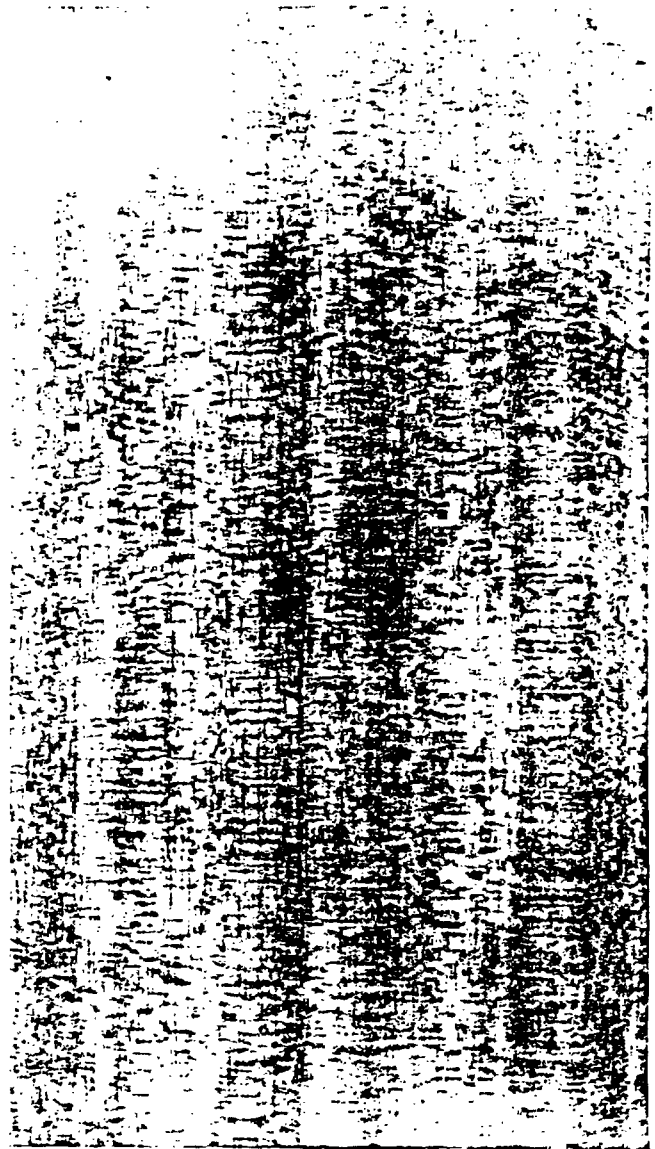
An almost unlimited variety of effects can be obtained. Stock and special mouldings, in fact virtually anything available for use over wood paneling, can be used with Sheetrock Grain Boards.

Mouldings are stained to harmonize with the board, adding authenticity to the appearance of the Sheetrock itself.

Picture moulding, cove moulding, chair rails, plate rails and base assemblies may be used.

Interesting effects have been obtained with chromium and other metallic mouldings.

PACKAGING: 2 pieces per bundle.



BB012 2127



Flexibility of Sheetrock adapts it for use on curved surfaces.



Large sheets permit speedy erection.

*Reg. Trade Mark

Walnut Finish



Knotty Pine Finish



BB012 2128

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"Rumpus-room" in Walnut Finish with plain Sheetrock and Texolite over fireplace for motion-picture screen.



Knotty Pine Finish adds realism to Boy's room.

40 YEARS OF PROGRESS THROUGH RESEARCH



WEATHERWOOD HARDBOARDS

Made of long, strong wood fibres interlaced to form a material cross-braced in all directions. Board is moulded under tremendous pressure and intense heat. The result is dense, hard, strong boards with two smooth, usable sides in tones, of brown, one slightly darker than the other.

ADVANTAGES

Weatherwood® Hardboards may be sawed, cut, glued, nailed or laminated. They are flexible and can be bent to small diameters. Made in large sheets, they are quickly applied.

Weatherwood Hardboard for interior use does not need any protective paint, varnish or wax treatment. When used outside, or where the natural color or surface gloss is not suitable, Weatherwood Hardboard may be painted, stained, enameled or finished in any manner.

USES

Principal uses are wainscots, walls, ceilings, folding partitions and sliding panels.

FOUR TYPES

Densboard—Lightest weight, least expensive Hardboard. Sheet sizes: 4 ft. x 2, 3, 4, 6, 8, 9, 10 and 12 ft. $\frac{1}{4}$ in. thick.

Structoboard—Denser than above but less dense than Hardboard below, rigid and economical. Sheet sizes: 4 ft. x 2, 3, 4, 6, 8, 9, 10 and 12 ft. $\frac{1}{4}$ in. thick.

Weatherwood Hardboard—Hardest, densest untreated Hardboard. Scuff-resistant. Sheet sizes: 4 ft. x 2, 3, 4, 6, 8, 9, 10 and 12 ft. $\frac{1}{8}$, $\frac{3}{16}$ or $\frac{1}{4}$ in. thick.

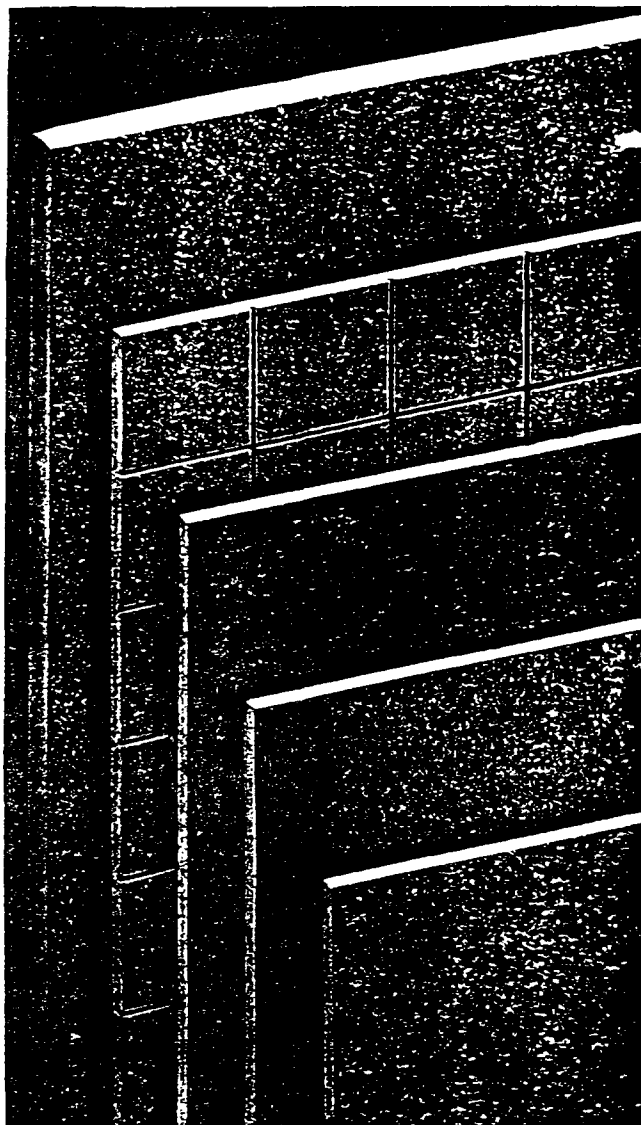
Treated Weatherwood Hardboard—Same general characteristics as the other USG Hardboards but harder and denser. It resists water absorption. Made plain or with 4x4 in. indentations to give it a tile-like effect. Especially suited for high humidity environments: bathrooms, kitchens, laundries, etc.

Treated Weatherwood Hardboard is $\frac{1}{8}$ in. thick. Sheet sizes: 4 ft. x 2, 3, 4, 6, 8, 9, 10 and 12 ft.

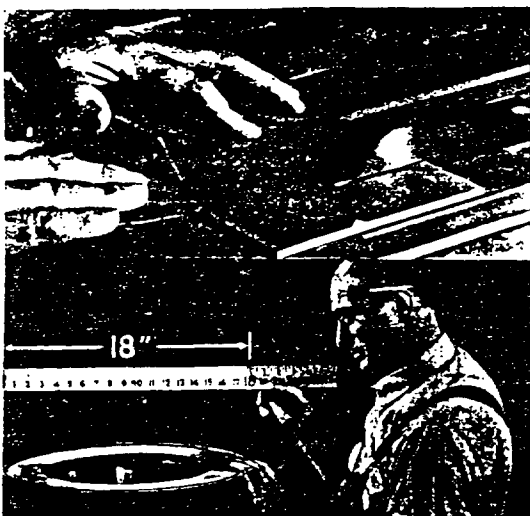
Weatherwood Tile Board is $\frac{1}{8}$ inch thick, 4 x 12 ft. sheets.

PACKAGING: Densboard, Structoboard, $\frac{1}{8}$ in. and $\frac{3}{16}$ in. Hardboard:

48" x 6', 8', 9', 10', 12'.....	6 pcs. per bdl.
48" x 2', 3', 4'.....	10 pcs. per bdl.
$\frac{1}{4}$ " Hardboard, 48" x 12'-0".....	3 pcs. per bdl.
$\frac{1}{8}$ " Treated Hardboard, 48" x 8', 10', or 12'...	6 pcs. per bdl.



BB012 2129



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USG Hardboards are easily cut and bent to small diameters.

Flexibility of USG Hardboards suggests new design possibilities.

UNITED STATES GYPSUM COMPANY

*Reg. Trade Mark



SHEETROCK TILE BOARD

USG Sheetrock Tile Board produces a cream colored finished wall or wainscoting with tile-like impressions $4\frac{1}{4}$ inches square. Since it is made of gypsum board it will not warp or buckle, and it is incombustible, adding fire protection.

RECOMMENDED USES

Sheetrock Tile Board is used for bathrooms, kitchens, lavatories, dairy buildings, restaurants, in fact, any place where a tile design is required. Ideal for wainscots. The large sheets make joints between boards unnecessary in small rooms.

EASILY DECORATED

It can be decorated with most wall finishes. However, when paint or enamel are used — a solid color for the "tiles" and a lighter color for the joints — the appearance of ceramic tile is produced.

Designed for economical painting, the closely knit calendered surface of Sheetrock Tile Board saves both labor and paint.

ECONOMICAL

Sheetrock Tile Board, low in first cost, with its close simulation of ceramic tiling and inherent speed in erection, permits faster completion of any room where a tile effect is desired.

INSTALLATION

Readily cut to fit any space, the large sheets are nailed directly to studding or joists and the nail heads are finished, unnoticeably with Sheetrock finisher or joint cement. In large rooms, where joints between boards are unavoidable, the joints may be finished with Perfatape, and concealed as perfectly as those of plain Sheetrock.

SIZES

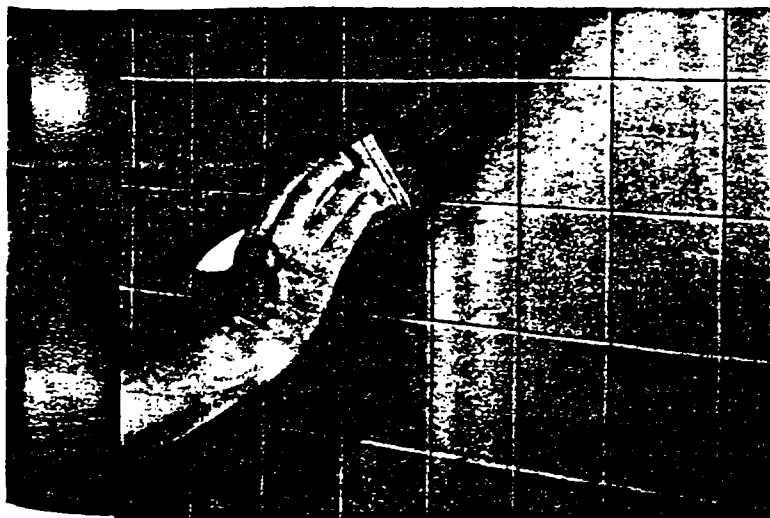
Boards are made in a standard $\frac{3}{8}$ -in thickness and 4-foot width in lengths of 6, 7, 8, 9 and 10 feet.

PACKAGING: Two pieces per bundle.



BBO12 2130

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Paint covers well over Tile Board.



Odd-sized pieces are easily cut from standard sized boards.

40 YEARS OF PROGRESS THROUGH RESEARCH

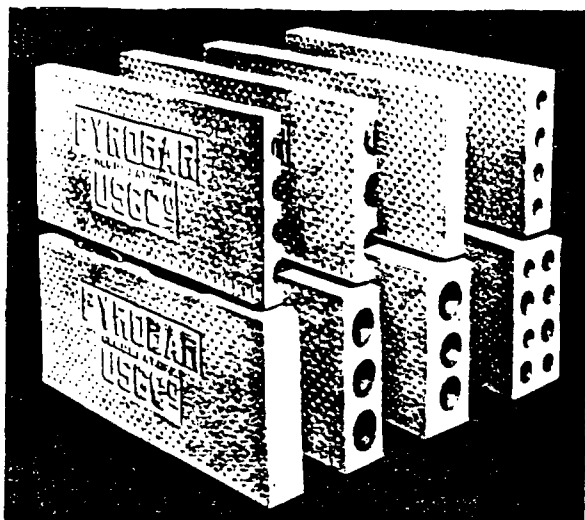


PYROBAR GYPSUM TILE

For: partitions and furring; beam, girder and column fireproofing

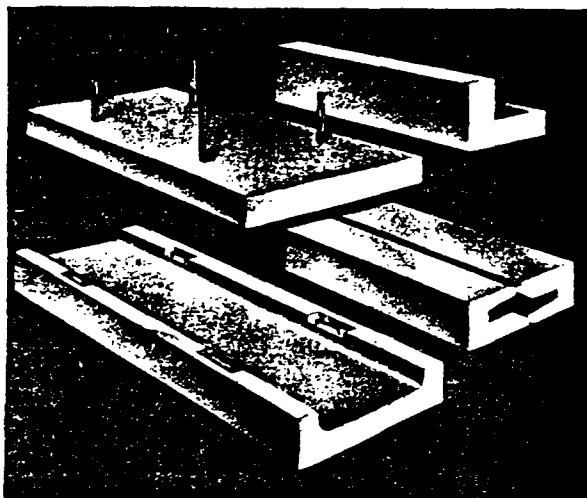
USG PYROBAR GYPSUM TILE FOR PARTITIONS AND FURRING

And for Fireproofing Structural Steel



Pyrobar® Partition Tile

Made in furring, solid and hollow types. Pyrobar Partition Tile are machine-made and moulded extremely accurately. All are scored to receive plaster except when specially ordered, when smooth surfaced tile can be furnished. For sizes, weights, etc., see table at top of opposite page.



Pyrobar Beam and Girder Tile

For beam and girder protection, the flange of the beam or girder is protected by the most suitable of the four types shown above and detailed on the opposite page; the webs are covered with Pyrobar Partition Tile supported as shown in the details. For column protection, Pyrobar Gypsum Partition Tile, of proper thickness, are laid up around column in log-cabin fashion; all short pieces may be built in.

ADVANTAGES

1. Fireproof

- a. Gypsum is incombustible. Adds no fuel to flames.
- b. Gypsum cannot pass high temperatures; hence:
 1. Keeps heat from heat vulnerable steel.
 2. Confines ignition temperatures to room of their origin, effectively restraining the growth of a building fire.
- c. Gypsum constructions will not expand under fire exposure sufficiently to wreck themselves or dislocate fire-weakened steel. Since they expand not through some 1800° but through the low gradient from room temperature to 212° regardless of the intensity of the fire.
- d. The fire resistance ratings of gypsum constructions have been established by numerous laboratory tests and proved by observed behavior in many fires; their high degree of protection is a matter of record.
- e. Under fire exposure, gypsum calcines (loses its water of crystallization) progressively from the exposed face. The calcined portion, soft, spongy and heat insulative, clings to the face further retarding the progress of calcination. Regardless of the fire temperature, the temperature in a protected room or of protected steel can not exceed 212° F. until the gypsum is calcined clear through. The rate of calcination is very slow. A 3-in. Pyrobar partition protects for 2 hours against standard test exposures, a 4-in. partition for 4 hours.

2. Less Weight

Clay tile, as used for fireproofing, weighs from 23% more for 2-in. split furring to 50% more for the much used 3-in. hollow non-bearing tile than Pyrobar Gypsum Tile (figures calculated from data in A.S.T.M. specifications for both materials).

The stone concrete protection for an I-beam whose 6-in. flange is 8 in. below the structural floor it supports weighs 83.4 lbs. per running foot of beam. Pyrobar beam and girder protection for the same beam weighs but 26 lbs. per running foot. The concrete protection weighs 227% more.

3. Large Economical Units

The large economical units, laid in Blockset Cement (see page thirty-one), use less mortar as they have fewer joints, require less labor, speed completion. Inherently economic, these materials supply maximum utility.

4. Easily Cut and Fitted

Pyrobar Gypsum Tile are quickly cut with a saw to fit any condition. They do not shatter when cut, eliminating breakage waste. Pipe and conduit chases are accurately cut.

5. Excellent Plaster Base

Pyrobar Gypsum Tile are cast in accurately dimensioned straight true molds. They do not warp, twist or shrink when setting. Therefore, Pyrobar Tile are true to dimension, make straight walls with plane faces, saving plaster. The bond between gypsum plaster and Pyrobar Tile has a factor of safety of 173.

6. Fit All Beam and Girder Shapes

Pyrobar Beam and Girder Tile are designed to accommodate all standard steel shapes as rolled or built-up girders with a minimum number of tile shapes, reducing the number of fireproofing shapes on the job, cutting costs and speeding completion.

7. Availability

Pyrobar Gypsum Partition, Furring and Fireproofing Tile are available in like excellence, made to the same standards, presenting identical usefulness and fire protection, from each of a string of manufacturing mills stretched from coast to coast. Architects specifying Pyrobar can ignore design requirements imposed by local aggregates, hard or soft burned tile, etc.

*Reg. Trade Mark

BB012 2131

PYROBAR PARTITION AND FURRING TILE—SIZES AND WEIGHTS

Size of Pyrobar, Gypsum Tile, In.	Recom- mended heights for each size	Weight tile per sq. ft., lb.	Weight mortar per sq. ft., lb.	Weight plaster one side per sq. ft., lb. ½ in. grounds	Total weight plastered, one side, per sq. ft., lb.	Weight plaster two sides per sq. ft., lb.	Total weight plastered, two sides, per sq. ft., lb.	Approx. mortar requirements per 1000 sq. ft.	
								Pounds Set Fast Cement	Cubic yards sand
1½ in. Split... 1½x12x30	Furring†	4.9	1.4	3	7.9			500	0.625
2-in. Split... 2x12x30	Furring†	6.4	1.4	3	9.4			600	0.75
2-in. Solid... 2x12x30	10 feet*	10.0	1.5	3	13.0	6	16.0	600	0.75
3-in. Hollow... 3x12x30	13 feet*	10.0	2.0	3	13.0	6	16.0	800	1.00
3-in. Solid... 3x12x30	15 feet*	13.0	2.0	3	16.0	6	19.0	800	1.00
4-in. Hollow... 4x12x30	17 feet*	13.0	2.5	3	16.0	6	19.0	900	1.125
5-in. Hollow... 5x12x30	20 feet*	17.2	2.75	3	20.2	6	23.2	1000	1.25
6-in. Hollow... 6x12x30	30 feet*	19.0	3.0	3	22.0	6	25.0	1100	1.40

*Underwriters' Laboratories recommendations.

†No Underwriters' recommendation.

FIREPROOFING FOR STEEL BUILDING FRAMES

Gypsum is unique as a fireproofing material in these regards:
1. More protection for less weight. 2. Will not transmit high temperature. 3. Best base for gypsum plaster. 4. Fewer shapes on job, faster erection. 5. Complies with Underwriters' and Building Code Requirements.

Column Fireproofing—Partition Tile are laid up in proper thickness around column in log cabin fashion.

Beam and Girder Fireproofing—(See Table Below). All obtainable in smooth surface for direct paint without plaster.

PYROBAR BEAM AND GIRDER TILE—SIZES AND WEIGHTS

ANGLE TILE

18-in. Lengths

WHEN SIDE COVER
OVER 36". USE
4" HOLLOW -
PYROBAR FOR
FIRST COURSE.

3" HOLLOW
PYROBAR

Type	F	H	T	Weight per lin. ft., lbs.
L-34	3"	4"	2"	15
L-43	4"	5"	3"	18.5
L-46	4"	6"	3"	20

SHOE TILE

18-in. Lengths

3" HOLLOW PYROBAR

Type	Max. width of flange	F	H	T	W	Weight per lin. ft., lbs.
B-40	5"	7½"	4½"	1½"	3"	12.5
B-50	6"	8½"	4½"	1½"	3½"	13
B-65	7½"	9½"	4½"	1½"	3½"	15
B-80	9"	10½"	4½"	1½"	4"	16
B-100-C (Channels)		4½"	1½"	4½"	10	

STRAP TYPE SOFFIT TILE

24-in. Lengths

24" LENGTHS

Type	F	C	T	W	Weight per lin. ft., lbs.
ψ10	15½"	2½"	2"	10"	13
ψ11	15½"	2"	2"	11"	13
ψ12	17½"	2½"	2"	12"	14.5
ψ13	17½"	2"	2"	13"	14.5
ψ14	19½"	2½"	2"	14"	16
ψ15	19½"	2"	2"	15"	16

SOFFIT TILE

CHICKEN WIRE MESH
REINFORCING FULL MESH

SECTION

PLAN

TILE SECURED TO BEAM
SOFFIT WITH 2½" x 3 x ½"
PLATES IN WIRE LOOPS.
FOUR PLATES PER TILE.

TYPICAL
INSTALLATION

Type	A	B	C	D	Weight per lin. ft., lbs.	Max. width of flange
B-30-S	7½"	3"	3½"	1"	8	3"
B-40-S	8½"	3½"	4½"	1½"	9	4"
B-50-S	9½"	3½"	5½"	1½"	10	5"
B-60-S	10½"	3½"	6½"	1½"	11	6"
B-70-S	11½"	3½"	7½"	1½"	12	7"
B-80-S	12½"	3½"	8½"	1½"	13	8"
B-90-S	13½"	3½"	9½"	1½"	14	9"
B-100-S	14½"	3½"	10½"	1½"	15	10"
B-115-S	15½"	3½"	11½"	1½"	16	11½"
B-130-S	17½"	3½"	13½"	1½"	17½	13"
B-145-S	18½"	4"	14½"	2"	19	14½"
B-160-S	20½"	4"	16½"	2"	20½	16"
B-175-S	21½"	4"	17½"	2"	22	17½"

BB012 2132

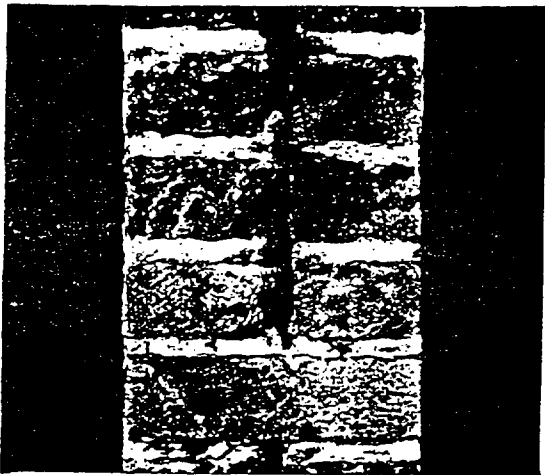
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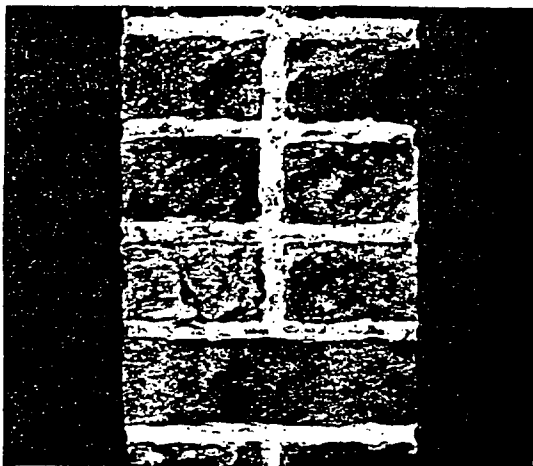
MASON'S LIME

MASONRY MORTARS—WATERPROOFING—IN CONCRETE—
WHITEWASH . . . HIGH CALCIUM—DOLOMITIC—HYDRATED OR QUICK

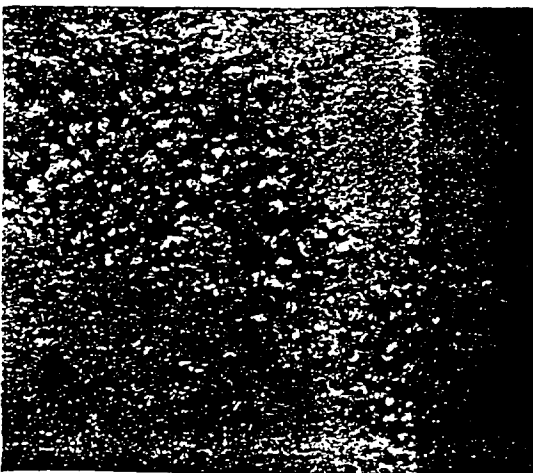
USG MASON'S LIME IN BUILDING CONSTRUCTION



Harsh Brick Mortar Without Lime Does Not Fill Spaces
in Wall



Brick Mortar with Lime Produces Watertight, Durable Walls



Showing Separation of Aggregate from Cement

Water-tightness and durability are the criteria of quality in masonry. If thoroughly burned brick, tile, hard dense stone or concrete are used and construction is correct, excessive water penetration can occur only at joints. Lime mortars are the most effective means of providing watertight joints.

Advantages of Lime in Masonry Mortar

Plasticity—Lime is the most plastic cementing material. Building units must be thoroughly and uniformly bedded and joints well-filled to assure leakless masonry. The more plastic the mortar, the greater the chances of uniform distribution.

Bonding Power—Lime bearing mortars adhere to the building units uniformly at all points and have sufficient elasticity to adjust themselves to varying stresses. They do not tear loose from the building units.

Low Volume Change—Lime is the only cementitious material having negligible volume change after hardening. Its high water retaining capacity prevents compacting, the important cause of leakage through vertical joints.

Extensibility—This quality determines extent to which mortar will stretch before it fails in tension. Lime mortars and mortars containing lime have ample extensibility.

Strength—Strength in mortar does not necessarily indicate durability. Test data indicate that mortar mixes containing lime produce mortars of ample strength. Examples of enduring qualities of masonry laid in lime are found in old structures in Europe and America.

Lime in Concrete

Hydrated lime is used as an admixture in concrete for its qualities of water-tightening, lubricating and physical stabilization.

It makes concrete watertight by increasing workability; reducing honeycombing, stone pockets, etc.; filling forms, preventing segregation, and reducing the relative amount of water required.

High Calcium and Dolomitic Limes

Quicklime or hydrated lime can be produced from either high calcium limestone or dolomite (high magnesium limestone). In building construction, the physical rather than the chemical composition of lime is important. Therefore, either calcium or magnesium lime may be selected as the physical properties are the same.

MORTAR MIXES FOR VARIOUS TYPES OF MASONRY

Masonry Type	Type of Construction	Loading	Mortar Proportions (Volume) Lime: Cement: Sand	Remarks
Common and face clay, shale or sand-lime brick	Dwellings, garages and similar construction	Any condition of loading for such types of construction	1:0:3	
Clay or shale brick	Walls and piers below grade continuously exposed to wet or damp conditions	Ordinary distributed Heavy concentrated Earthquake tremors	1:1:6* 1:1:6* 1:1:6*	
Common and face clay, shale or sand-lime brick	Exterior walls and piers above grade	Ordinary distributed Heavy concentrated Earthquake tremors	2:1:9* 2:1:9* 2:1:9*	2:1:5 Mortar domestic and power plant chimneys
Granite, limestone, marble, sandstone, terra cotta facing and trim	Exterior walls and piers above grade	Ordinary distributed Heavy concentrated Earthquake tremors	2:1:9* 2:1:9* 2:1:9*	Use non-staining portland cement and washed sand
Common and face clay, shale or sand-lime brick, concrete brick	Interior walls and piers above and below grade	Ordinary distributed Heavy concentrated Earthquake tremors	2:1:9* 2:1:9* 2:1:9*	
Hollow clay tile, concrete block, concrete tile, cinder block	Exterior walls above grade and interior partition walls	Non-bearing partitions, exterior and bearing walls and partitions†	2:1:9* 2:1:9* 2:1:9*	
Notes: Materials to conform to current "A.S.T.M. Standard Specifications". Mortar containing portland cement to be used within one hour after mixing.		*One volume of cement is the maximum quantity which should be used. The sand content is to be varied in accordance with its quality in the particular market involved and its proportion may be reduced if greater mortar strength is desired. From "Masonry Mortar, Bulletin 321" published by National Lime Association. †See also Blockset Cement, page 31.		

USG BRANDS OF MASON'S LIME AND PACKAGING

The United States Gypsum Company produces limes under various trade names. Each meets the requirements of building construction and each has all the advantages outlined on the opposite page. It is suggested that the USG local brand be specified.

The brands follow:

Red Top* Mason's Hydrate.....50-lb. paper bags
Snowdrift* Hydrated Lime.....40-lb. paper bags
Marble Rock Mason's Hydrate.....50-lb. paper bags
USG* Mason's Hydrate.....50-lb. paper bags
USG* Superfine Mason's Quicklime...80-lb. paper bags
USG* Pulverized Mason's Quicklime.50-lb. paper bags

USG* Fine Grain Mason's Quicklime.80-lb. paper bags
Peerless Pulverized Mason's Quicklime....100-lb. paper bags and 180-lb. net wood barrels or steel drums
Peerless Lump Mason's Quicklime...180-lb. net wood barrels or steel drums
Marble Rock Pulverized Mason's Quicklime....60-lb. paper bags and 90-lb. steel drums
Marble Rock Pebble Mason's Quicklime...90-lb. and 100-lb. bags, 90-lb. steel drums and 180-lb. wood barrels
Marble Rock Lump Mason's Quicklime.180 and 280 bbls.
USG* Mason's Lump Quicklime....180-lb. net wood barrels or 180 and 200-lb. steel drums

All above brands may be shipped in bulk.

**Reg. Trade Mark*

DIRECTIONS FOR SLAKING QUICKLIME

High Calcium—Use 25 gals. of water per 100 lbs. of lime; add lime to water, spreading evenly with hoe. Hoe vigorously, adding water slowly while hoeing to produce thick creamy consistency. Do not "kill" boiling by adding water too fast.

Dolomite—Use 15 gals. of water per 100 lbs. lime; hoe only sufficiently to level out mass. In cold weather put Quicklime in dry box, add small amount of water to start heating action—continue to add water, as heating proceeds, until thick creamy consistency is obtained.

Ageing (not necessary for ground or pulverized)—Lump or pebble lime, after slaking as above, should be run through an 8 mesh screen and then permitted to age at least one week before use. Protect from drying out and frost.

DIRECTIONS FOR SOAKING HYDRATED LIME

Use 6 gals. of water per 50 lbs. of hydrate; add lime to water uniformly. Water must cover the lime.

For best results, should soak 6 hours, preferable over night. Protect from frost and keep moist.

USG Mason's Hydrate (brand) requires no soaking; develops plasticity as soon as mixed with water and the other materials.

Mixing—Mix putty with sand and cement just before use, with sufficient water to produce proper mortar consistency.

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STRUCTURAL INSULATION

Weatherwood Plaster Base—Weatherwood Asphalt Coated Sheathing
Weatherwood Roof Insulation—Weatherwood Tile and Plank
Weatherwood Building Board . . . Insulating Sheetrock—Insulating Rocklath

USG STRUCTURAL INSULATION Guide to the Selection of Structural Insulation Products

PRODUCT	SIZES	THICKNESS	APPROX. SHIP. WT. PER M SQ. FT.	JOINTS	SPECIAL ADVANTAGES
Weatherwood Insulating Plaster Base Plain or "Fasnap"	18x48 in.	$\frac{1}{2}$, $\frac{3}{4}$ " and 1" in.	725 lbs. for $\frac{1}{2}$ -in. thickness	V-Joint Long Edges	Fasnap Joint Reinforcement: Reinforcing snaps quickly into place to give horizontal joints additional plaster reinforcement.
Weatherwood Asphalt Coated Sheathing	2x8 ft.	$\frac{3}{8}$ in.	1225 lbs.	Tongue and Groove Long Edges	Sized for one man to handle. Applied horizontally for nailing visibility.
	4 ft. W. x 8, 9, 10 or 12 ft.	$\frac{3}{8}$ in. $\frac{1}{2}$ in.	1225 lbs. 760 lbs.	Square	Can be used as structural sheathing under all types of frame siding, brick veneer or stucco constructions.
Weatherwood Roof Insulation	22x47 in.	$\frac{1}{2}$ in.	725 lbs.	Square Edge or Offset	Excellent insulator because of its low density.
		1" in.	1450 lbs.		
		1 $\frac{1}{2}$ " in.	2125 lbs.		
		2" in.	2300 lbs.		
Insulating Rocklath— Reflection Type	16x32 in.	$\frac{3}{8}$ in.	1550 lbs.	Round Edge	Fireproof; bright metal foil backing provides effective insulator and vapor barrier.
	16x48 in.	$\frac{3}{8}$ in.	1550 lbs.		
		$\frac{1}{2}$ in.	2050 lbs.		
Insulating Sheetrock— Reflection Type	4 ft. W. x 6, 7, 8, 9, 10, 11 or 12 ft.	$\frac{1}{2}$ in.	1050 lbs.	Square	Fireproof; bright metal foil backing provides effective insulator and vapor barrier.
		$\frac{3}{8}$ in.	1500 lbs.	Square or Recessed	
		$\frac{1}{2}$ in.	2000 lbs.		

Finished Surface Products

PRODUCT	SIZES	THICKNESS	APPROX. SHIP. WT. PER M SQ. FT.	COLORS	FINISHES	JOINTS	SPECIAL ADVANTAGES
Sheetrock Grain Boards— Reflection Type	4 ft. W. x 6, 7, 8, 9, 10 ft.	$\frac{3}{8}$ in.	1500 lbs.	Natural Color	Walnut, Knotty Pine, and Bleached Mahogany	Square	Photographic reproduction of wood panels.
Weatherwood Insulating Building Board	4 ft. W. x 7, 8, 9, 10, 12 ft.	$\frac{3}{8}$ in.	580 lbs.	Ivory and Gray-Tan	Skin and Textured	Square Butt Joints	Finish resists scratching, scuffing; high light reflection.
		$\frac{1}{2}$ in.	725 lbs.				
		1" in.	1450 lbs.				
		1 $\frac{1}{2}$ " in.	2125 lbs.				
		2" in.	2300 lbs.				
Weatherwood Tile	12x12 in.	$\frac{1}{2}$ in.	725 lbs.	Ivory and Gray-Tan Blend	Skin and Textured	Ogee	Exclusive USG Blendtex gray and tan shades blend readily with most interiors.
	12x24 in.						
	16x16 in.	1" in.	1450 lbs.		Textured	Ogee + Edges	Can be applied without regard to stud or joist spacing.
	16x32 in.						
	12x24 in. 16x32 in. 24x48 in.	$\frac{3}{4}$ in.	1250 lbs.				
Weatherwood Finish Plank	8, 10, 12 or 16 in. W. x 8, 10 or 12 ft. L.	$\frac{1}{2}$ in.	725 lbs.	Gray-Tan Blend	Textured	Bead and Ogee Long Edges	Can be applied vertically or horizontally.
Weatherwood Paneltile	1x4 ft. 2x4 ft. 2x8 ft. 4x4 ft. 4x8 ft.	$\frac{3}{4}$ in.	1250 lbs.	Ivory	Textured	Ogee + Edges	Large units make for quick installation.

*These sizes not stocked, therefore subject to delay in shipping.

†Can be cross-scored to represent two square tiles.

Weatherwood Insulating Products
—Made of wood fiber, knitted together into a homogeneous unit by a process which controls strength and insulating value. Meets Federal Specifications. A strong, sound-absorbent insulator. Three color tones, plain and textured finishes. Resists scuffing and marring. Easily sawed and nailed. See pages forty-eight and forty-nine for further Weatherwood data.

Sheetrock—Fireproof wallboard made of gypsum with integral metal foil insulation (see opposite page). Nailed over wood framework to form the finish for interior walls and ceilings. Will not burn or transmit high temperatures. Contains nothing to rot or decay. Sheetrock walls and ceilings are strong and lasting. See page 32.

Rocklath—Fireproof lath with integral metal foil insulation. Has the same properties as Sheetrock. Made in two types: plain and perforated. See page 22.

The Conductivity Rating of Weatherwood products is approximately 33 B.t.u. per in. of thickness

UNITED STATES GYPSUM COMPANY

Weatherwood Insulating Plaster Base

(Left) Patented "Fasnap" reinforcement, easily snapped into place, reinforces plaster over long joints.



Weatherwood Asphalt Coated Sheathing

(Right) Applied horizontally, one sheet ties seven studs together. Only one size is needed for all jobs.



Insulating Rocklath, Reflection Type

(Left) Metal foil backing resists inward passage of radiant heat in summer as a mirror reflects light, and outward movement in winter. Metal foil makes efficient vapor barrier.



Insulating Sheetrock Reflection Type

(Right) Has same heat reflection qualities as Insulating Rocklath. Extensive tests have shown that the metal foil, which is used on both these products, serves as a vapor barrier to help control the condensation problem.



Weatherwood Insulating Board Panels

(Left) Produces a finished insulated wall in ivory or a gray-tan color which harmonizes readily with most interiors.



Weatherwood Tile

(Right) Available in sizes shown on page 1, the two-tile units pictured are applied with the speed of one. Interlocked edges permit application to misaligned studs or joists.



Packaging:

Weatherwood
Pl. base: 15 pcs. (90 sq. ft.) per bdl.
Asph. Sheathing: 6 pcs. per bdl.
Tile: 8 to 32 pcs. per bdl.
Panel tile: 4 to 12 pcs. per bdl.
Plank: 12 pcs. per bdl.
Building board: 6 pcs. per bdl.
Ins. Rocklath: 6 pcs. per bdl.
Ins. Sheetrock: 2 pcs. per bdl.

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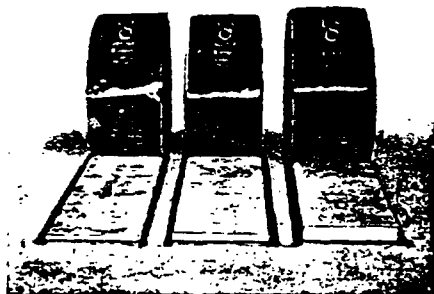
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BLANKET INSULATION

RED TOP INSULATING WOOL

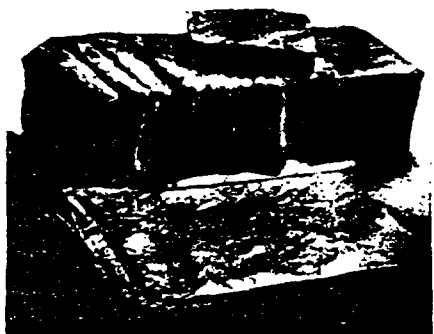
USG RED TOP INSULATING WOOL



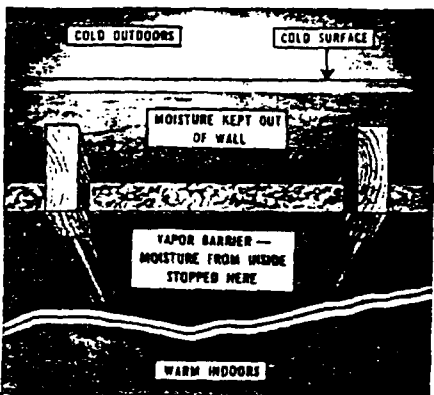
Red Top Roll Blankets
Rolls are recommended for large areas



Red Top Bats
For smaller areas than rolls. Sized to fit readily between studs and attic floor joists



Red Top Junior Bats*
For thoroughly insulating cut up spaces and corners



Red Top Insulating Wool
Fits snugly; seals its junctures with framework

Red Top Insulating Blankets

Mineral wool fibres of great strength and uniformity, clean and free from non-insulating material are felted into light-weight blankets and securely fixed to an efficient asphalt-type vapor barrier. The vapor barrier forms the warm side of a complete paper enclosure, providing proper resistance to the passage of vapor, while a tough, perforated, vapor permeable paper on the cold side prevents the accumulation of any moisture within the blanket.

Red Top Insulating blankets are so constructed that the insulating material is uniform in thickness throughout the length of each roll. They are as thick at the edges as in the center. Flanges at either side create an air space immediately back of the lath and plaster and effectively seal the joint against vapor leakage.

Sizes and Thicknesses—Made in three thicknesses: 1 in., medium and thick, in rolls of 125, 75 and 50 sq. ft. (net area) respectively. Each size fits stud spacings 16 in. o.c. Also available in Red Top Bats 3 ft. long in the same thicknesses to fit either 16 in. or 24 in. c. to c. spacings.

Red Top Junior Bats

Unwrapped bats of Red Top Wool. Useful where condensation is not a problem or has been handled by other means. Also used for badly cut up spaces and corners, "packing" in hard to reach spaces when Red Top Blankets or Bats are used.

Sizes and Thicknesses—Red Top Junior Bats are made 10 3/4 x 14 3/4 x 4 in. and packed in convenient bags containing enough wool for 22 sq. ft. of wall surface (16-in. stud spacing) or 20 sq. ft. net area.

Heat Resistance

Tests on Red Top Insulating Wool made by various laboratories show a variation of from .24 to .31 B.T.U.'s, per hr., per sq. ft., per degree difference in temperature, averaging .27 B.T.U.'s per inch.

Light Weight (Low Heat Capacity)

Red Top Insulating Wool weighs but 1.5 lbs. per cu. ft. Its capacity to hold heat is correspondingly low and it therefore does not retain enough heat to feed heat to the building in the summer, nor is heat wasted in winter in uselessly heating the insulation.

Fire Resistant

The wool is completely incombustible, withstanding temperatures of 800°-1000° with no more damage than a possible slight sintering of fibres nearest heat.

Harmless to Health—Odorless

Has no properties deleterious to health. Free of dust and odors. There is nothing to attract vermin.

Cost

Red Top Insulating Wool is competitively priced.

Ease of Installation

Ease and speed of application are provided for in the design. Rolls are made for large expanses: bats, for smaller, and junior bats, for cut up spaces and corners.

*Reg. Trade Mark

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UNITED STATES GYPSUM COMPANY

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Walls

The following heat transmission figures have been calculated on the basis of values recommended by the 1940 Guide of the American Society of Heating and Ventilating Engineers. Values are expressed in B.T.U. per hr. sq. ft. per ° F. difference in temperature between the air on the two sides—outside wind velocity 15 m.p.h.

TYPICAL—WOOD SHEATHING, 2 x 4 STUDS, ROCKLATH AND PLASTER				
Exterior	No Insulation	Red Top Insulating Wool Blankets		
		Inch	Medium	Thick
Wood siding	.25	.12	.084	.068
Wood shingles	.25	.12	.084	.068
Stucco	.30	.13	.089	.071
Brick veneer	.27	.13	.086	.070



Ceilings

These figures fulfill the same purpose as those above except that they apply to ceilings. Same bases for calculations were used. The only difference is that ceiling figures were based on still air both sides.

TYPICAL—WOOD JOISTS 2 x 6, ROCKLATH AND PLASTER				
	No Insulation	Red Top Insulating Wool Blankets		
		Inch	Medium	Thick
Without attic flooring	.61	.17	.11	.076
With yellow pine flooring	.28	.13	.087	.066



Roofs

These figures fulfill the same purpose as above except that they apply to roofs. Bases for calculations same as used for Walls.

TYPICAL—WOOD RAFTERS 2 x 6, ROCKLATH AND PLASTER CEILING LOWER SIDE				
Type Roof	No Insulation	Red Top Insulating Wool Blankets		
		Inch	Medium	Thick
Wood shingles on wood strips	.29	.13	.088	.067
Asphalt or rigid asbestos shingles				
Composition, slate or tile roofing on wood sheathing	.32	.14	.091	.068

PACKAGING: Red Top Insulating Blankets in continuous rolls completely enclosed in tough corrugated paper.

1" Blankets	Net area	125 sq. ft.
Medium Blankets	Net area	75 sq. ft.
Thick Blankets	Net area	50 sq. ft.

Area Insulated (16" Stud spacing)	138 sq. ft.
Area Insulated (16" Stud spacing)	82 sq. ft.
Area Insulated (16" Stud spacing)	55 sq. ft.

Red Top Insulating Bat Blankets in corrugated cases.

1"—26 pieces	15" x 36"	Net area	97½ sq. ft.
1"—26 pieces	23" x 36"	Net area	149½ sq. ft.
Medium 18 pieces	15" x 36"	Net area	67½ sq. ft.
Medium 18 pieces	23" x 36"	Net area	103½ sq. ft.
Thick 12 pieces	15" x 36"	Net area	45 sq. ft.
Thick 12 pieces	23" x 36"	Net area	69 sq. ft.
Junior Bats 18—15" x 11"		pieces per paper bag	

Area Insulated (16" Stud spacing)	107 sq. ft.
Area Insulated (24" Stud spacing)	160 sq. ft.
Area Insulated (16" Stud spacing)	74 sq. ft.
Area Insulated (24" Stud spacing)	111 sq. ft.
Area Insulated (16" Stud spacing)	50 sq. ft.
Area Insulated (24" Stud spacing)	72 sq. ft.
Area Insulated (16" Stud spacing)	21½ sq. ft.

U.S. ROOFING AND SIDING

**Asphalt: Shingles—Roll Roofing—Felts—Building Papers—Coatings.
Asbestos-Cement: Shingles—Siding—Glatex**

MANUFACTURE AND DISTRIBUTION

The company operates mills manufacturing roofing felt, asphalt or asbestos-cement roofing and siding materials, or combinations of them at Jersey City, New Jersey; North Tonawanda, New York; Skaneateles Falls, New York; South Bend, Indiana; East Chicago, Indiana; St. Paul, Minnesota, and South Gate, California. Many of these plants have been continuously producing roofing materials for almost 40 years. The United States Gypsum Company has been manufacturing quality roofing for almost 10 years.

USG ASPHALT ROOFING IS MADE OF SELECTED LABORATORY TESTED MATERIALS

Asphalt roofing quality cannot be discovered through appearance or crude tests. Asphalt is a complex material, available from several sources, each yielding asphalt much alike in appearance but of vastly varying utility. Later processing, likewise, affects the asphalt. Only by exacting laboratory tests and careful mill control, characteristic of USG production methods for 40 years, is it possible to select and process asphalt that maintains the long life, durability and weather-proofness demanded by USG roofing standards.

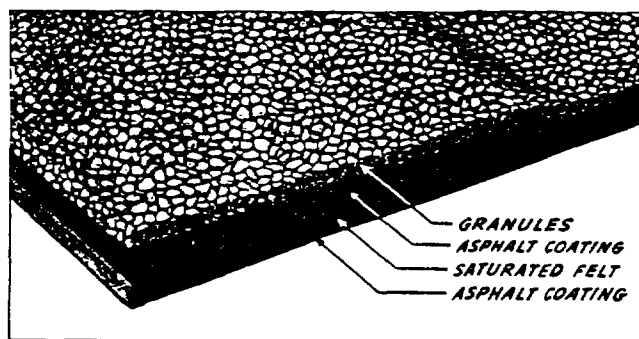
USG THICK BUTT SHINGLES HAVE NEWER, BETTER "MONOLITHIC" DESIGN

USG Thick Butt shingles are made in the newer way—not just standard shingles, which have been given an additional coating of asphalt and granules over their first coating to build up bulk, but shingles in which the increased thickness at the butt is secured by additional coating asphalt alone. There is no weakening of the waterproofness or weather resistance of the monolithic asphalt coating. The granules are applied only where needed to produce color and protect the coating asphalt from surface abrasions and the effect of the sun. This exclusive USG method is more expensive, but USG Thick Butt shingles are competitively priced.

This Thick Butt shingle design concentrates weight, strength and particularly the coating asphalt at the point of greatest wear and greatest need. Thick Butt shingles cast deeper shadows, creating rugged textures. The unexposed area of each shingle is, in turn, protected by the extra thickness of the

It is not possible to display all of the colors, types and styles of asphalt roofing in this catalogue since all are not made at every mill. At each mill colors, sizes and shapes either like those shown here or closely approximating them will be found in addition to styles and colors specially made to suit the local demands for materials suitable to the climate and customs in the area each mill serves. Full data on local colors and designs is available from the nearest Sales Office or company representative.

Felt made of selected rags is saturated with carefully processed petroleum asphalt as it alone will properly saturate felt. The heavy, higher melting point, coating asphalt must not only be of high quality, but it must be compatible with the saturant, so that one asphalt will not "bleed" into the other and destroy the fine qualities of both. An exclusive USG laboratory test prevents the use in our roofing plants of coating asphalts which are incompatible with saturants. Granules for surfacing must be color fast, opaque, uniformly sized, nonporous and, in turn, coated with oil, gum or cement to secure proper bond with the asphalt coating. All elements, whether purchased or manufactured at USG mills, must comply with the high quality standard set for each before they can be used in USG roofing.



exposed area of the next course. This extra thickness is all coating—and coating is the life of any shingle—undiluted by granules. Research developed this exclusive design and provided the machinery to produce a better Thick Butt shingle with better, more deeply edged graining of the surface.

ASBESTOS-CEMENT ROOFING AND SIDING

USG Asbestos-Cement Shingles and Siding combine two non-inflammable materials (selected high grade asbestos fiber and Portland cement) into a hard, waterproof, wear resisting material of great permanence and beauty.

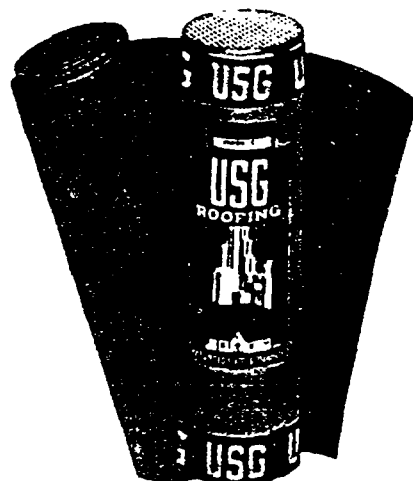
All USG Asbestos-Cement Products are made by the "wet" process. Each piece is composed of many layers of a plastic mixture of Portland cement and asbestos fiber, which, after they have been assembled, are welded together in gigantic presses, heavier and more powerful than those used to form steel in automobile plants. Finally, they are thoroughly steam

cured for several weeks until tests prove that every particle of Portland cement has set and that the materials have reached the correct hardness and rigidity demanded by USG Standards. The wet process produces a shingle or piece of siding, made up of laminations which are welded together permanently. More of the fibers run in one direction than in others, hence the product is slightly stronger in one direction. USG designs them so that this extra directional strength is used not to stiffen the material against handling and erection abuses, but to make both shingles and siding *strongest in the building*.

ROLL ROOFING: for quickly installed renewals on existing buildings and lasting weather protection for industrial, farm and other buildings where maximum economy is desired.

Supplied in 36" widths, each roll will cover 100 square feet of roof including all necessary laps. Lap Cement and nails are optionally included in each roll. Manufactured in smooth and corrugated surfaces in talc and mica finish, as well as in a wide range of solid color mineral surfaces: all in various weights to accommodate demands of exposure and cost.

SATURATED FELTS—BUILDING PAPERS, ETC. Felts saturated with tar or asphalt. House liners. Slaters felt. Building papers, Deadening felts. Red Rosin sheathing. Asphalt saturated Kraft papers, starter strips and ridge rolls to match asphalt shingles are available from every mill.



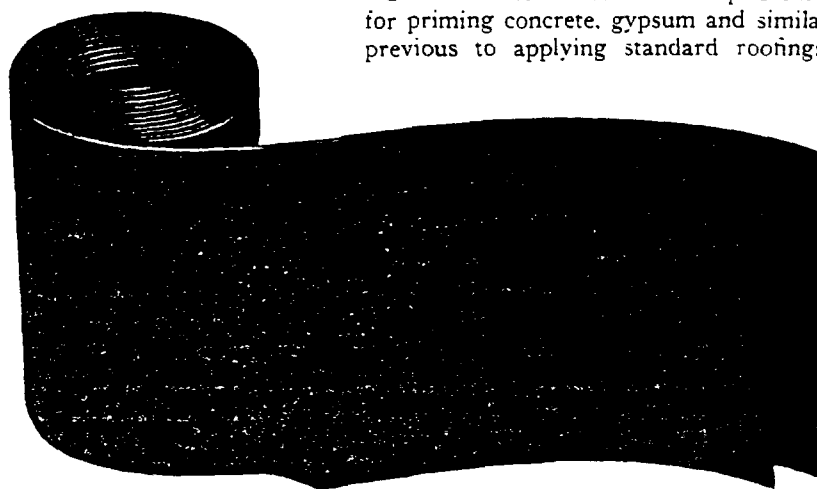
ROOF CEMENT: Heavy bodied plastic asphalt fibred with asbestos. Applied with a trowel for patching, pointing; flashing chimneys and parapet walls; resurfacing worn composition roofs.

ASPHALT ROOF COATING: A heavy, "cut back" asphalt for resaturating old composition roofs. Brush applied it is a very useful "renovator" for coating and renewing valleys and other places where wear is heavy.



ASBESTOS FIBER COATING: A "cut back" asphalt to which asbestos fiber has been added. For brush application as a "recoater" over old smooth coated roofs that are pitting, checking or cracking.

ASPHALT PRIMER: A thin liquid cut back asphalt for priming concrete, gypsum and similar roof decks previous to applying standard roofings.



ROLL BRICK SIDING: A serviceable siding with a true reproduction of brick at a roll roofing price. Surfaced with fire-resisting mineral granules embedded in a heavy weather-proof base. Packed in easy-to-handle half-rolls 43'-6" long x 16" wide including 2 1/4" selvage edge for extra weather protection—enough for 30 sq. ft. of surface area (two rolls to the square). Made in red and buff blends with deeply embossed brick design and black mortar line.

PACKAGING: ROLL ROOFING: fully protected and wrapped rolls containing 1 square (100 sq. ft.).

SATURATED FELTS, building papers, etc., in wrapped rolls and "half rolls" varying from 108 sq. ft. to 500 sq. ft.

ROOF CEMENT: 48—1 lb. cans; 24—2 1/2 lb. cans per carton; 12—5 lb. and 6—12 lb. pails per case; and in 25, 50 and 100 lb. pails; 225-250 and 450-500 lb. drums.

ROOF COATING: Pint cans: 6—1 gal. pails per case; 5, 10, 30, 55 gal. drums.

ASBESTOS FIBER COATING: 6—1 gal. pails per case; 5 and 10 gal. pails; 55 gal. drums.

ASPHALT PRIMER: 5 and 10 gal. pails; 30 and 55 gal. drums.

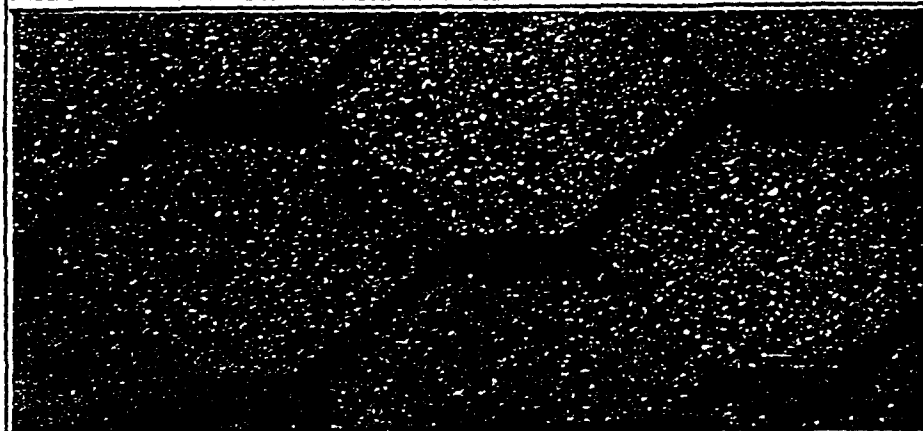
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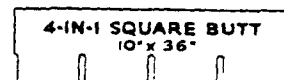
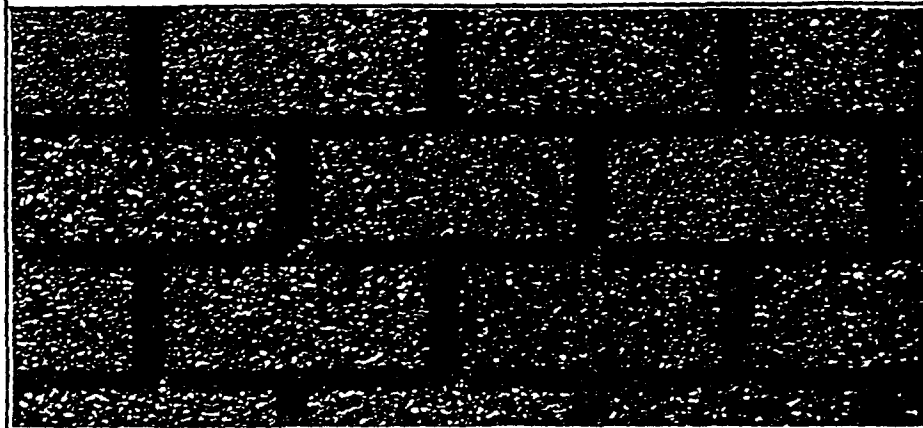
ASPHALT SHINGLES



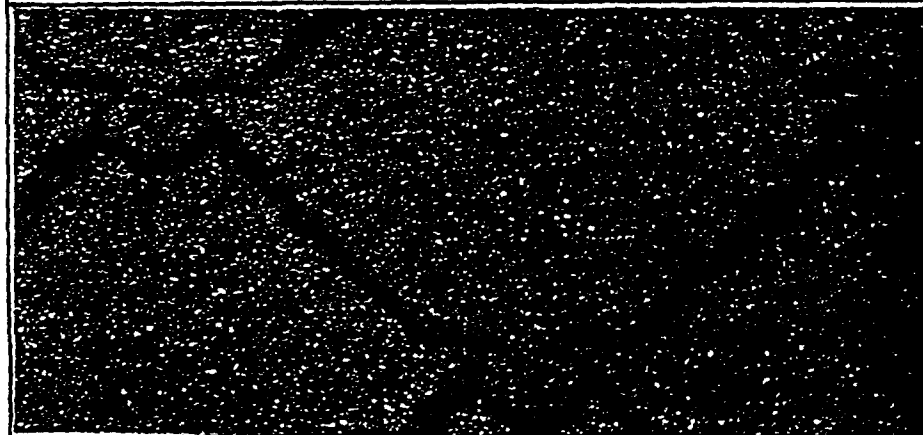
Exposure 3"-5"
 Headlap 2"-3"
 Weight Per Square 255 lbs.
 Relative Cost** V
 Textured Surface only.
 PACKAGING: 3 Bundles Per Square.
 Patented.



Exposure 4 2/3"
 Headlap 2"
 Weight Per Square 167 lbs.
 Relative Cost** II
 Also a 3-tab design of same size and weight, in either textured or plain surfaces.
 PACKAGING: 2 Bundles Per Square.



Exposure 4"
 Headlap 2"
 Weight Per Square
 10" x 36" 210 lbs.
 12 1/2" x 36" 266 lbs.
 Relative Cost** III
 PACKAGING: 2 Bundles Per Square.



Side Lap 2 1/2"
 Weight Per Square 138 lbs.
 Relative Cost** I
 PACKAGING: 2 Bundles Per Square
 12" Size

*Reg. Trade Mark

RELATIVE COSTS



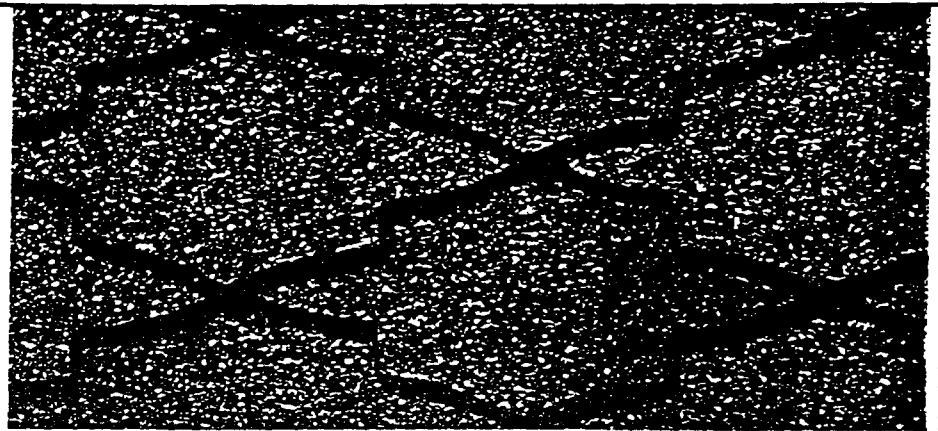
THATCH
10" x 36"

Exposure 4" 4"
Head Lap 2" 4"
Weight Per Square
10" x 36" 172 lbs.
12" x 36" 215 lbs.

Textured or Plain Surface
Relative Cost** II

PACKAGING:

10"—2 Bundles Per Square.
12"—3 Bundles Per Square.

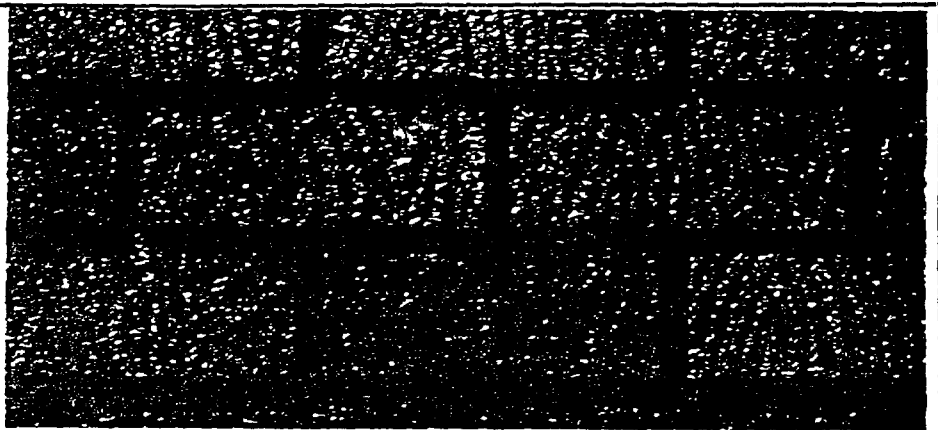


THICK BUTT
12" x 36"

Exposure 5"
Head Lap 2"
Weight Per Square { 210 lbs. or
240 lbs.

Textured or Plain Surface
Relative Cost** III

PACKAGING: 3 Bundles Per Square



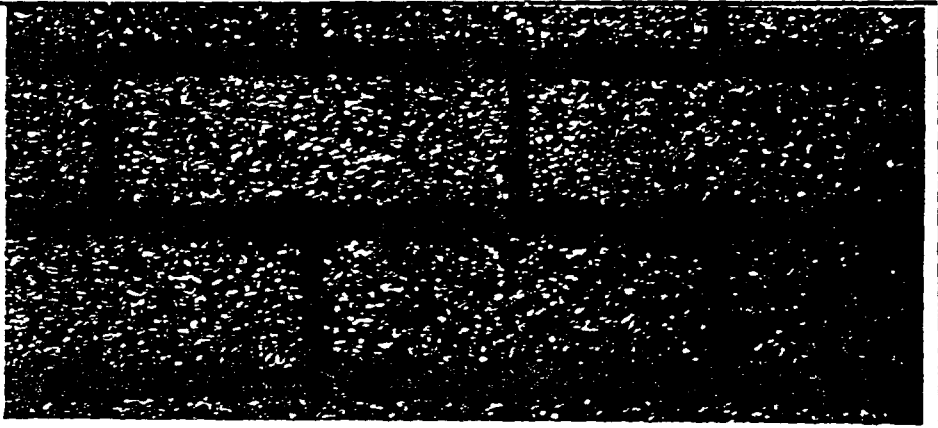
Individuals

Std. Giant

Exposure 4" 5"
Head Lap 4 1/4" 6"
Weight Per Square
9" x 12 3/4" 253 lbs.
12" x 16" 325 lbs.

Relative Cost** IV

PACKAGING: 4 Bundles Per Square.



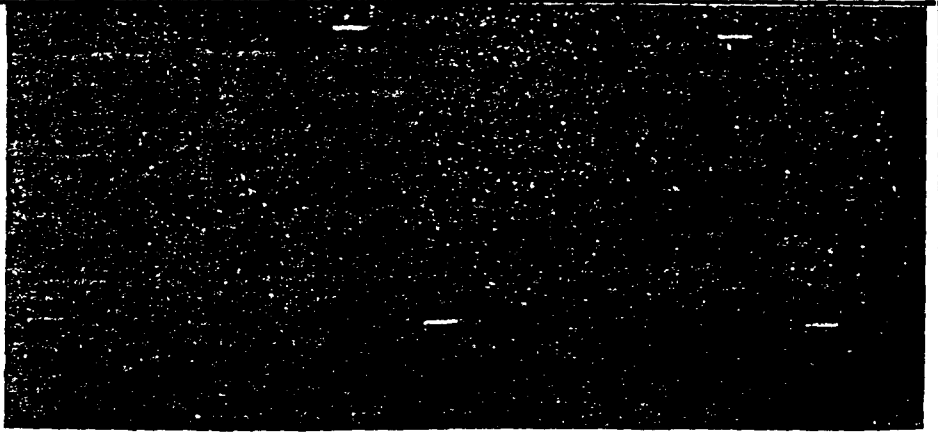
Giant Dutch Lap
Individual

Head Lap 2"
Side Lap 3"
Weight Per Square 162 lbs.

Furnished with staples for application.

Relative Cost** I+

PACKAGING: 2 Bundles Per Square.



**See note page 11

ASBESTOS—CEMENT SIDING AND SHINGLES



GLATEX

STAYS CLEAN
LIKE A CHINA DISH

Never needs paint. Fireproof. Resists dirt, freezing, thawing, cold and heat.

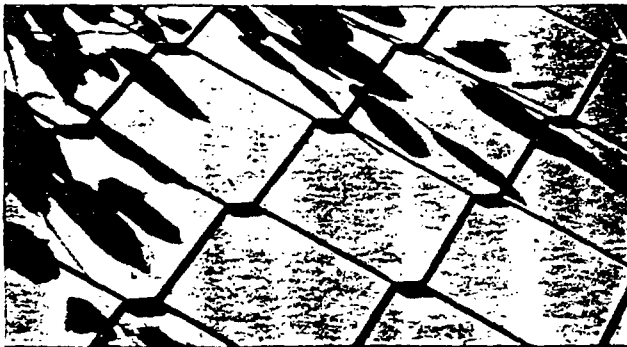


Ordinary asbestos cement products have a grainy, semi-porous body, much like that of an unglazed flower pot. A surface of this character stains easily, holds dust tightly, and is difficult to clean. After years of exposure, painting must be resorted to to provide a fresh, clean surface.

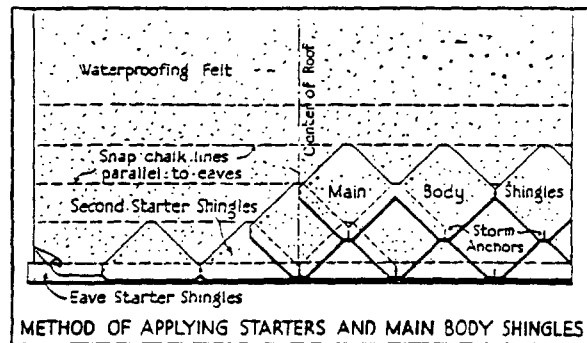
GLATEX,* the new asbestos-cement siding, has a baked on mineral glaze, similar to that which converts an unglazed flower pot into a china dish. Glatex

sidings are exceptionally water repellent and of extremely low porosity. They do not become dirty as readily but when soiled under difficult exposures are cleaned very quickly with a damp cloth. Glatex sidings retain their original beauty much longer and can be renewed readily without painting by simple cleaning with soap and water. Glatex sidings are an exclusive product, developed in USG Research Laboratories.

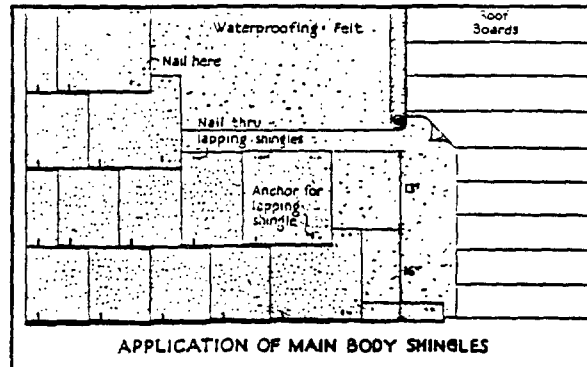
ROOFING SHINGLES.



No. 100 USG Hexagonal Method Shingles—Smooth surface, uniform thickness. Class B Underwriters' Label. Gray, green, red, black. 16 x 16 x $\frac{1}{4}$ in. Approximate weight per square: 224 lbs.



No. 300 USG Dutch Lap Shingles—Idealized wood grain texture, uniform thickness. Class B Underwriters' Label. Gray, green, black, red. Size 16 x 16 x $\frac{1}{4}$ in. Approximate weight per square: 244 lbs.



Note: Drawing shows shingles applied with $\frac{1}{4}$ lap. For $\frac{1}{2}$ lap, apply in same manner, using alternate set of nailholes.
*Reg. Trade Mark

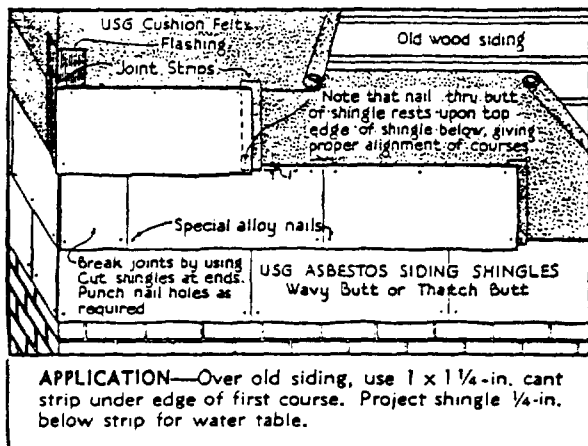
SIDINGS



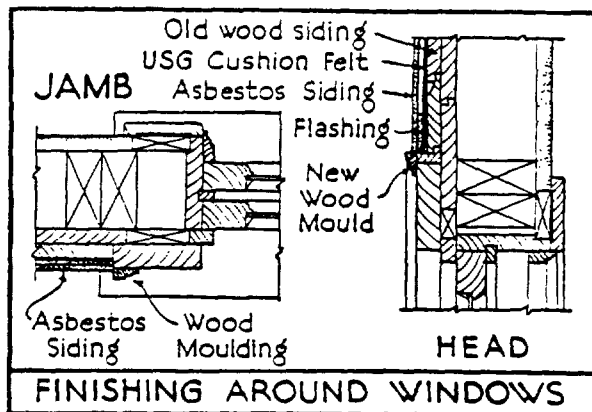
Advantages and Uses

USG Asbestos Cement Siding offers (1) protection against fire from without, (2) protection from the weather, (3) decoration, (4) permanence, and (5) low upkeep for frame buildings. Equally useful for remodeling existing structures, USG Asbestos Cement Siding is nailed directly to the wood

sheathing, using 1 1/4-in. galvanized nails in the holes provided for them at the top of each siding unit. If insulation board or Gyplap Sheathing is used, Naillex Fasteners (see below) permit the application of USG Asbestos Cement Siding direct to Weatherwood or Gyplap Sheathing without need for the usual furring strips.



APPLICATION—Over old siding, use 1 x 1 1/4-in. cant strip under edge of first course. Project shingle 1/4-in. below strip for water table.



NAILEX FASTENERS

In the past when asbestos cement sidings have been applied to structures sheathed with Weatherwood insulation board or Gyplap, it has been necessary to apply furring strips to receive the siding material.

Naillex Fasteners (shown at right) permit direct nailing of asbestos cement siding to either insulation board or Gyplap without the use of furring strips. The simple, wedge-like Naillex Fastener is applied to those nails which protrude through the sheathing securely locking them to the construction and holding the siding securely.

Naillex Fasteners are applied to the nails which do not reach the studs but protrude through the sheathing. They must be used before the interior face of the wall is lathed. Naillex Fasteners fit the 14 gauge, 3/16" diameter buttonhead, copper alloy, tinned, annular grooved 1 3/4" nails, usually supplied with asbestos siding for use over wood siding. Naillex Fasteners are set with a light hammer tap on the large end, with a plier as shown, or by manually utilizing their wedge-like action. The siding is fastened more snugly than is possible with careful nailing to a wood support. Naillex Fasteners are so devised that any pull on the nail head makes the fastener pinch the nail and hold more securely. They literally lock the nail to

either Weatherwood or Gyplap sheathing. No furring strips are necessary. Even though the nail just misses a stud or joist, by bending it slightly a Naillex Fastener may be effectively applied to secure that nail. Nails which are driven through a joint between two sheathing boards are, likewise, held just as well as though they were nailed through the body of the board. Should a siding unit require replacement after the house has been completed, a 2" x 1/8" tinned, copper alloy, toggle bolt is used through the original nail hole to make the repair. The holding action of Naillex Fasteners is almost identical to that produced by a toggle bolt. They are inexpensive and actually speed construction and reduce its cost.



Naillex Fastener

BB012 2144



EXPANDED METALS

MACHINE GUARDS—WINDOW GUARDS—LOCKERS
PARTITIONS—FURNITURE . . . ORNAMENT

USG EXPANDED METALS



Econo* Mesh, Regular Expanded Metal

Made from a single plate of steel which has been slit and expanded into rigid, non-raveling open-work. Strands and strand intersections, or bonds, are set at a sharp angle. This gives the product strength and rigidity impossible with wire meshes. The expanding process is a type of cold drawing. Econo Mesh has the properties of cold-drawn steel.



Shelf-X* Flattened Expanded Metal

Shelf-X is Econo Mesh which is passed through flattening rolls, turning the strands and intersections into a flat, smooth surface on which objects can stand without tipping and slide without catching. Shelf-X is resilient enough to make it a good seating material.

USES

Window Guards	Lockers	Cellar Area Guards
Grilles	Gates	Bins
Railings	Partitions	Non-Slip Catwalks
Tree Guards	Trellises	Low Garden Fencing
Shelving	Baskets	Furniture

ADVANTAGES

Workability—USG Expanded Metals can be cut readily into desired shapes without danger of raveled strands. They may be welded, bent and formed, drawn and flared. When cut in any direction USG Expanded Metals still retain their original strength.

Finishes—May be: painted, lacquered, plated or coated with nickel, chromium, copper, rubber, etc.

Appearance—Well-made, regularly spaced pattern. Non-raveling. Cannot be pried apart. Smooth (Shelf-X) or non-slip and rigid (Expanded Metal).

Strength—Cold-drawn steel. No rivets, welds or crimping. Heavy strands from one piece of metal make strong but light weight grille.

METALS

Stocked in open hearth and stainless steel. Made to order in copper, brass, aluminum, etc.

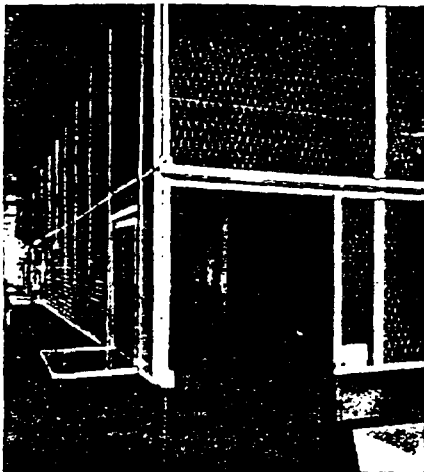
DESIGN SERVICE

Solutions for your problems. Attachment devices and methods.

Guide to the Selection of USG Expanded Metals

SUGGESTED USES						Style No.	Wt. per sq. ft. (lbs.)	Sq. in. sec. area per ft. of width	Size of ea. dia- mond (in.)		Sheet size		Approx. open area	Made from U. S. Standard Ga. No.	
Machine Guards	Window Guards	Lockers	Parti- tions	Furni- ture	Trays & Racks				Wide	Long	Width	Length			
											(short way of diamond)	(long way of diamond)			
ECONO MESH															
•	•	•				1/2 in. #18	70	20	50	1 20	4 & 6 ft.	8 ft.	65%	18	
•	•	•				3/4 in. #16	54	16	87	2 00	4 & 6 1/2 ft.	8 ft.	76%	16	
•	•	•				3/4 in. #13	80	24	87	2 00	4 & 6 ft.	8, 10, 12 ft.	76%	13	
	•					3/4 in. #10	1 19	35	87	2 00	4 & 6 ft.	8 ft.	69%	13	
	•					3/4 in. #9	1 80	33	87	2 00	4 & 6 ft.	8, 10, 12 ft.	68%	10	
	•		•			1 1/4 in. #10	.79	23	1 37	3 12	4 & 6 ft.	8 ft.	81%	13	
	•		•			1 1/4 in. #9	1 19	.35	1 37	3 12	4 & 6 ft.	8, 10, 12 ft.	80 1/4%	10	
			•			1 1/4 in. #8	.68	.20	1 37	3 12	4 & 6 ft.	8 ft.	84%	12	
SHELF-X															
						1/2 in. #18	1 14	34	28	1 06	4 ft.	8 ft.	35%	18	
				•		1/2 in. #16	.70	.20	50	1 26	3 & 4 ft.	8 ft.	60%	18	
				•		1/2 in. #16	.87	.25	50	1 26	3 & 4 ft.	8 ft.	60%	16	
					•	1/2 in. #16	.54	.16	89	2 12	3 & 4 ft.	8 ft.	73%	16	
					•	1/2 in. #13	.90	.24	89	2 12	3 & 4 ft.	8 ft.	73%	13	
					•	1 1/2 in. #16	.31	.91	1 40	3 25	3 & 4 ft.	3 ft.	81%	16	
					•	1 1/2 in. #9	1 19	.35	1 40	3 25	3 & 4 ft.	3 ft.	78 1/4%	10	

*Reg. Trade Mark



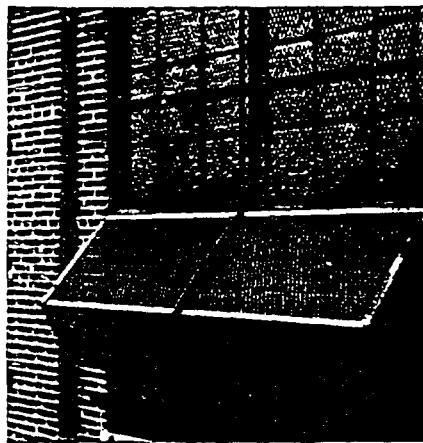
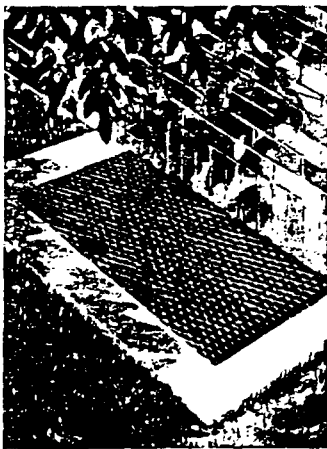
PARTITIONS

USG Expanded Metals are used to build both portable and permanent partitions. They have ample rigidity and make a good appearance. Panels may be removed and re-installed at will. Thieves cannot readily bend these metals after a small cut, making entry difficult.

Econo Mesh is most frequently used for partitions. However, where appearance is of primary importance, Shelf-X Flattened Expanded Metal is suggested.

CATWALKS

Strong, non-slip, low cost, light weight, minimum interference with light and ventilation. Self-cleaning.



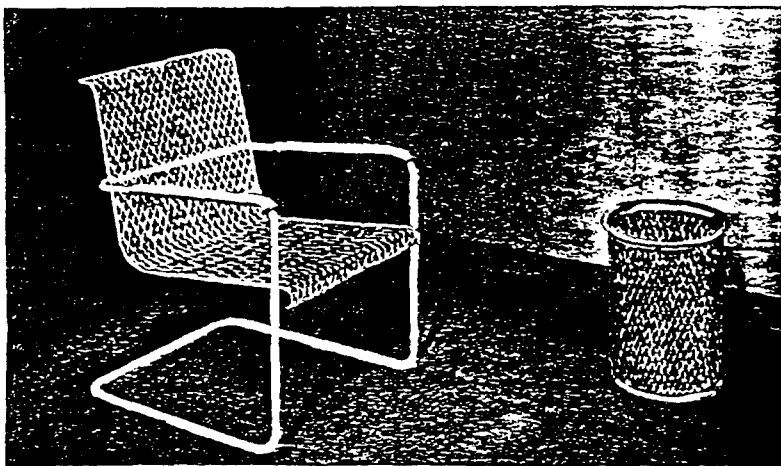
GUARDS

USG Expanded Metals, having the properties of cold-drawn steel, present efficient obstruction to entry, while permitting ventilation and entrance of daylight. They, therefore, are recommended for guards for windows, doors, skylights, etc.

Since USG Expanded Metals are readily workable, they can be shaped to fit windows which open in various ways.

As in the case of partitions, complete accessories are available to aid in prefabrication.

Areaway Guards—For basement windows. Removable, strong. Minimum interference with light, maximum protection. Catch more leaves and litter. Durable.



EQUIPMENT

The appearance, strength and workability of Shelf-X adapts it for use in the fabrication of grilles, tables, chairs, display pieces, trellises, permanent plant stands in oriel and orangeries, low garden fencing, evergreen protection, etc.

The fact that it is furnished in stainless steel and, on order, in aluminum, copper or other desired metals, gives it added interest to designers.

PACKAGING: Shelf-X in wooden crates of convenient size for handling and storage; pieces of like size and style bundled together.

Expanded Metal: In bundles of 3 or 5 sheets according to schedule below.

3 sheets per bundle

$\frac{3}{4}$ " #13: 72" x 100" and 72" x 144"
 $\frac{3}{4}$ " #9: All sizes.
 $1\frac{1}{2}$ " #9: 72" x 96", 72" x 120"
 and 72" x 144"

4 sheets per bundle

$\frac{3}{4}$ " #13: 48" x 120" and 48" x 144"
 $\frac{3}{4}$ " #10: 48" x 96" and 72" x 96"
 $1\frac{1}{2}$ " #18: All sizes. $1\frac{1}{2}$ " #9: 48" x 96"



WATER THINNED PAINTS

INTERIOR-EXTERIOR
FLAT-TEXTURE . . . PRIMERS-SPACKLING COMPOUNDS
PAINTERS PLASTERS

USG PAINT PRODUCTS

INTERIOR FLAT PAINTS

TEXTURE (PLASTIC) PAINTS

LIME-LOCKING PRIMERS

USG Paints are essentially "architect's" paints because they are designed to *decorate*. They supply a wealth of color with clarity and permanence of tone. Because they "breathe," USG Paints permit residual moisture to leave newly applied plaster. USG Paints may be applied much sooner than oil paint without danger to plaster or paint. They dry quickly, creating gloss-less highly light-reflecting surfaces of great beauty.

But they are "owner" paints as well. These "new principle" paints cost less to buy and less to apply. Drying quickly they speed construction, save labor, save time on repaint jobs. Their exceptional hiding power makes it usually possible to use but one coat for re-decoration where two or three coats of older materials were used.

In decorative cycles they show savings of up to 50% over older painting routines—and yet provide more frequent decoration, with color changes when they are desired.

Water thinned (but not water soluble when they are dry), they avoid the fire hazards of volatile thinners and dryers; likewise objectionable paint odors are not present.

In each group several paints are supplied for like general purposes. They vary in price with the service they perform but not in quality.

Full color charts are given on the opposite page. A paint selector chart follows on pages 72 and 73. Practically any color or shade of color may be produced in

EXTERIOR MASONRY PAINTS

SURFACE PREPARATION MATERIALS

LIMEPROOF COLORS

Texolite by intermixing or reductions of Deep Texolite with white.

The economy of paint is best shown by comparing the cost of full maintenance cycles. Such a comparison between Texolite and flat oil paint is given in the table below. Notice that with Texolite, decoration is more frequent and maintains the work in a fresher condition, with annual color changes if desired, without extra cost. The figures are from the "Price Guide" (Commercial Section) of the Painting Contractors of America and are fully comparable.

COMPARATIVE COSTS			
TEXOLITE	Cost per yd.	FLAT OIL PAINT	Cost per yd.
1st Painting 1 coat K-Cemo 1 coat Texolite	.19	1st Painting 1 coat Primer 2 coats Flat Oil	.33
Start of 2nd Year 1 coat Texolite	.10	Start of 2nd Year Wash and Touch Up	.11
Start of 3rd Year 1 coat Texolite	.10	Start of 3rd Year Wash and Touch Up	.11
Start of 4th Year 1 coat Texolite	.10	Start of 4th Year Wash, Size 2 Coats Flat Oil	.40
Per yard (4 Years)	.49	Per yard (4 years)	.95
Calculated @ \$1.50 per hour for painters.			
Texolite saves 48.5% of flat oil costs.			

LIGHT REFLECTED BY VARIOUS COLORS USED IN DECORATION

Figures Indicate Percentage of Light Reflected

White	81—89
Very Pale Tints of:	
Gray	75—80
Tan	70—77
Green	66—72
Blue	57—66
Yellow to ivory	75—81

Medium Tints of:	
Gray	49—59
Tan	52—60
Green	50—55
Blue	34—40
Yellow	65—70

Strong Tints of:	
Gray	30—40
Tan	30—41
Green	35—44
Blue	21—27
Yellow	53—58

Solid Colors:	
Red	14—20
Yellow	38—48
Blue	7—8
Green	7—10
Brown	9—11

Common Wood Finishes:	
Dark mahogany	7—12
Walnut	14—18
English oak	15—20
Light oak	30—35
Natural pine and maple	45—52

Values based on "Illumination Design Data" General Electric Company and other sources.

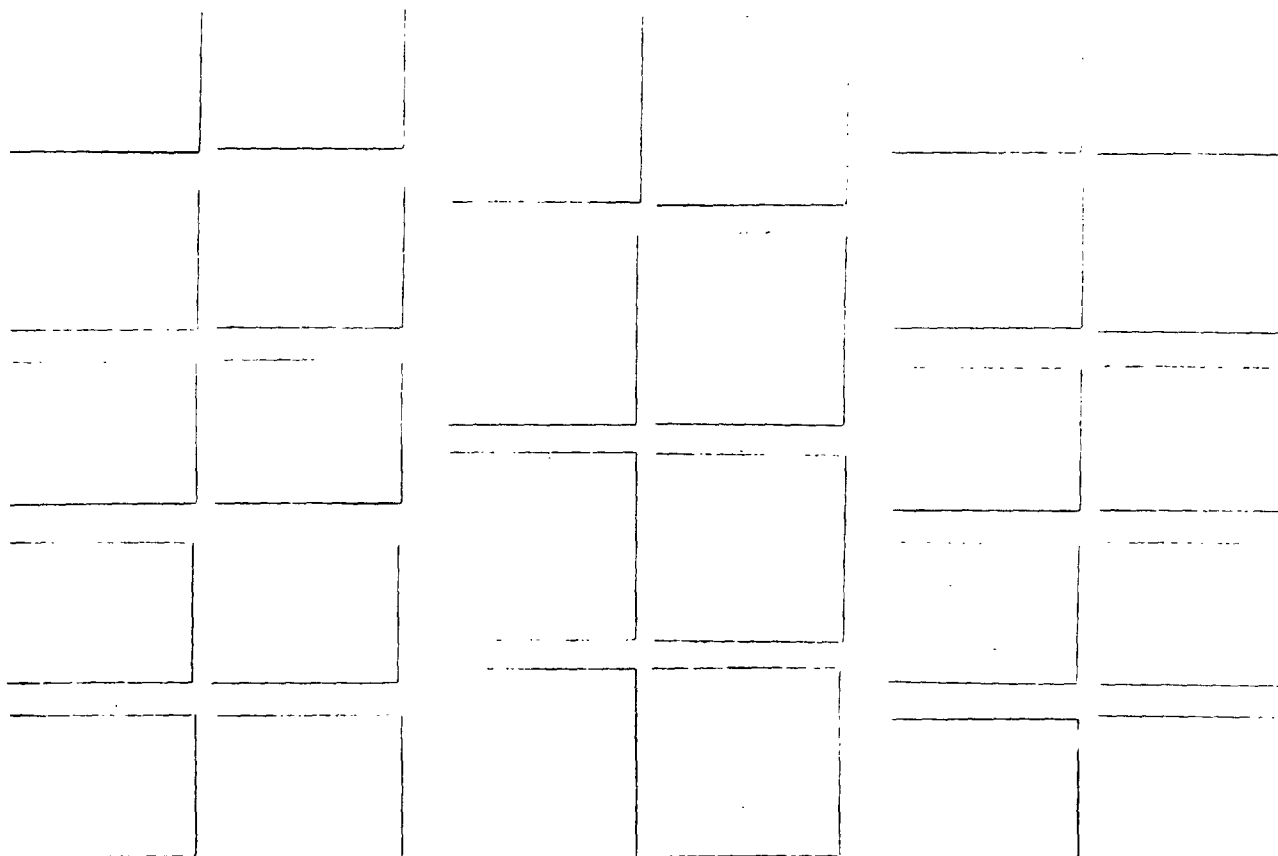
UNITED STATES GYPSUM COMPANY

STANDARD COLORS AVAILABLE IN USG WATER-THINNED PAINTS

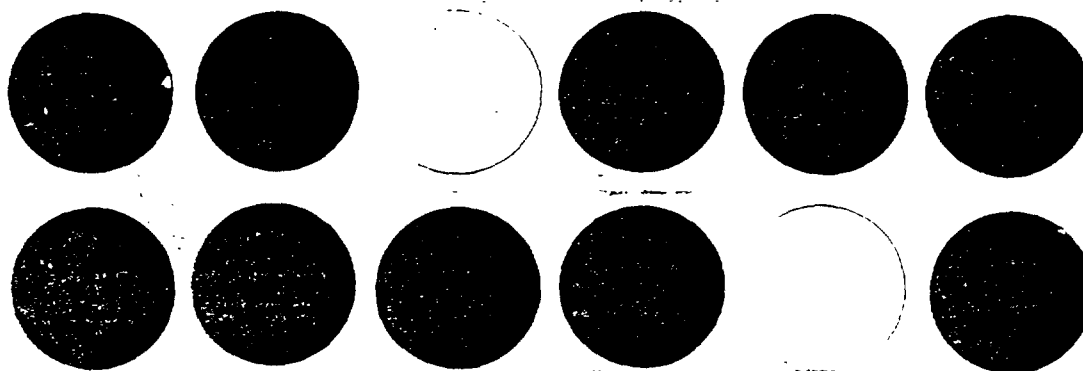
TEXOLITE AND TEXOLITE "330"

DURACAL

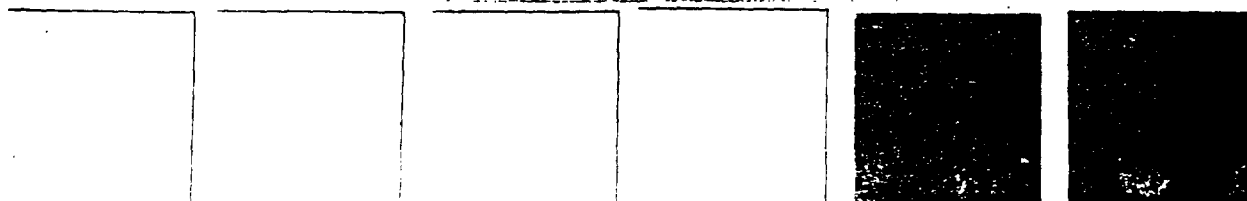
CEMENTICO



TEXOLITE DEEP COLORS



EXTERIOR TEXOLITE



BB012 214B

UNITED STATES GYPSUM COMPANY

GUIDE TO THE SELECTION OF USG PAINT PRODUCTS

INTERIOR FLAT FINISHES FOR WALLS AND CEILINGS		
USES	PRODUCT	CHARACTERISTICS
Over old and new interior walls and ceilings. Not recommended for use over wood trim subject to wear, or under permanently damp conditions, or where it will be subjected to excessive abrasion.	TEXOLITE*—WHITE AND TINTS —modern water-thinned paste paint for interior wall and ceiling decoration. Provides brighter, more colorful interior decoration that is permanent and inexpensive.	Dries in one hour. Covers more area. Does not yellow. High light reflection and excellent hiding power due to high quality pigment. Easy to apply. No objectionable paint odor. No fire hazard. No thinner cost. Recoatable. Cuts maintenance costs.
Over new or previously painted walls, ceilings, wallboards, etc., where washability and greater resistance to abrasion are factors.	TEXOLITE* "330"—MADE IN OYSTER WHITE AND TINTS —shown on previous page. A new washable, water-thinned, interior, flat paint in paste form.	As washable as the best grade of flat oil paint. Dries quickly, rugged, stands abrasion well, no paint odor, does not "yellow." Slightly less hiding power than regular Texolite but one coat usually suffices.
Used as deep brilliant paint, or for tinting regular Texolite, casein paints, washable calcimine, and ordinary calcimine. The deep colors can be intermixed in any proportion without danger of color streaking or blotting. Ideal for display backgrounds. Quickly recoatable and non-bleeding.	TEXOLITE* DEEP COLORS —paint in true brilliant colors bringing new, pleasing color possibilities to the decorating and display field. Simple and economical to apply.	Offer unlimited color possibilities because of the wide reduction range of true brilliant colors and their intermixes to produce blends. Clarity of vehicle allows color pigments their full brilliance, permanently.
For decorating interior partitions, walls and ceilings, for more permanent decoration than ordinary water thinned paints will produce. Used over Sheetrock and other gypsum wallboards, and over Weatherwood and other insulation wallboards, in addition to painted or unpainted interior plaster surfaces.	DURACAL* (A PREMIUM CASEIN POWDER PAINT) —in powder form prepared for application to walls and ceilings by mixing with water. Packaged in standard colors and white. Colors may be intermixed.	Smooth working. Casein bound. Recoatable. May be applied over surfaces previously painted with oil paints. Can be applied over untreated plaster surfaces without preliminary sizing. Superior to ordinary water thinned paints but not a substitute for Texolite.
Used wherever a hot water calcimine of high quality is desired. Home, office, store, shop, etc., interiors. Suitable for use where easy removal is desired.	KAL* (HOT WATER, MICROFINE CALCIMINE) —provides one of the most economical ways to bring color into interior decoration. Packaged in standard colors and white.	Ground exceptionally fine by a special process. Balanced formula provides easy intermixing of color. Durable. Does not rub off. Easy to mix and apply. Good coverage.
Wherever a high quality cold water calcimine will meet the requirements of the decorative job.	USG* COLD WATER CALCIMINE —a practical, durable, and colorful low cost finish. Permanent, yet easily removed by washing. Conveniently packaged in standard colors and white.	Smooth finish. Easily applied. Good coverage. Boiling water not needed. May be mixed with tap water if not too cold. Does not rub off. Balanced formula. Colors may be intermixed to provide pleasing blends.
For use in interiors of factories, warehouses, garages, other industrial structures, also farm buildings. Excellent for coating pipe coverings. More economical than calcimine.	USG* INTERIOR COLD WATER PAINT —an economical utility paint for renewing and brightening interior surfaces. Furnished in white only.	Starch bound cold water paint, below USG Calcimine in quality. Easily applied and readily washed off when repainting is necessary. Best results when surfaces are prepared according to good painting practice.
INTERIOR TEXTURE FINISHES		
As an interior decorative texturing material over any dry, solid, clean surface, such as new plaster, Sheetrock,* other gypsum wallboards, Weatherwood,* and other insulating wallboards. Especially adapted to refinishing old cracked plaster surfaces. Used to produce stone effects, antique effects and in stencil work.	TEXTONE* —a plastic paint meeting the demand for a dependable, economical, easily applied texture medium capable of satisfying every requirement of modern decoration.	First grade plastic paint. Textone properly applied forms the most permanent texture body material available. Furnished in white only. Can be integrally tinted with Texolite Deep Colors or USG Limeproof Colors or applied white and color supplied by further treatment.
Same as Textone.	USG TEXTURE PAINT* —a lower priced plastic paint than Textone, used in the same manner.	For same purposes as Textone, but provides less coverage. Produces excellent textures in both period and modern styles.

*Reg. Trade Marks

GUIDE TO THE SELECTION OF USG PAINT PRODUCTS

EXTERIOR PAINTS		
USES	PRODUCT	CHARACTERISTICS
Use only over porous masonry surfaces such as cement stucco, cement, cinder block, unglazed clay tile, concrete, and similar areas. Not recommended on magnesite stucco surfaces.	CEMENTICO* — hydraulic cement base paint for bringing new beauty, life and color to porous masonry surfaces.	Made of white Portland Cement and other special ingredients to produce hardness, binding qualities and workability. Only proved limeproof colors are used. Weatherproof. Water resistant. Bonds to porous masonry surfaces.
Over exterior masonry surfaces either untreated or previously painted. Ideal for common brick, cement block, Portland cement stucco, unglazed tile, etc. Not recommended for walls which are constantly damp; for such places use Cementico.	EXTERIOR TEXOLITE* —A flat, glossless, paste paint, water-thinned but not water soluble when set; for exterior or masonry surfaces.	Six "masonry" colors (see page 2) and oyster white. A paste paint; contains no Portland cement. Lime resistant, water resistant, will not yellow, and has no paint odor; will not bloom, clear useful colors adaptable to, and common in masonry surfaces. Colors may be intermixed.
For periodic exterior surface renewal of warehouses, factories, fair and exposition buildings, farm buildings, filling stations, stables, fences, etc., and other clean solid surfaces from which paint scale, whitewash, and dirt have been removed.	USG* EXTERIOR COLD WATER PAINT —An economical utility paint for periodic painting and renewal of clean, solid, exterior surfaces.	Not a whitewash. Casein bound paint furnished in white only. Easy working. Quick drying. Does not rub off. Recoatable. Requires addition of water only before use.
COLORS		
For tinting Textone and other water thinned plastic paints, casein paints, calcimine, and cement paints. Sometimes used for tinting stuccos and mortars. Blue is not recommended for coloring plasters and mortars.	USG* LIMEPROOF COLORS — strong, lightproof, limeproof colors of great intensity, requiring only small quantities to secure pleasing tints.	With the exception of blue, all colors are specifically limeproof and lightproof. All finely ground, pure and strong. Tinted materials will be several shades lighter when dry than when in the wet mix.
SURFACE PREPARATION PRODUCTS		
Filling small cracks, scars, slight imperfections in plaster. Making Swedish putty. Spotting nail heads. Filling holes, ridges, imperfections in concrete. Filling nail holes, knot holes, cracks, etc., in wood trim. For interior use only.	USG* SPACKLING COMPOUND — used for preparatory treatment of surfaces before painting or decorating, to build up or fill imperfections, and to produce a smooth even surface.	Exceptionally fine grind. Grit free when dry. Adaptable to knife or brush application. Can be sanded. Adheres to any properly cleaned solid surface. Sets without shrinkage in about 2 hours. Dries to extreme hardness.
For patching cracks and larger breaks in unpainted plaster walls and interior concrete surfaces. For application by broad knife or trowel. Can be decorated with any decorating material.	RED TOP* PATCHING PLASTER — a plaster scientifically compounded for patching cracks in walls and ceilings easily at negligible expense. Conveniently packaged.	Very white. Non-shrinking. Contains no lime. Sets in 1 to 1½ hours. Uniform set and quality. Smooth and plastic because of special ingredients.
For patching cracks and breaks in plaster and wherever a Painters plaster of Paris is used with either trowel or broad knife.	RED TOP* PAINTERS PLASTER —Plaster of Paris for general painters' use. Made from specially selected white gypsum rock. Packaged in 5, 10 and 25 pound bags and in 300 pound barrels.	Mixes readily, works easily, but requires more careful manipulation than Red Top Patching Plaster. Provides hard, dense and strong finish surfaces. Setting time approximately 30 minutes.
For preparing these surfaces for painting: painted and patched walls and ceilings, plastered surfaces, interior concrete surfaces. New or old unpainted concrete floors. Fiber, gypsum and insulating wallboards. Not recommended for old painted concrete floors or surfaces which are permanently or periodically damp.	K-CEMO* PRIMER — the answer to the alkali problem in painting. A priming material which "locks in" lime or alkali and makes possible more durable paint jobs. Useful for correction of unequal suction.	A casein and Portland cement formulated primer which assures longer life for decorative materials. Produces a hard, lime locking prime coat over which may be applied oil paints, washable calcimine, casein and water thinned paints. * Reg. Trade Marks.

PACKAGING: *Paste paints:* 12—1 qt., or 4—1 gal. cans per carton, 5 gal. or 30 gal. drums singly. *Deep color Texolite* in cans and drums, as above, plus cartons of 6— $\frac{1}{8}$ pt. tubes, and 12— $\frac{1}{2}$ pt. cans. *Powder Paints, Calcimine & Patching plasters*, in convenient sized packages, bags, and cartons and in 100 lb. and 300 to 350 lb. bbls., varying somewhat with community. *Limeproof Colors:* Cartons or 24 #1 size cans.

DB012 2150

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GYPSUM FLOOR AND ROOF CONSTRUCTION

Ideal roof and floor constructions are: fire-proof; light in weight to reduce costs of supporting framework. They bond well with standard waterproof roof coverings; are heat insulative or may be readily insulated. They should contain nothing to cause deleterious effects on any material they contact; be proof against rot; decay, the common factory gases and many of the unusual ones. Their under surfaces should reflect light well; be of good appearance and be capable

of quick economical renovation with factory paints such as Texolite.*

USG has solved roof and floor problems competitively and successfully, for over 25 years. Millions of square feet of these roofs and floors are in use. They are regularly specified by prominent architectural offices. Their advantages are briefly established on this page. On the opposite page the constructions are tabulated and compared for quick selection. On later pages, each type is described, detailed and fully illustrated.

LIGHT WEIGHT

Precast gypsum constructions are light in weight because gypsum is inherently light. The weight of "poured-in-place" construction is further reduced by the use of light weight aggregates.

ADAPTABLE

Readily cast in place or cut to fit (when precast); practically any structural requirements may be met.

LIGHT REFLECTIVE

The smooth, white, closely knit gypsum surfaces are well known as efficient reflectors of light; when soiled by time, both color and reflective ability are easily restored with USG Texolite.*

NAILING BASE

Gypsum holds nails well. A standard 2-in. galvanized roofing nail driven to 1½-in. penetration resisted removal until a 180 lb. test load was applied.

INSTALLED QUICKLY

Precast constructions are ready for erection when they arrive from the mill. Poured in place constructions set in less than a half hour and may be subjected to full live loads at that time.

LOW MAINTENANCE COST

Gypsum does not rot, burn, decay, nor rust, nor does it stain other materials. It is vermin-proof.

HEAT INSULATING

Gypsum, unlike most fireproofing materials, is an excellent heat insulator. Gypsum roofs are generally amply heat insulative to prevent condensation under any normal building exposure.

HEAT LOST THROUGH VARIOUS GYPSUM CONSTRUCTIONS	
(In B.t.u. per hr. per sq. ft. per deg. diff. F.)	
Pyrobar® Short Span Tile (3 in. solid)	.49
2½ in. Sheetrock-Pyrofill*	.38
2½ in. Sheetrock-Pyrofill plus ½ in. Weatherwood	.24
3 in. Sheetrock-Pyrofill*	.35
3 in. Weatherwood-Pyrofill* (1 in. board)	.19
Corrugated Sheet Iron	1.50
Note: 5-ply roof covering included except on corrugated sheet iron.	

ECONOMICAL

Low in first cost; reductions in cost of supports, speed of completion and erection economies provide additional savings.

ENGINEERING SERVICE

Trained engineers, experienced in all aspects of roof and floor work are available quickly, at short notice, for advice and consultation without charge — phone nearest office.

ERECTION

The skilled erection services of USG approved fireproofing contractors are available throughout the country

*Reg. Trade Mark

GUIDE TO THE SELECTION OF USG ROOF AND FLOOR CONSTRUCTIONS

	Size	Average Wt., Lbs. /Sq. Ft.	B.T.U. Value	Relative Cost*	Recommended Uses	Pages
USG GYPSUM PLANK 	2 in. x 15 in. x 10 ft.	12	.58	I	For floor and roof slabs of light weight, speedy erection	76 and 77
	2 in. x 15 in. x 8 ft.	12	.58	I		
2½" TONGUE AND GROOVE 	2½ in. x 10 in. x 6 ft.	15	.53	I	For floor and roof slabs with close beam spacing	76 and 77
SHORT SPAN TILE 	3 in. x 12 in. x 30 in.	17	.49	II	For light weight, flexible roof decks. Solid tile has great nail holding power for attaching ornamental roof coverings	78 and 79
SHEETROCK PYROFILL 	2½ in. Standard	11.5	.38	I	For light weight, low cost, speedy erected roof slabs	80 and 81
	plus ½ in. insulation	12	.24	II		
WEATHERWOOD PYROFILL** 	3 in. Standard	10.5	.19	II	For light weight, low cost roof slabs with additional in- sulation value	80 and 81
PYROFILL MONOLITHIC 	3 in. Thick	13	.35	I	For light weight, full fireproof floor and roof slabs. Speedily erected. Not adapted to small areas	80 and 81
	3½ in. Thick	15	.32	II		
	4 in. Thick	17	.29	III		
PYROFILL EMBEDDED RAIL 	3 in. Thick	14	.35	II	For light weight, full fireproof floor and roof slabs. Speedily erected	80 and 81
	3½ in. Thick	16	.32	III		
	4 in. Thick	18	.29	IV		
STEEL DECK 	20 Gauge (Also 22 and 18 Gauge)				For light weight, quickly erected, low cost roof decks. Insulation should always be added. Add insula- tion to suit	82 and 83
	½ in. Insulation	3	.39	I		
	1 in. Insulation	3.5	.25	II		
	1½ in. Insulation	4	.18	III		

*"I" indicates least expensive; "III" indicates more expensive than "I," etc.

**Furnished with special section steel subpurlins.

BB012 2152

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USG GYPSUM PLANK

For floors and roofs where a light weight, fireproof, insulative construction is desired. Suitable for all roof loads and floor loads in apartments, hotels, schools, etc. Tongued and grooved on four edges, USG Gypsum Plank forms a continuous structure.

ADVANTAGES

Light Weight — USG Gypsum Plank weigh but 12 lbs. per square foot — half the weight of 2-in. stone concrete. The safe superimposed loads given in the table (right) were established as very conservative by tests of nationally recognized laboratories.

Rapidly Installed — Each "plank" is laid without mortar and quickly clipped to the supports. The wide, tapered groove and matching tongue fit snug and tight as each unit slips into place without ramming. The deck literally "flows" out over the steel in an uninterrupted movement.

Beam and Purlin Spacing May Vary — The long "planks" cantilever over the supports. Since joints are broken between courses, each cantilevered end is supported at either side by a continuous steel beam formed by the metal edging of the adjacent tile. The end joints, likewise, are interlocked. The result is a deck monolithic and continuous in structural effect, which permits variation in the spacing of supporting steel, provided they are within the maximum spacings of the table (right).

Saves Labor — Obviously the combination of no mortar, large units and rapid erection cut installation costs to a minimum.

Other Advantages — USG Gypsum Plank embodies the advantages inherent in gypsum as outlined on page 74.

DESIGN

The steel edges of USG Gypsum Plank and the gypsum body are keyed together by closely spaced loops, expanded from the steel edging, which project into the "plank" body as it is cast at the factory. The wide face of each loop is at right angles to the plane of the loop preventing any cleavage planes at that point. Cutting individual units for the ends of courses does not impair their bond.

USG LONG SPAN GYPSUM PLANK

2 in. x 15 in. x 10 ft.

Construction	Spacing of Steel Supports	Safe Superimposed Load
Floors	Up to 5 ft.	150 lbs. Sq. Ft.
Roofs	Up to 7 ft.	75 lbs. Sq. Ft.

USG MEDIUM SPAN GYPSUM PLANK

2 in. x 15 in. x 8 ft.

Floors	Up to 3 ft.	150 lbs. Sq. Ft.
Roofs	Up to 4 ft.	75 lbs. Sq. Ft.

2½-IN. TONGUE AND GROOVE ROOF AND FLOOR TILE

Precast gypsum units which are substantially the same design as USG Gypsum Plank except that they do not have steel edging. They are 2½ in. thick, 10 in. wide and 6 ft. long and weigh 15 lbs. per sq. ft. Used as a deck for structures where the live load does not exceed 150 lbs. per square foot, such as apartment houses, hotels, office buildings. Floor joist spacing should not exceed 30 inches. For roof construction joist spacing may be increased to 48-in. centers.

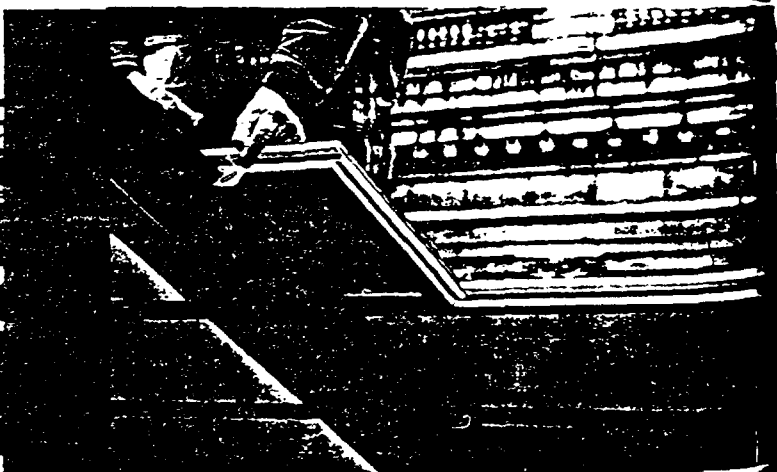
Provide an economical construction because of their light weight, flexibility and ease of erection. With a dead load of less than half that of concrete they permit economies in steel design.

Tongue and groove are substantial. Groove is wider than end of tongue permitting ready nesting when supporting steel members are not quite on the same plane.

The steel edging for each plank is made in two pieces, each enclosing one long and one short edge of the plank, with a mitre at the corner. All corners are reinforced with clinched in steel reinforcements.

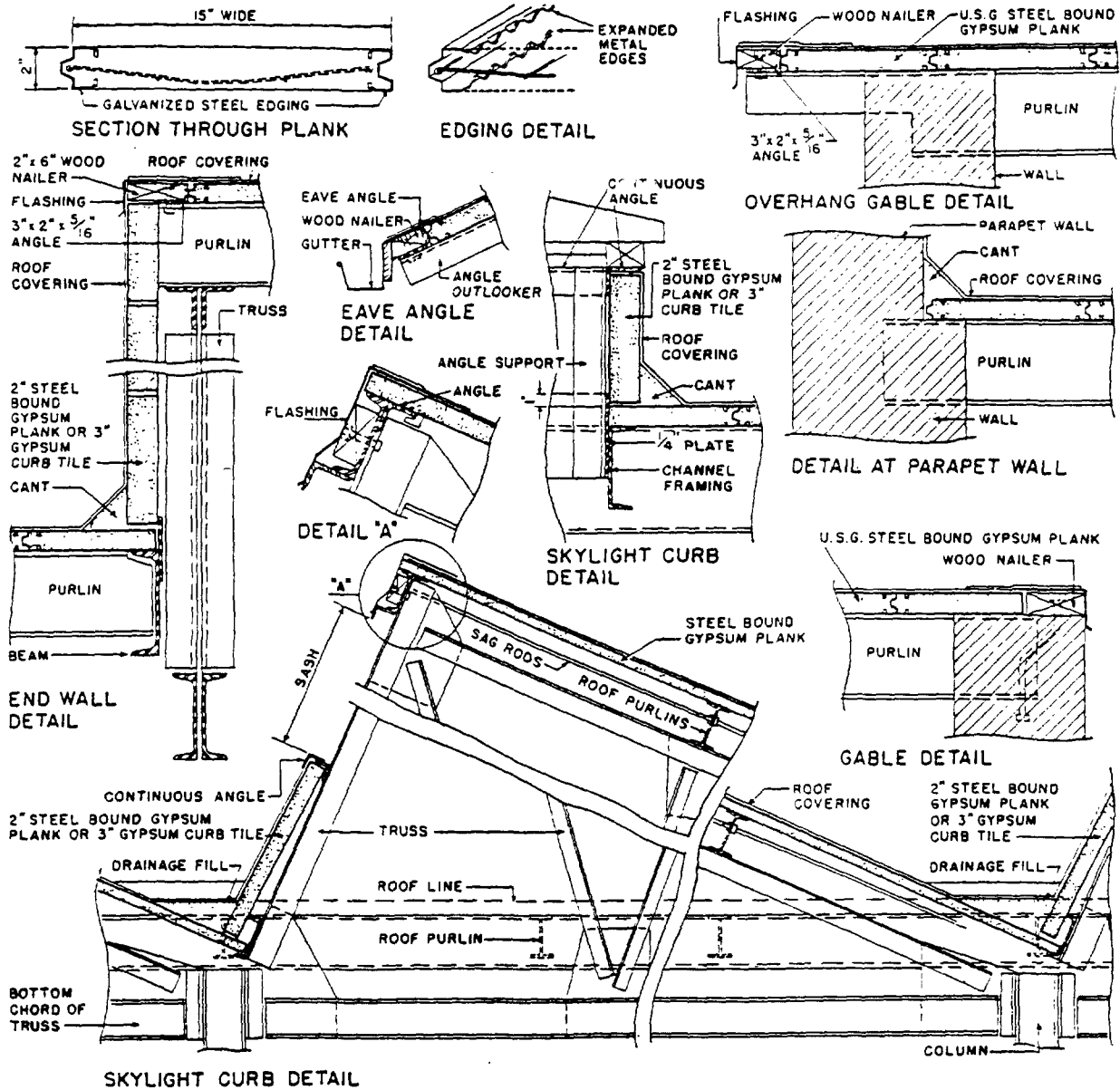


Tongue and groove edges permit USG Gypsum Plank to cantilever. Therefore, ends do not have to meet over supports.



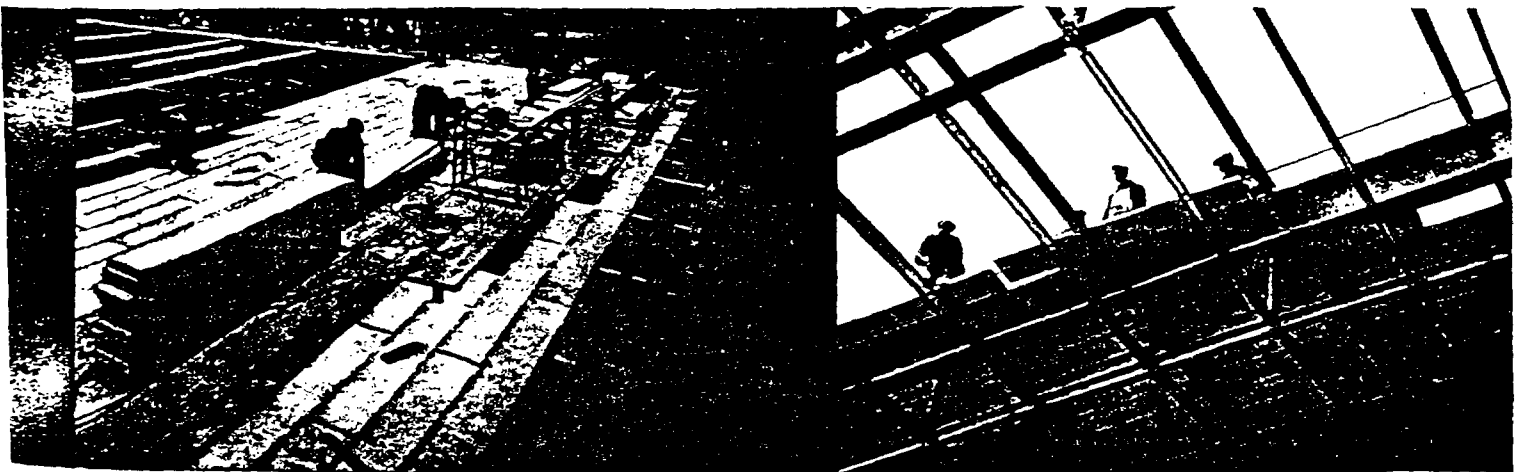
USG Gypsum Plank are anchored to steel supports by galvanized steel clips secured to lower flange of advancing groove.

TYPICAL USG GYPSUM PLANK CONSTRUCTIONS



BB012 2154

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USG Gypsum Plank are economical and easy to erect since they are installed much like wood.

Underside of USG Gypsum Plank roofs presents a neat, trim appearance and is highly light reflective.

40 YEARS OF PROGRESS THROUGH RESEARCH

PYROBAR SHORT SPAN ROOF TILE

These precast tile units are manufactured to form light weight heat insulative, fireproof roof decks which will fit any type of roof framing. They may be erected in any weather, winter or summer.

PYROBAR* SHORT SPAN ROOF TILE

Embodying all of the basic features of gypsum as detailed on page 2, Pyrobar Short Span Roof Tile are laid directly on a system of sub purlins which, in turn, are laid across the main roof purlins.

Economical for plain flat roofs when the areas involved are insufficiently large to utilize the economies of the poured in place Pyrofill™ constructions (page 80). Likewise they make excellent replacements for combustible or corrugated iron decks of existing buildings since the new deck may be laid day by day as the old one is removed.

The easily cut tile will fit difficult roof framing; cut up by hips, valleys, and dormers; of any pitch. Their noteworthy nailing qualities make them the ideal deck construction for ornamental roofs as any type of ornamental roof covering may be nailed directly to them.

Nailing—Ordinary built-up roof covering is applied in accordance with standard practice.

Where slate or ornamental tile roofings are to be nailed directly to the deck, square-cut nails having not less than 1½-in. penetration into the gypsum should be used. When heavy roofings are to be applied on very steep slopes, they should be fastened by bolting through the slab or nailed to wood grounds which are, in turn, secured directly to the roof deck. Because of the great expansion of sheet metal, this type of roofing requires thoroughly rigid fastening and the metal cleats used for such purpose should be spaced not over 8 in. on centers and secured with two nails each.

DESIGN

Tile are made in solid units reinforced with electrically welded galvanized steel mats designed to afford top and bottom reinforcing. Each tile is 3 x 12 x 30 in. in size, weighing 17 lbs. per square foot. The edges are grooved, to form a space for grout. The grooves are so shaped that the grout is "keyed" in place producing the effect of a monolithic deck.

SUB-PURLINS

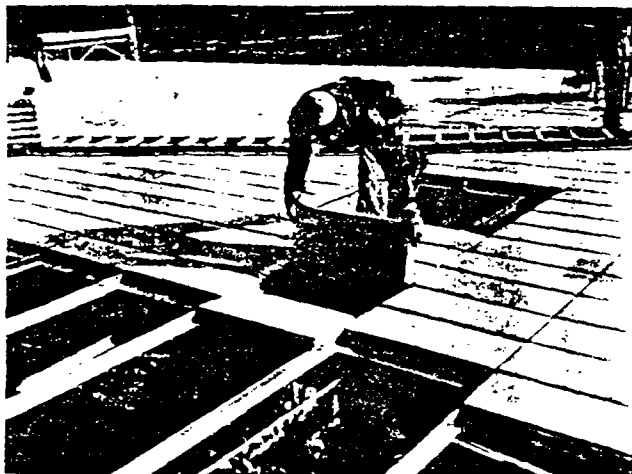
The need for more efficient and economical sub-purlins than the standard has been met by USG engineers who have developed the USG Bulb Tee Section, with greater strength and bearing surface for the tile than standard tees of equal section area and weight.

TEE SIZES AND ALLOWABLE SPANS

Based on 50 lbs. per Sq. Ft. Total Roof Load
Tees Spaced 2 ft. 6¾ in. C. to C. M = 1/10WL

Size of Tee Weight per Foot	Allowable Span		Wt. of Tees lbs. per Sq. Ft. of Roof
	18,000 lbs. per Sq. In. Stress	20,000 lbs. per Sq. In. Stress	
No. 218 USG 2.77 lb. Bulb Tee	7 ft. 5 in.	7 ft. 10 in.	1.08
2½ in. x 2½ in. 5.5 lbs.	7 ft. 8 in.	8 ft. 1 in.	2.15
2½ in. x 3 in. 6.1 lbs.	9 ft. 2 in.	9 ft. 8 in.	2.4
3 in. x 3 in. 6.7 lbs.	9 ft. 4 in.	9 ft. 10 in.	2.61

BB012 2155



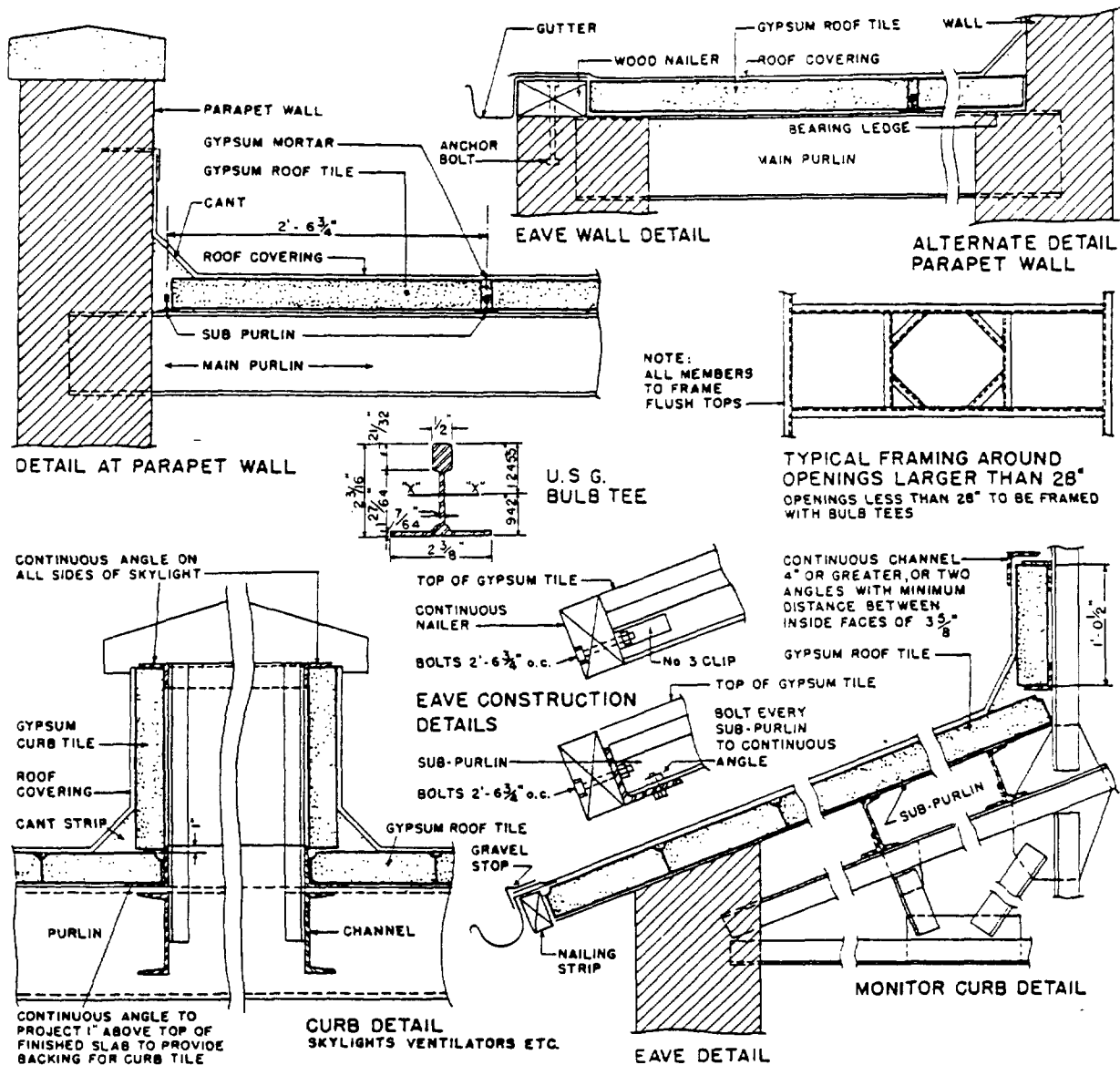
Quick, easy erection results from ease of handling small, light Pyrobar Roof Tile.



Pyrobar Roof Tile are adapted to construction involving steep slopes.

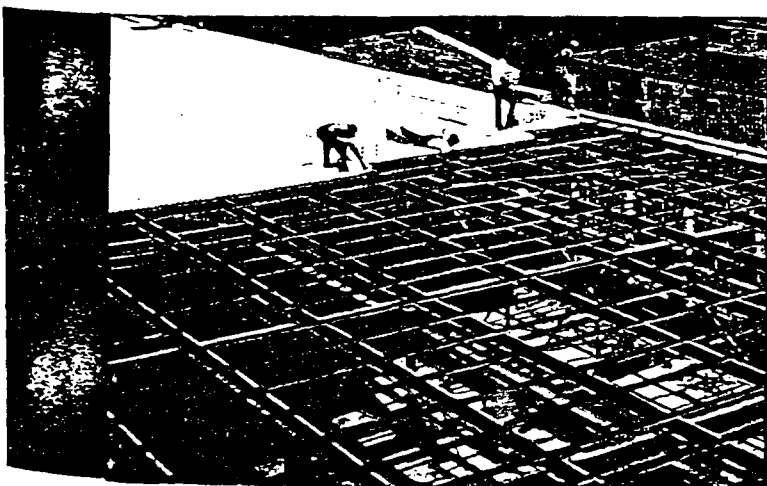
*Reg. Trade Mark

TYPICAL PYROBAR ROOF TILE CONSTRUCTIONS

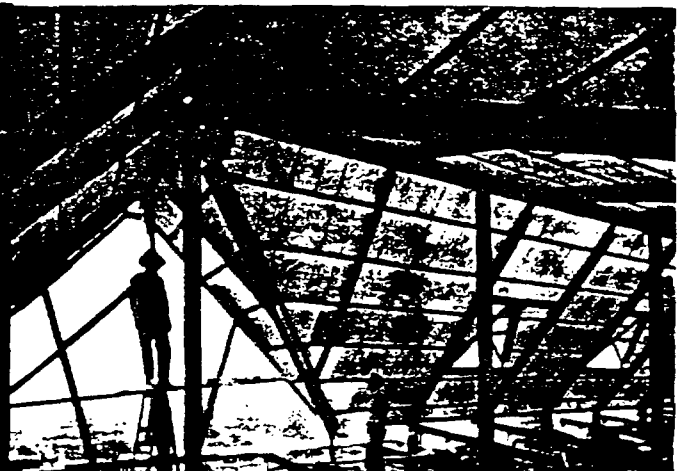


BB012 2156

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Equally adapted to flat as sloping roofs, Pyrobar Roof Tile are being installed here on a long, wide surface.



Underside of roof showing light reflecting quality of Pyrobar Roof Tile.

40 YEARS OF PROGRESS THROUGH RESEARCH

PYROFILL ROOF DECKS

Pyrofill, a quick setting, light weight concrete, made of gypsum stucco, wood fibre and water, is poured over a continuous, electrically welded, galvanized steel fabric onto either a fireproof Sheetrock form or, when additional insulation is required, onto forms made of sound absorbent, insulating Weatherwood. Either form becomes a permanent part of the deck.*

ADVANTAGES

The resulting constructions are light weight (see table below), heat insulating — reducing condensation difficulties; exceptionally strong and durable. The upper surfaces are without joints. The under surfaces present a pleasing panel design.

These roof constructions offer maximum economies where large areas of deck must be erected rapidly and roof pitches do not exceed 45°. On roofs of greater pitch back forming may be necessary.

Sheetrock and Weatherwood are described on pages 48 and 53.

CURBS, WALLS, ETC.

Usually constructed of pre-cast gypsum tile. They may be also poured in place using the Sheetrock-Pyrofill or Weatherwood-Pyrofill construction, if desired.

TYPES OF PYROFILL CONSTRUCTION

Sheetrock-Pyrofill—Undersurface is Sheetrock, fireproof gypsum board, 32 in. wide, in lengths equal to purlin spacing, so that end joints occur over main purlins. Steel sub-purlins of light rails or tee sections are laid at right angles and clipped or welded to main purlins and spaced approximately 32½ in. on centers. Pyrofill construction may be used over light steel beams or bar joists without sub-purlins if steel spacing does not exceed 36 in.

Weatherwood-Pyrofill—Here, 1" Weatherwood, a light weight insulating fibre board, is used for the permanent form. Not as light reflective as Sheetrock, it provides additional insulation (see table page 74) and approximately .45 sound absorption units per square foot of surface.

Other Types—PYROFILL MONOLITHIC CONSTRUCTION differs from the foregoing in that load is carried entirely by small steel wire cables closely spaced, and anchored at both ends by bent strap iron. Temporary wooden forms are used. Forms may also be built around beams and girders to provide monolithic fireproofing for these members at the same time.

PYROFILL EMBEDDED RAIL CONSTRUCTION is similar to Sheetrock-Pyrofill in that standard rail sub-purlins span the purlins, over which fabric is laid. Removable wooden forms are hung not less than ¾ in. below top of purlins. Thus rails are embedded in the Pyrofill and there is an all gypsum under-surface.

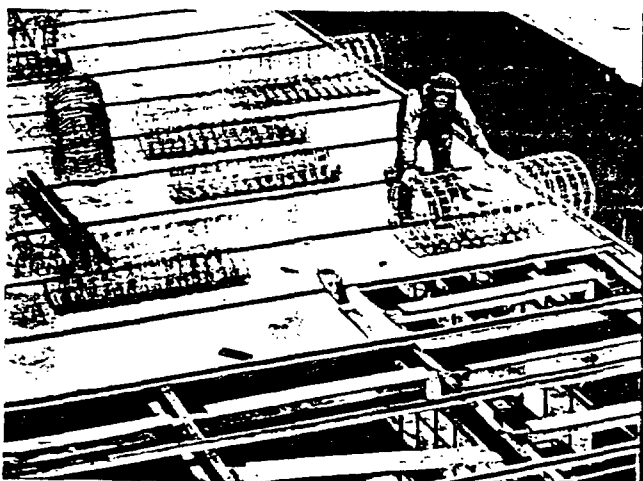
SUB-PURLIN SIZES AND WEIGHTS OF SLABS

Sub-Purlins Spaced 32½" Total Load — 45 Lbs. per Sq. Ft. M = 1/10 WL

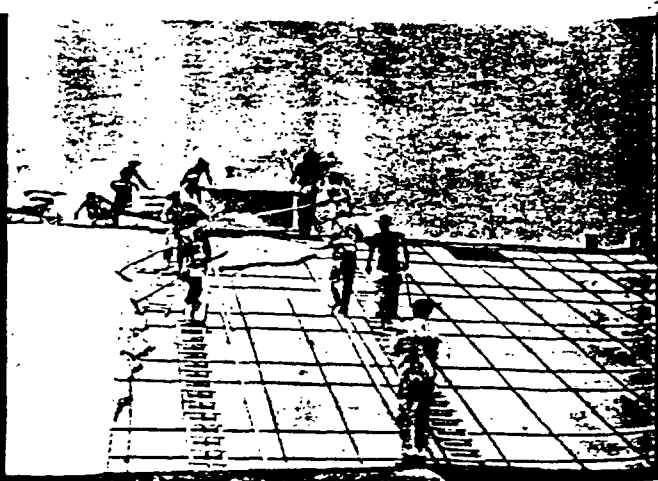
Size of Sub-Purlin (Weight per Yard)	Allowable Span		Weight of Sub-Purlins in lbs. per sq. ft. of Roof	Weight of Slab including Sub-Purlins			
	18,000 lbs. per sq. in. Sub-Purlin Stress	20,000 lbs. per sq. in. Sub-Purlin Stress		Sheetrock Pyrofill		Weatherwood Pyrofill	
				Minimum Slab Thickness ^a	Weight in lbs. per sq. ft.	Min. Slab Thickness ^a	Wt. per sq. ft. in. lbs.
No. 218 USG 8.3-lb. Bulb Tee	7'-7"	8'-0"	1.02	2½"	11.5	3"	10.5
12-lb. Rail	8'-11"	9'-3"	1.5	2½"	12.0	3"	11.0
16-lb. Rail	11'-2"	11'-6"	2	2½"	12.5	3"	11.5
20-lb. Rail	13'-3"	13'-8"	2.5	3"	15.0	3"	12.0

^aTotal slab thickness including Sheetrock or Weatherwood; minimum thickness of Pyrofill 2 in.

*Reg. Trade Mark



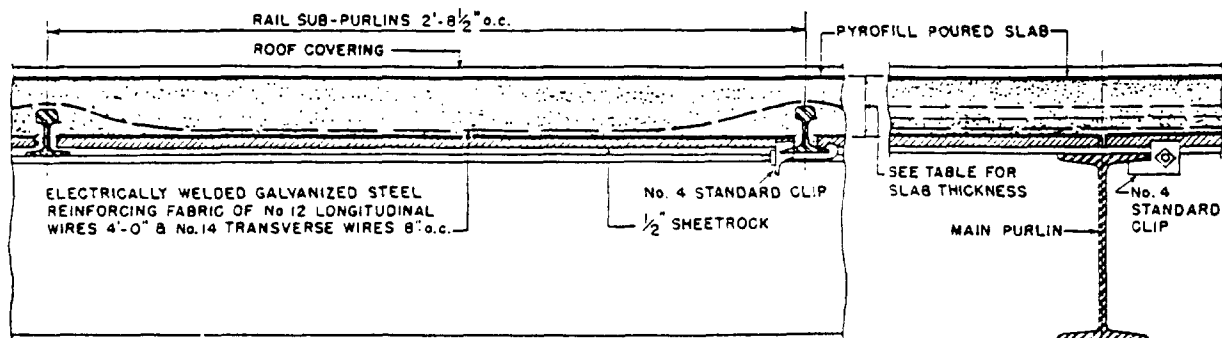
Galvanized steel fabric is laid over permanent Sheetrock or Weatherwood form.



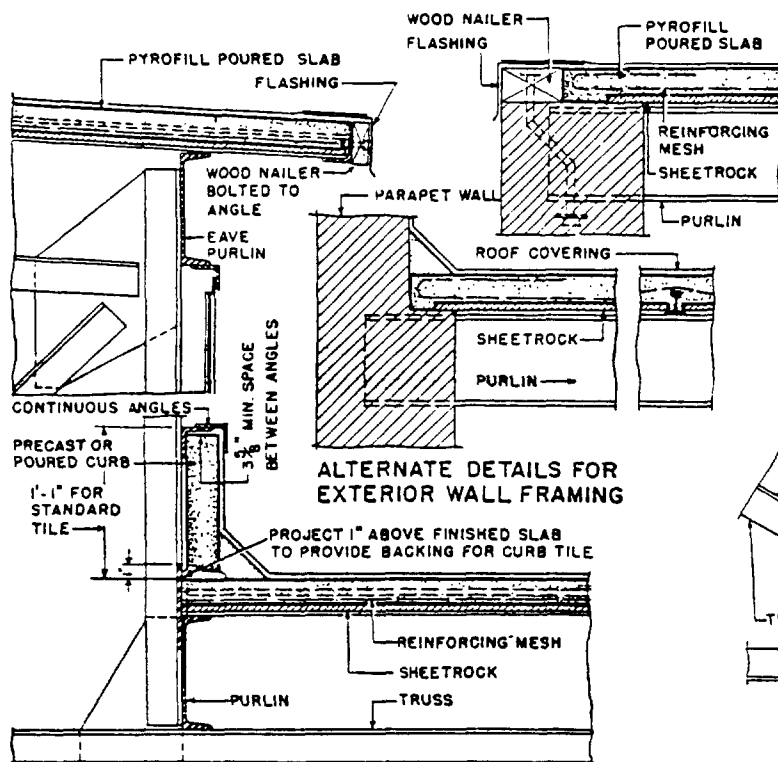
Pyrofill, plastic gypsum material, is poured over fabric and permanent form.

BB012721573

TYPICAL PYROFILL CONSTRUCTIONS

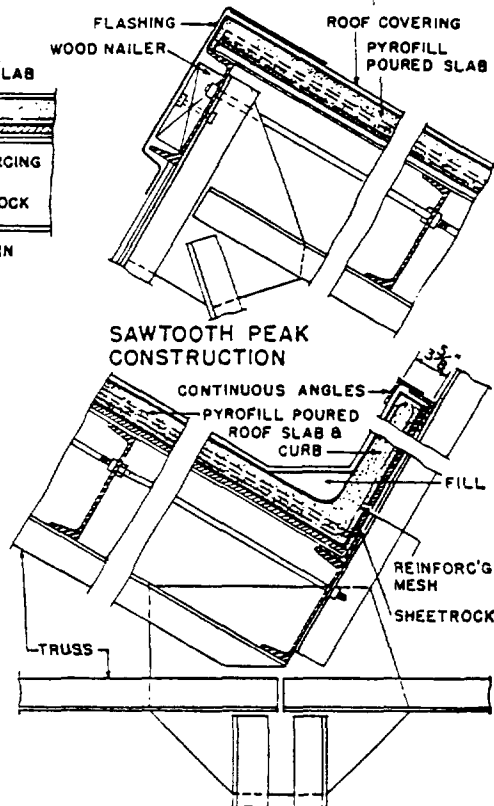


TYPICAL SECTION THROUGH ROOF SLAB



ALTERNATE DETAILS FOR EXTERIOR WALL FRAMING

CURB AND EAVE CONSTRUCTION FOR MONITOR



SAWTOOTH GUTTER CONSTRUCTION

BB012 215B

81



Pyrofill construction is adaptable to any type of steel framing or truss construction.



Underside of Sheetrock Pyrofill roof, illustrating the high light reflection quality of this construction.



STEEL ROOF DECKS

Light weight, preformed, interlocking, galvanized or pre-painted, copper bearing steel units—6 in., 12 in., 18 in. (standard) wide, are clipped directly to the steel framing and covered with Weatherwood Roof Insulation.

ADVANTAGES

High Load Carrying Capacity—Permits wide spacing of purlins reducing the amount of structural steel needed. Added strength and rigidity in the deck plates are provided by stiffening beads between the reinforcing ribs. Long lengths permit continuity over purlins, reducing bending moments, increasing safe loads—see table below, at right.

Rapid-Erection—Deck plates, 18 inches wide, are of convenient size for easy handling. Reinforcing ribs are nested at end laps with minimum effort. Non-piercing attachment clips further facilitate erection. Plates may be welded or clipped to purlins.

DESIGN

Deck plates (standard width 18 in.) in lengths from 4 ft. 0 in. to 25 ft. 0 in. (see table this page) are rolled from 22 ga., 20 ga., or 18 ga. copper bearing steel and weigh 2.0 lbs., 2.4 lbs., and 3.2 lbs. per square foot respectively. The exclusive rolling process eliminates internal stresses in the plates, reducing the possibility of cracks, ruptures, etc. The design makes ample provision for expansion and contraction.

The combination of great strength and extreme lightness is secured through the use of deep (1½-in.) ribs as the "stem" of a "T" beam design, in which the flanges are reinforced by exclusive stiffening beads. The ribs are spaced 6 in. on centers and narrowed slightly at one end to make them nest snugly with those of the next unit.

Sides of the deck plates interlock. There is a depending full straight flange on one side of each plate and a channel flange on the other side, into which the straight flange of the adjacent plate fits.

Painting—Except when made of galvanized steel, all plates are painted a semi-gloss light gray to provide good light reflection and further protect the steel against corrosion.

INSULATION

The application of insulation over steel roof decks is recommended. Not only will the cost of heating equipment and the amount of fuel required be less than in an uninsulated building, but the insulation will tend to control condensation, thereby protecting materials, machinery and the deck itself.

On steep slopes the RD-4 intermediate interlocking clip, exclusive USG feature, is used to secure the insulation. Any standard composition roofing may be applied over the Weatherwood Insulation Board.

Thermal Conductivity of Steel Deck—In B.t.u. per hour per square foot per degree difference temperature is given in the table below. The calculations include the insulation effect of five ply roofing. Detailed information on Weatherwood is provided on page 48.

USG Steel Deck—No insulation	0.95
USG Steel Deck—Weatherwood ½ in. Insulation Board	0.39
USG Steel Deck—Weatherwood 1 in. Insulation Board	0.25
USG Steel Deck—Weatherwood 1½ in. Insulation Board	0.18

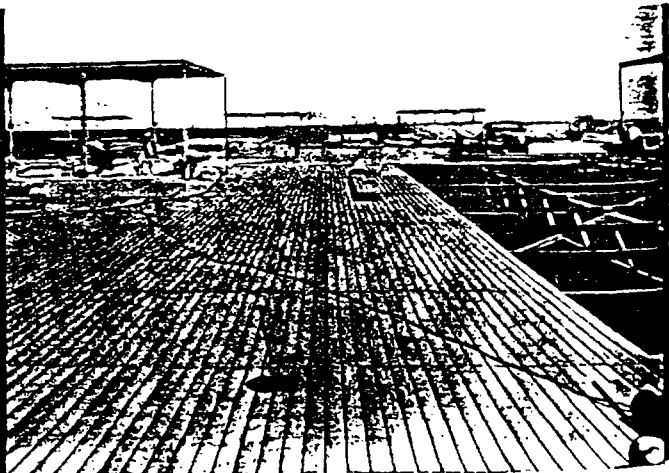
SAFE LIVE LOADS IN LBS. PER SQUARE FOOT

Gauge	Bending Moment	Purlin Spacing							
		4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	7'-6"
22	WL 3	93	66	53	44				
	WL 10	105	84	67	56	46	39		
20	WL 8			91	67	56	48	41	
	WL 10			102	85	71	61	52	44
18	WL 3					71	60	52	45
	WL 10					90	76	66	57

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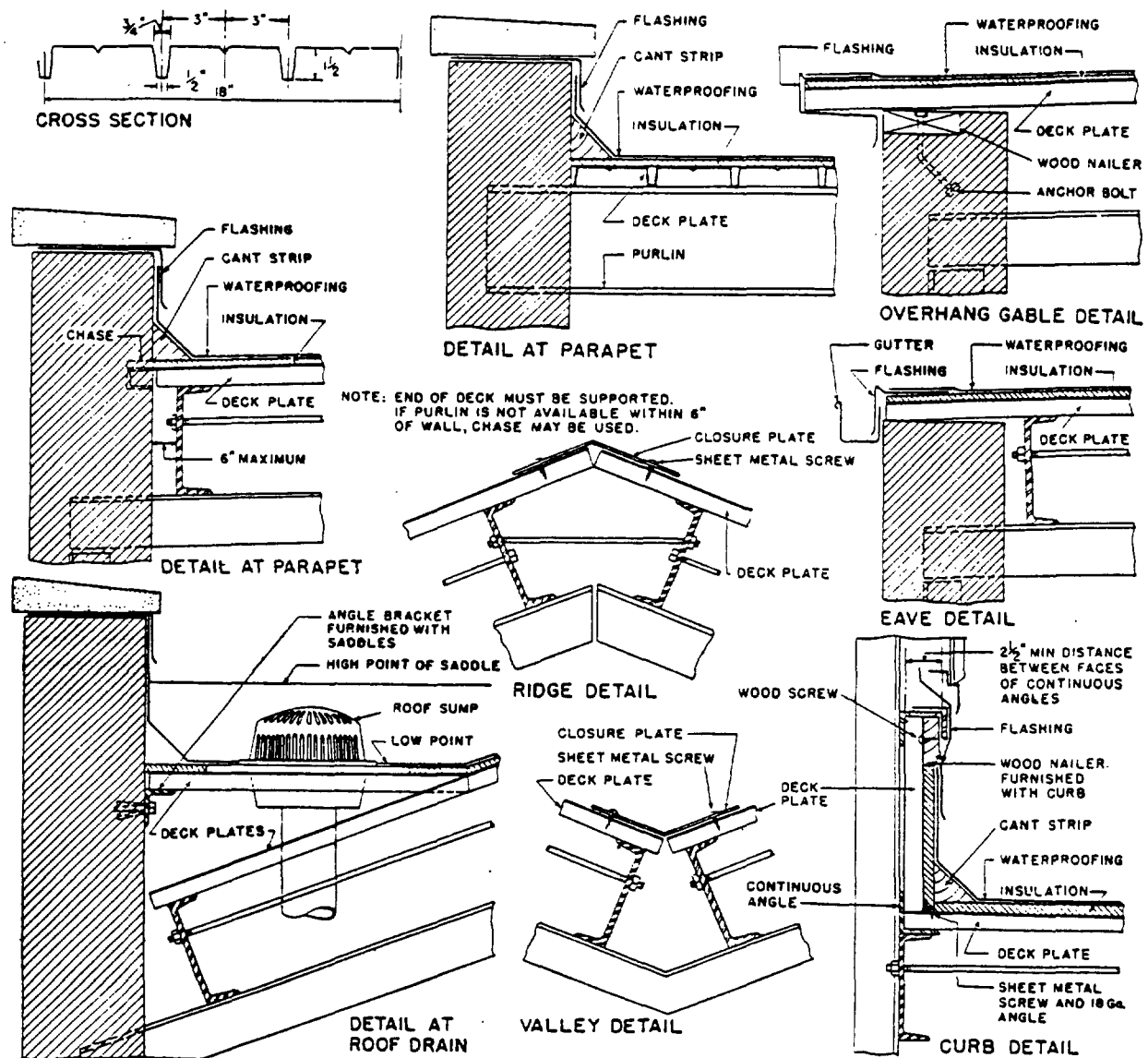


USG Steel Decks look well from within.



USG Steel Decks are equally useful in large and small buildings.

TYPICAL STEEL DECK CONSTRUCTIONS



BB012 2160

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Illustrates high light reflection quality of USG Steel Deck Plates.
The Austin Company, Engineers & Builders.



Studebaker Aircraft Plant, South Bend, Ind.
Giffels & Vallet, Architects, Detroit, Mich.

40 YEARS OF PROGRESS THROUGH RESEARCH



SOUND CONTROL SERVICE

WHERE TO USE SOUND ABSORBENTS

Structure	Where	Why
Business buildings	Corridor ceilings Ceilings of offices Ceilings of stores, show	Stops "speaking tube" effect of corridors Reduces noise level and clerical errors Lends dignity and increases sales
Schools	Corridor ceilings Classrooms Swimming pools Auditoriums Libraries Gymnasiums	Ends distraction from corridor noise and noise from other rooms Reduces noise level and betters speech audition Reduces noise level Corrects reverberation time, creates better audition for speech and music Maintains quiet Maintains quiet
Hotels, Clubs, Restaurants, etc.	Corridor ceilings Public rooms, ball rooms Dining rooms	Quiet for guest rooms Quiet. Better audition for speech and music Quiet
Churches	Auditoriums Sunday School rooms Lobbies, corridors	Good acoustics for speech and music Good audition. Quiet Quiet
Auditoriums, Sports Arenas, Theaters	Ceilings Lobbies Ceilings, walls Lobby ceilings	Controls reverberation, produces good hearing Quiet Good acoustics for speech, music and "talkies" Quiet
Hospitals	Corridor ceilings Wards, diet kitchens Lobbies, delivery rooms Nurseries	Prevents noise travel through corridors to annoy patients Quiet Quiet Quiet
Factories	Main room in noisy processes Test rooms Infirmeries Shop offices	Better working conditions, less accidents Quiet Quiet Quiet

MEMBER OF



WHEN YOU NEED ENGINEERING ASSISTANCE

USG Acoustical Engineers and those of USG District Sound Control Contractors are quickly available; their services are free. Their advice, if sought before plans are completed, will effect maximum economy and acoustic excellence. Since USG manufactures all types of sound absorptive materials, their advice in

selection of the best types for a specific purpose is based on experience and good acoustical practice and not biased by commercial necessity. They are also available for the proper solution of acoustical difficulties in existing buildings. See list on back cover.



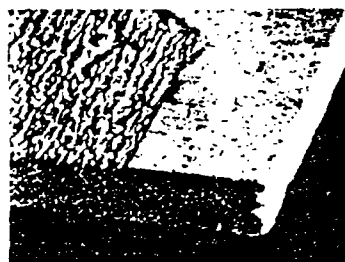
MOTIF'D ACOUSTONE

Motif'd Acoustone is standard Acoustone with a permanent, integral decoration which produces architecturally correct ceiling patterns in wide variety of type, motif and scale. The ceiling designs may be composed entirely of tile in one pattern or of tile in two complementary patterns, used in blocks of four. Slightly more expensive than Acoustone. Special designs by architects will be executed to order. Typical tiles are shown here and

on the opposite page with the ceiling pattern beside the respective tile.

All of the acoustical values, thicknesses, etc., paintability and fireproofness of regular Acoustone (see page 86) are preserved in Motif'd Acoustone. The patterns are produced by etching parallel lines on the tile in either one direction or two directions at right angles.

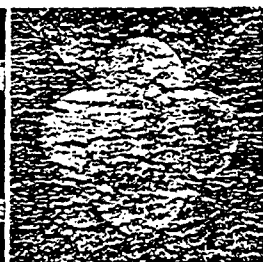
84



Note Serrated Edge



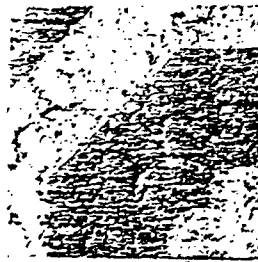
Easy to Apply



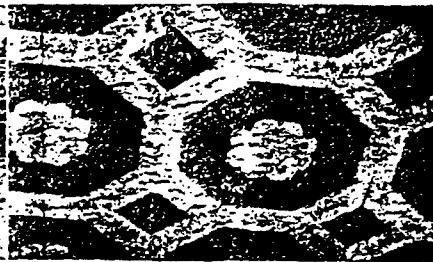
Design 5



Tile and Pattern



Design 10-RL Tile and Pattern



Design 11-RL Tile and Pattern



*Reg. Trade Mark

UNITED STATES GYPSUM COMPANY

BB012 2161

GUIDE TO THE SELECTION OF USG SOUND CONTROL MATERIALS

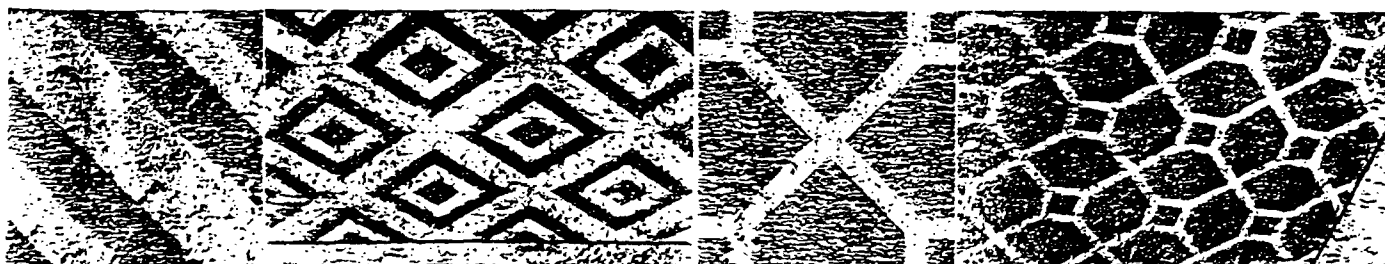
Material	Type	Thickness	Noise Reduction Coefficient	Fireproof Rating	Paintability	Cleanability	Relative Cost ^a	Pages
ACOUSTONE AND MOTIF'D ACOUSTONE	Mineral Wool Fibre Tile	$\frac{3}{8}$ in.	.60	Incombustible	Good	Good	V	86 and 87
		$\frac{1}{2}$ in.	.65	Incombustible	Good	Good	VI	86 and 87
		$\frac{5}{8}$ in.	.70	Incombustible	Good	Good	VII	86 and 87
		$\frac{3}{4}$ in.	.75	Incombustible	Good	Good	VIII	86 and 87
PERFATONE	Metal Facing; Absorbent Wool Pad	2½ in. Standard	.85	Incombustible	Good	Good	IX	86 and 87
		2½ in. "50-50"†	.65	Incombustible	Good	Good	VII	86 and 87
QUIETONE	Wood Fibre Tile	½ in.	.55	Combustible	Fair	Fair	III	88 and 89
		1 in.	.75	Combustible	Fair	Fair	IV	88 and 89
SABINITE	Acoustical Plaster	½ in. Type F	.50	Incombustible	Fair	Fair	I	88 and 89
		¾ in. Type F	.60	Incombustible	Fair	Fair	II	88 and 89
		½ in. Type M	.55	Incombustible	Fair	Fair	I	88 and 89
		¾ in. Type M	.65	Incombustible	Fair	Fair	II	88 and 89
		½ in. Type 38	.50	Incombustible	Fair	Fair	II	88 and 89

* "I" indicates least expensive; "II" indicates more expensive than "I," etc.

** Properties of Motif'd Acoustone are the same as for Acoustone.

† Half of the tile are unperforated and without pads. The other half are standard.

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Design 12-RL Tile and Pattern

Design 16 Tile and Pattern

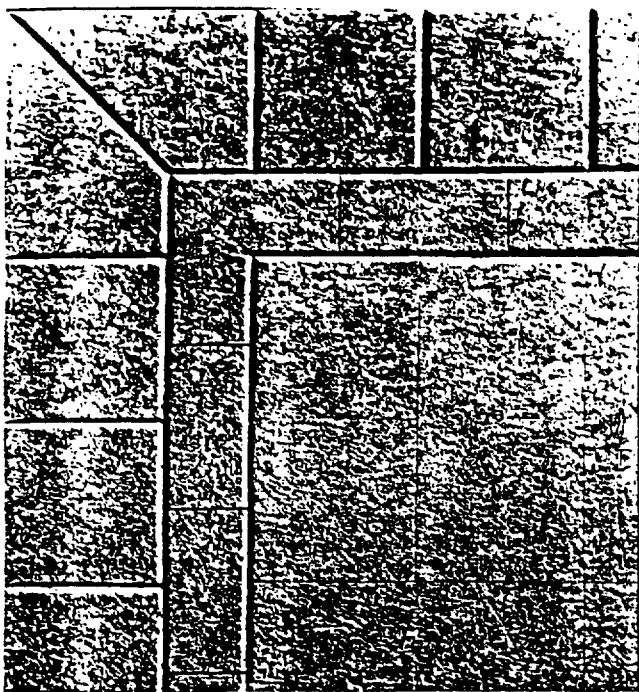


Design 17-RL Tile and Pattern

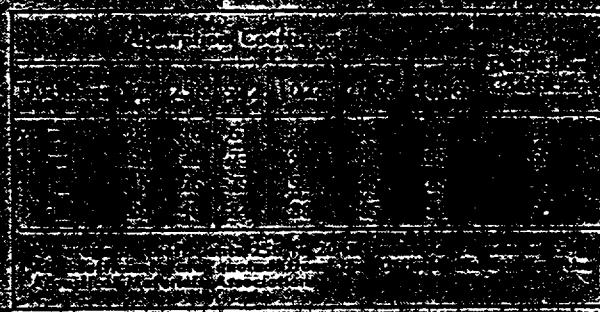
Design 18-RL Tile and Pattern

BB012 2162

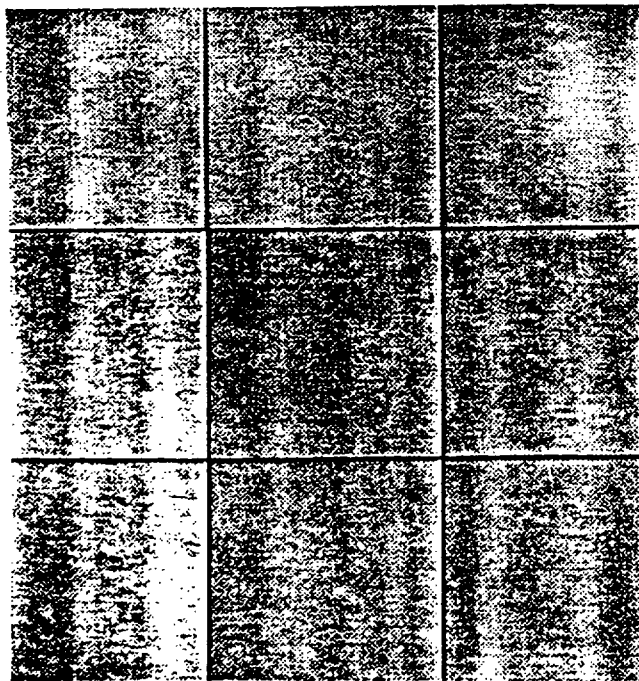
U.S. ACOUSTONE



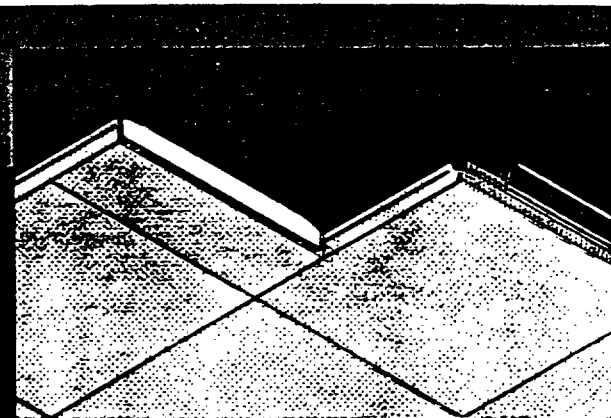
Cemented to surface or suspended by grille. Metal splines assure surface alignment when tile are cemented.



U.S. PERFATONE



Metal pans are snapped into position and held firmly between special tee runners.



Made of processed mineral filaments, Acoustone is a sound absorbent tile, with either a $\frac{1}{8}$ -in. bevel or with plain edges so accurately formed that joints between tiles are scarcely discernible. Acoustone,² then, may be unobtrusively included in a decorative scheme or used to obtain decorative patterns.

ADVANTAGES

Acoustone will not burn nor support combustion. Unpainted, white Acoustone reflects 70% of light striking it—mill-painted, 83%. May be installed in connection with recessed fluorescent lighting. Repeated painting does not lessen its sound absorption. Unpainted tile are easily cleaned with a vacuum cleaner. Acoustone installations are as permanent as the building.

TEXTURE

Resembles Travertine marble. No two tile are exactly alike in texture, since the texture is a concomitant of the manufacturing process and is not secured by moulding or stamping.

COLORS

White, ivory and cream, integrally tinted throughout the entire tile substance. Other special colors are obtained by field painting. Mill painted Acoustone in white or ivory are available.

SIZES

Tiles are regularly made in 12 x 12-in., 6 x 12-in. and 9 x 18-in. sizes, in $\frac{1}{16}$ -in., $\frac{1}{8}$ -in., $\frac{3}{16}$ -in. and $\frac{1}{2}$ -in. thicknesses.



Acoustone, Stouffer's Restaurant
42nd Street at Park Avenue, New York City, N. Y.

In Perfatone[®] a perforated metal tile conceals a sound absorbent pad. This sound absorbent pad of mineral wool, manufactured to exacting standards designed to maintain published absorption coefficients, is completely enclosed in a flameproof membrane which keeps dirt and dust out of the absorbent. Tile edges are beveled and returned vertically to be held securely by special tee runners. Perforations, comprising only 14% of the surface, are small enough to blend into the tile coloration. Surface finish is baked enamel.

ADVANTAGES

The metal units and mineral wool pads are incombustible. Pad wrappings are flameproofed. The enameled metal surface may be washed repeatedly or repainted many times, without affecting the sound absorbing qualities. The enamel finish has high light reflective properties. Perfatone may be adapted to recessed fluorescent lighting installations.

COLORS

Ivory and white.

SIZES

Units are 12 x 24-in. with a center groove which gives the effect of 12 x 12-in. units.

Perfaboard and Perfabestos—When sound absorbing materials are to be exposed to severe abrasion, Perfaboard (perforated hardboard) or Perfabestos (perforated asbestos board), are recommended for their wear-resisting qualities. These are attached to furring strips and backed with sound-absorbing pads.

²Reg. Trade Mark

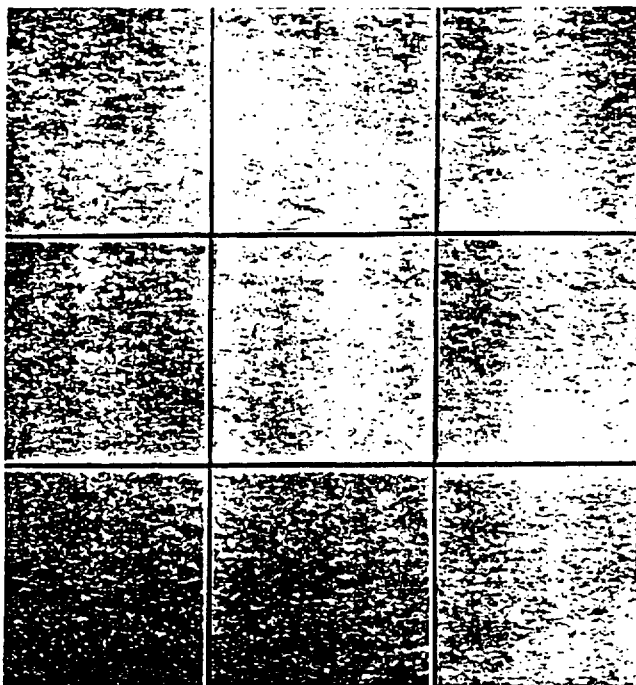


Perfatone combines well with fluorescent lighting.
Prudential Life Insurance Co., Richmond, Va.
Architect: Marcellus Wright & Sons, Richmond, Va.

BB012 2164

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U.S. QUIETONE



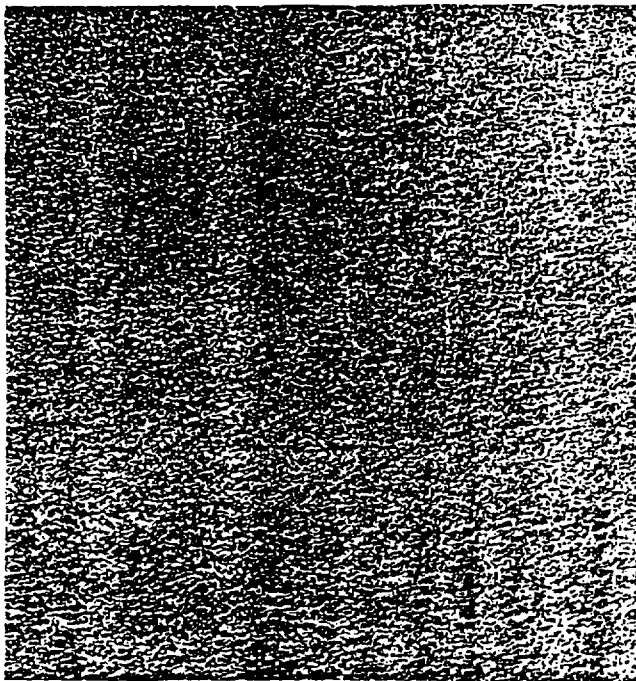
Applied with plastic cement directly to any clean, level surface.



Thickness	Absorption Coefficient						Sound Reflection Coefficient
	128	256	512	1024	2048	4096	
1/2"	10	22	35	51	65	85	55
1"	18	28	42	62	78	92	65

Overtones of coefficient 128 to 2048.
Absorption coefficient based on 1000 cycles/sec. sound waves.
All coefficients are quoted from the OFFICIAL Bulletin of the
Acoustical Materials Association.

U.S. SABINITE



Applied with ordinary plasterers' tools like any standard plaster finish.



Thickness	Absorption Coefficient						Sound Reflection Coefficient
	128	256	512	1024	2048	4096	
1/2"	10	22	35	51	65	85	55
1"	18	28	42	62	78	92	65

Overtones of coefficient 128 to 2048.
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Acoustical Materials Association.

Economical, decorative wood fibre tile, made by a unit felting process which results in a tile of high acoustical value. It should not be confused with wood fibre tile used for thermal insulation. Surface is free from puncturing and other surface oddities not uncommon in acoustical materials. Colors ground in oil or japan, reduced with mineral spirits, may be sprayed on Quietone.*

ADVANTAGES

Inexpensive application and low material cost recommend Quietone for economical installations. It classes among the high efficiency sound absorbents, having a high uniform absorption from normal voice frequencies up through the higher pitched noise frequencies.

TEXTURES AND COLORS

Standard textures in sanded or brushed surfaces. The former is light ivory and the latter, light buff. Either texture may be mill tinted in white or the following pastel shades: rose, cream, blue, buff and green.

SIZES

Quietone Acoustical Tile units are 12 x 12-in., and are made both ½ and 1-in. thick.



Quietone ceiling, Ford Motor Co. Exhibit, -
1940 San Francisco World's Fair.

Sabinite* Acoustical Plaster combines the features of standard plaster finish with very good sound absorbing qualities. It is a mixture of light weight aggregate, gypsum plaster or Portland cement, and special ingredients, proportioned to produce a sound absorbent structure when applied to brown coat plaster.

ADVANTAGES

In new construction Sabinite provides full acoustical correction at much lower cost than is entailed when sound absorbents are applied in completed structures.

Sabinite is economical. It is mixed in the mortar box with water only and applied with ordinary plastering tools. Application to various thicknesses obtains desired degrees of acoustical correction. Sabinite is tinted or spray painted after application without loss of efficiency. It is sanitary and vermin-proof.

VARIETIES

There are three varieties: Sabinite F; M; and 38, F and M are used over gypsum plaster bases; Sabinite 38, over Portland cement or Oriental Exterior Stucco bases in high humidity environments. Sabinite M, has higher noise absorption characteristics and a finer texture.

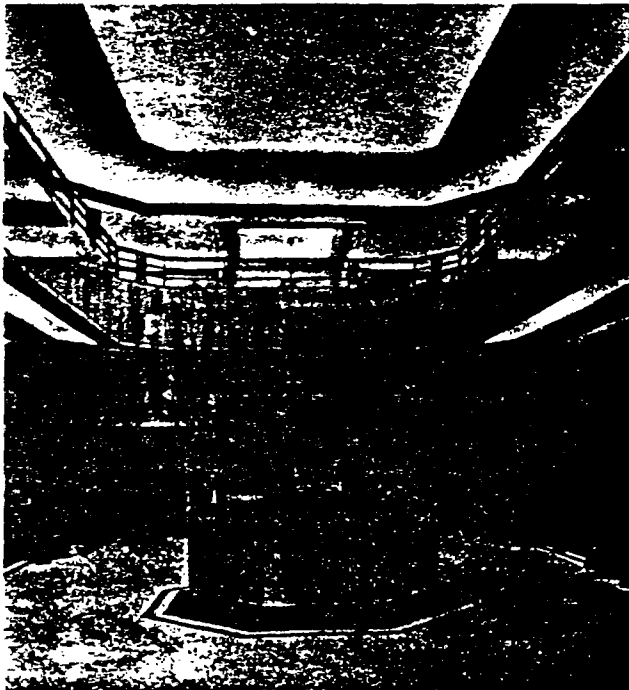
TEXTURE

Similar to sand float finish.

COLORS

Ecu, ivory, cream, buff, white.

*Reg. Trade Mark



Sabinite ceiling, lobby of Hershey Chocolate Corp., Hershey, Pa.
Architect: Paul Witmer, Hershey, Pa.

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