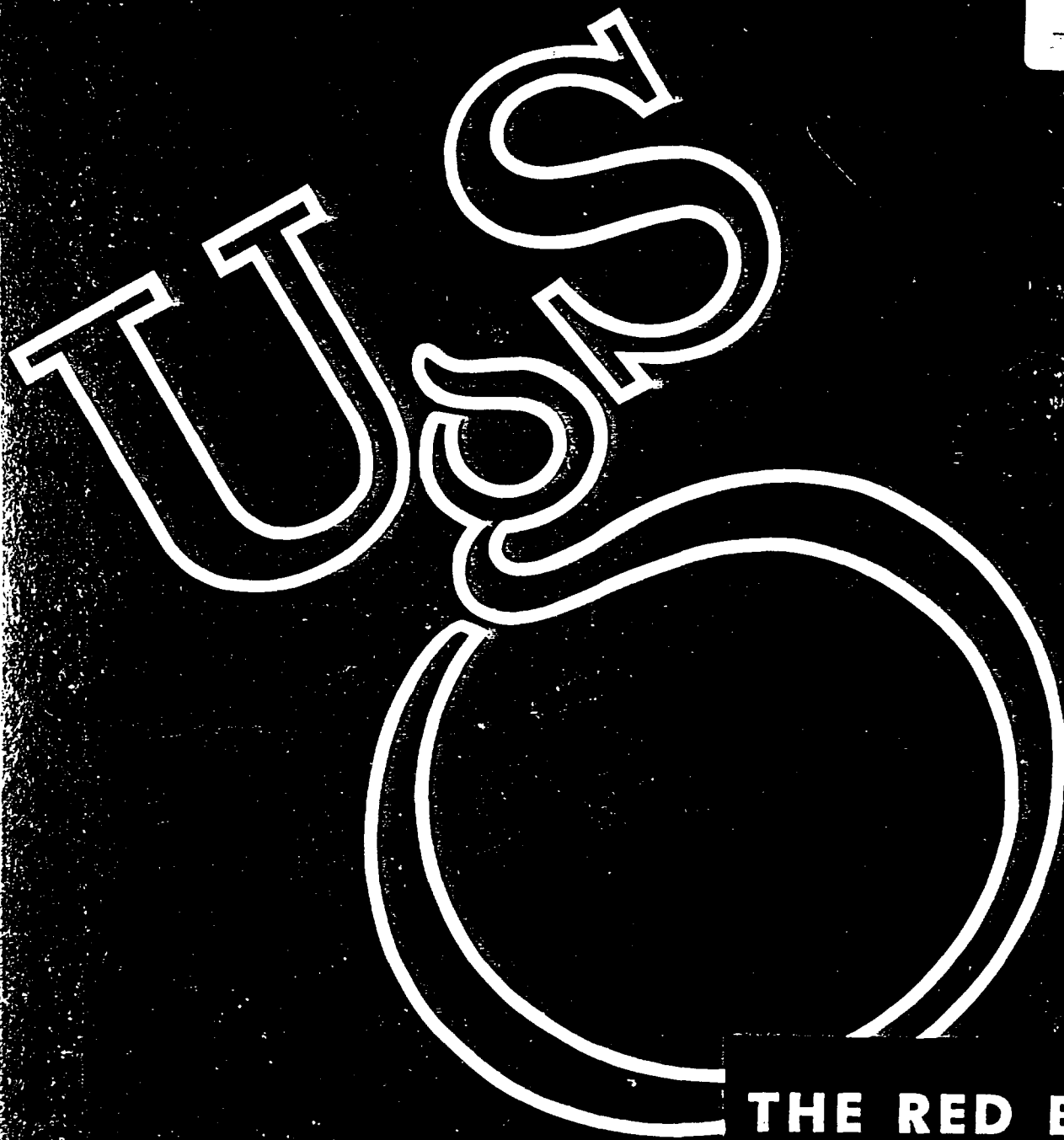


PLAINTIFF'S EXHIBIT

USG-2022



**THE RED BOOK
ARCHITECTS' EDITION**

**UNITED STATES
GYPSUM COMPANY**

BB018 1464

HISTORICAL FILE

Franklin D. Roosevelt

Received 1941

DO NOT DESTROY

A Catalog of
BUILDING MATERIALS

Manufactured by
**UNITED STATES
GYPSUM COMPANY**

Architects' Edition



REPRINTED FROM SWEET'S CATALOG FILE
WITH SOME ADDITIONAL MATTER

	PAGE NO.
A	
Acoustical Materials and Services	66
Acoustone	68
Advantages of Gypsum in Building Construction	2
American Standards Specifications for Lathing and Plastering	22
Aridize Moulding Plaster	21
Asbestos-Cement Roofing and Siding	48
Asphalt Roofing	46
Assemblies (Walls, Partitions and Ceilings), Index to	3
B	
Basecoats (Plaster)	20
Beam and Column Fireproofing	38
Brick Mortar	40
Bridjoint System of Applying Rocklath	13
C	
Calcimine	54
Ceiling Assemblies	6
Cementico (Masonry Paint)	52, 55
Cement Plaster	20
Cold Water Paints and Calmimine	54
Colors—Limeproof	55
Column Fireproofing	38
Concrete—Lime for	40
Covering Capacity—Oriental Stucco	28
Covering Capacities of Plasters	20
D	
Duracal Paint	52, 54
E	
Expanded Metals	50
Exterior Wall Assemblies—Inner Face (Masonry)	10
Exterior Wall Assemblies—Inner Face (Wood Studs)	8
Exterior Wall Assemblies—Outer Face Masonry—Wood Studs	11
F	
Finishing Lime	21
Finishing Plaster	21
Fireproofing, Pyrobar Gypsum	38
Fireproof Ceiling Assemblies	7
Fireproof Partition Assemblies	5
Flat Paint	52
Floor Construction	56
Freflote Method of Applying Rocklath	13
Freflote Bridjoint Method	13
Furniture, Expanded Metal in	50
G	
Gauging Plaster	21
Grain Board, Sheetrock	34
Guide for Selection of Paint Products	54
for Selection of Partitions	3
for Selection of Roof Decks	57
for Selection of Sound Control Materials	67
Gyplap Sheathing	31
Gypsum Plank (USG)	58
Gypsum Plasters	20
Gypsum—The Source of Many Utilities	2
I	
Index to Wall, Partition and Ceiling Assemblies	3
Insulating Rocklath	12, 42
Insulating Wool, Red Top	44
Insulation, Structural	42
Insulation, Weatherwood	32, 42
K	
Kal (Kalsomine)	54
Keene's Cement	21
L	
Limeproof Colors	55
Lime, Finishing	21
Lime, Masons	40
M	
Machine Guards	50
Masonry Mortar	40
Masonry Paint	52, 55
Mason's Lime	40
Metal, Expanded	50
Metal Lath	14
Moulding Plaster	21

	PAGE NO.
O Oriental Interior Finish.....	21
Oriental Stucco.....	28
P Paint.....	52
Painter's Plaster.....	55
Partition Assemblies, Interior.....	4
Partitions, Expanded Steel.....	50
Perfatone.....	68
Patching Plaster.....	55
Plank, Gypsum.....	58
Plank, Weatherwood.....	32, 42
Plaster, Finishing.....	21
Gypsum.....	20
Patching.....	55
Prepared Plaster.....	20
Primer (K-Cemo).....	55
Pulp Plaster (Wood Fibre).....	20
Pyrobar Partition, Fireproofing and Furring Tile.....	38
Pyrobar Roof Tile.....	60
Pyrofill Roof Deck.....	62
Q Quietone.....	70
R Reflective Insulation.....	42
Research and Control.....	2
Resilient Plastering System.....	16
Rocklath.....	12
Roof Decks.....	56
Guide for Selection.....	57
Roofing, Asbestos Cement.....	48
S Sabinite Acoustical Plaster.....	70
Sanded Plaster (Prepared).....	20
Sand (Specification).....	27
Sheathing, Gyplap.....	31
Weatherwood.....	42
Sheetrock Grain Board.....	34
Wallboard.....	30
Tile Board.....	37
Shingles—Asbestos Cement.....	48
Shingles—Asphalt.....	46
Siding, Asbestos Cement.....	48
Sound Control Service.....	66
Spackling Compound.....	55
Specifications—Lathing and Plastering.....	22
Sand.....	27
Steel Partitions.....	50
Steel Roof Decks.....	64
Structural Insulation.....	42
Stucco, Exterior.....	28
T Texolite.....	52
Textone.....	54
Texture Paint.....	54
Tile Board—Sheetrock.....	37
Weatherwood Hardboard.....	36
Tile—Weatherwood.....	32, 42
Trussteel Studs.....	18
W Wallboards—Sheetrock.....	30
Grain Board.....	34
Tile Board.....	37
Weatherwood.....	32
Weatherwood Hardboard.....	36
Weatherwood—Hardboard.....	36
Plaster Base.....	42
Sheathing.....	42
Tile and Plank.....	32, 42
Wall Plasters.....	20
Window Guards.....	50
Wood Fibre Plasters.....	20
Wool, Insulating (Red Top).....	44

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 20,000 square feet of laboratories and staffed by over 50 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.

INTERIOR PARTITION ASSEMBLIES Wood Frame Partition Assemblies and Inboard Partition Assemblies	4 and 5
CEILING ASSEMBLIES Inboard Ceiling Assemblies	6 and 7
EXTERIOR WALL ASSEMBLIES Inboard Exterior Wall Assemblies Masonry Construction	8-11

ROCK LATH	12 and 13
METAL LATH	14 and 15
RESILIENT PLASTERING SYSTEMS	16 and 17
TRUSSTEEL STUDS	18 and 19
GYPSUM PLASTERS	20 and 21
AMERICAN STANDARD SPECIFICATIONS <i>Courtesy American Standards Association</i>	22-27
ORIENTAL STUCCO AND ORIENTAL INTERIOR FINISH	28 and 29
WALLBOARDS	30
GYPSUM SHEATHING	31

HOW TO USE THIS GUIDE...

In the following pages there are tables of material assemblies which produce a wide variety of partitions, ceilings and exterior walls, with relative costs (See notes Page 5) and data by which architects can quickly select constructions suitable for any building or requirement. The sketch in the left hand column describes the construction and lists the pages in this catalog where each element is described in greater detail.

For your convenience in specifying, each assembly has a "Type Number." Add to this the "Type Number" of the plaster and finish (if required) which will be found with the description of each plaster and finish on Pages 20 and 21.

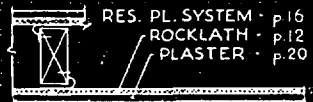
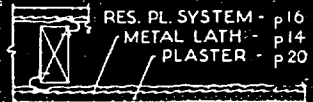
The specification will then read, "United States Gypsum Company's Type No.—, installation in full conformance with the Standard Specifications of the American Standards Association," for plaster constructions; or, "United States Gypsum Company's Type No.—, installation in full conformance with the specifications and directions of the manufacturer," for pre-cast wall construction.

For American Standards Association's Standard Specifications for lathing and plastering see Page 22.



INTERIOR PARTITION ASSEMBLIES

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

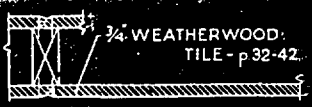
	Thick- ness (In.)	Wt./sq. ft. Complete	Fire Resistance Both Sides (Minutes)	Specific Advantages	Average Sound Trans- mission Loss Across Frequency Range ²⁰	Suggested Decoration	Relative Cost ²¹	Type No.
 WOOD LATH- PLASTER - p 20	5¾	13.8 lbs.	30		35.7	Texolite, other paint or paper	II	P1
 ROCK LATH- PLASTER - p 12 p 20	5¾	12.8 lbs.	55	Added fire protection	39.0	Texolite, other paint or paper	II	P2
 PERF. ROCK LATH- PLASTER - p 12 p 20	5¾	12.8 lbs.	1 hr.	Maximum fire pro- tection at low cost	39.0	Texolite, other paint or paper	II	P3
 DIAMOND MESH METAL LATH- PLASTER - p 14 p 20	5¾	15.9 lbs.	1 hr.	Fireproof; resists crack-producing distortions	38.1	Texolite, other paint or paper	VIII	P4
 Z-RIB METAL LATH- PLASTER - p 14 p 20	5¾	15.9 lbs.	1 hr.	Fireproof; resists crack-producing distortions	38.1	Texolite, other paint or paper	VIII	P5
 RES. PL. SYSTEM - p 16 ROCK LATH - p 12 PLASTER - p 20	6¾	12.8 lbs.	No test	Excellent crack resistance	51.9	Texolite, other paint or paper	IX	P6
 RES. PL. SYSTEM - p 16 METAL LATH - p 14 PLASTER - p 20	6¾	16.0 lbs.	No test	Combines resilient principle with known values of metal lath	No test	Texolite, other paint or paper	XIII	P7
 ¾" SHEETROCK - p 30 (PERF-A-TAPE)	4¾	4.8 lbs.	24 ½	Fire resistive dry wall with con- cealed joints	No test	Texolite, other paint or paper	III	P8
 ½" SHEETROCK - p 30 (PERF-A-TAPE)	4¾	5.8 lbs.	41 ½	Heavier than P8	No test	Texolite, other paint or paper	IV	P9
 SHEETROCK GRAIN BOARDS - p 34-42 (DECORATED MOULDING)	4¾	4.8 lbs.	24 ½	Beauty of natural wood paneling	No test	Self-decorating	XII	P10
 SHEETROCK TILE BOARD - p 37 (PERF-A-TAPE)	4¾	4.8 lbs.	24 ½	Simulates ceramic tile at low cost	No test	Enamel	IX	P11

BB01B 1471

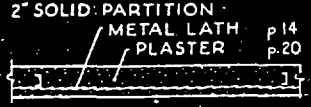
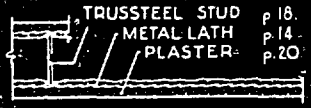
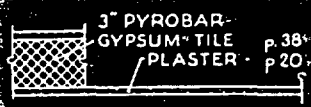
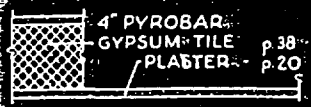
NOTES

***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.

****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.

	Thick- ness (In.)	Wt./sq. ft. Complete	Fire Resistance Both Sides (Minutes)	Specific Advantages	Average Sound Trans- mission Loss Across Frequency Range ^{***}	Suggested Decoration	Relative Cost ^a	Type No.
 WEATHERWOOD BUILDING BD. - p. 32-42 (BATTEN STRIPS)	4 5/8	3.3 lbs.	No test	Unit wall textured surfaces	30.0	Self-decorating. May be painted with Texolite or other paint	I	P12
 1/2" WEATHERWOOD TILE - p. 32-42 FURRING	4 5/8	3.4 lbs.	No test	Variations in tile size, texture and color	30.0	Self-decorating. May be painted with Texolite or other paint	XI	P13
 1/2" WEATHERWOOD FINISH PLANK - p. 32-42 FURRING	4 5/8	3.4 lbs.	No test	Variations in plank width, color and texture. Plank interlock	30.0	Self-decorating	VII	P14
 3/4" WEATHERWOOD TILE - p. 32-42	5 1/8	4.2 lbs.	No test	No furring strips. Tile interlock	33.0	Self-decorating	X	P15
 WEATHERWOOD HARDBOARD (BATTEN STRIPS) - p. 36	3 7/8 4 1/8	3.2 lbs. 4.2 lbs.	No test	Excellent for dados and wainscots	30.0	Unpainted or enamel	II	P16
 WEATHERWOOD HARDBOARD TILE - p. 36	3 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 - p. 14 p. 20	2	21.6 lbs.	1 hr.	Space-saving standard partition	37.7	Texolite, other paint or paper	VI	FP1
 TRUSSTEEL STUD METAL LATH PLASTER - p. 18 p. 14 p. 20	4 3/4 (3 1/4 Studs)	15.3 lbs. (3" 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 - p. 38 p. 20	4	13 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 - p. 38 p. 20	5	16 lbs.	3 hrs., 59 min.	Increased fire protection over FP3	49.0	Texolite, other paint or paper	VII	FP4



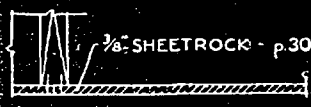
CEILING ASSEMBLIES

	Depth to Face of Finished Ceiling (In.)	Weight Sq. Ft.	Fire Resistance (Minutes)	Heat Conductivity per Sq. Ft./Hr./° Diff. in B.T.U's. (Includes 7/8" Yellow Pine Rough Floor)	Suggested Decoration	Relative Cost ¹	Type No.
 WOOD LATH - p.20 PLASTER - p.20	7/8	6 lbs.	No test	.28	Texolite, other paint or paper	II	C1
 ROCKLATH - p.12 PLASTER - p.20	7/8	5.5 lbs.	No test	.28	Texolite, other paint or paper	II	C2
 PERF. ROCKLATH - p.12 PLASTER - p.20	7/8	5.5 lbs.	1 hr. with stripped joints	.28	Texolite, other paint or paper	II	C3
 INS. ROCKLATH - p.42 PLASTER - p.20	7/8	5.5 lbs.	No test	.21	Texolite, other paint or paper	IV	C4
 WEATHERWOOD INS. PLAS. BASE - p.42 PLASTER - p.20	1	6.0 lbs.	30	.21	Texolite, other paint or paper	V	C5
 DIAMOND MESH METAL LATH - p.14 PLASTER - p.20	3/4	7.3 lbs.	1 hr.	.30	Texolite, other paint or paper	VI	C6
 Z-RIB METAL LATH - p.14 PLASTER - p.20	3/4	7.3 lbs.	1 hr.	.30	Texolite, other paint or paper	VI	C7
 RES. PL. SYSTEM - p.16 ROCKLATH - p.12 PLASTER - p.20	1 3/8	5.5 lbs.	No test	.28	Texolite, other paint or paper	IX	C8
 RES. PL. SYSTEM - p.16 METAL LATH - p.14 PLASTER - p.20	1 1/4	7.3 lbs.	No test	.30	Texolite, other paint or paper	X	C9

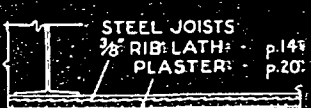
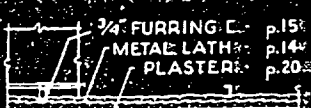
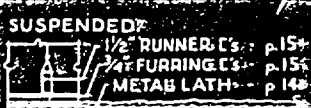
BB018 1473

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.

	Depth to Face of Finished Ceiling (In.)	Weight Sq. Ft.	Fire Resistance (Minutes)	Heat Conductivity per Sq. Ft./Hr./° Diff. in B.T.U's. (Includes 7/8" Yellow Pine Rough Floor)	Suggested Decoration	Relative Cost*	Type No.
 3/8" SHEETROCK - p.30.	3/8	1.5 lbs.	No test	.30	Texolite, other paint or paper	II	C10
 1/2" SHEETROCK - p.30.	1/2	2.0 lbs.	No test	.28	Texolite, other paint or paper	III	C11
 WEATHERWOOD BUILDING BD. - p.32, p.42.	1/2	.75 lbs.	No test	.22	Optional	I	C13
 1/2" WEATHERWOOD TILE - p.32-42, FURRING	1 1/2	.75 lbs.	No test	.22	Self-decorating	VIII	C14
 1/2" WEATHERWOOD FINISH PLANK - p.32-42, FURRING	1 1/2	.75 lbs.	No test	.22	Self-decorating	VII	C15

FIREPROOF CEILING ASSEMBLIES

 BONDCRETE - p.20.	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 - p.144, PLASTER - p.20.	3/4	7.3 lbs.			Texolite, other paint or paper	II	C17
 3/4" FURRING C. - p.15, METAL LATH - p.14, PLASTER - p.20.	1 1/2	7.4 lbs.	No test		Texolite, other paint or paper	III	C19
 SUSPENDED 1/2" RUNNER C. - p.15, 3/4" FURRING C. - p.15, METAL LATH - p.14.	3 1/4 +	7.4 lbs.	No test		Texolite, other paint or paper	IV	C20



EXTERIOR WALL ASSEMBLIES

INNER FACE — Wood Studs

	Thickness of Applied Materials (In.)	Wt. of Applied Materials /sq. ft.	Special Characteristics	Suggested Decoration	Type No.
 WOOD LATH PLASTER - p.20	$\frac{7}{8}$	6 lbs.	Standard construction for frame buildings	Texolite, other paint or paper	IW1
 ROCKLATH PLASTER - p.12 - p.20	$\frac{7}{8}$	5.5 lbs.	Improved fire protection over IW1	Texolite, other paint or paper	IW2
 PERF. ROCKLATH PLASTER - p.12 - p.20	$\frac{7}{8}$	5.5 lbs.	Maximum fire protection in low to medium priced constructions.	Texolite, other paint or paper	IW3
 INS. ROCKLATH PLASTER - p.12 - p.20	$\frac{7}{8}$	5.5 lbs.	Adds reflective insulation at low cost to IW1	Texolite, other paint or paper	IW4
 WEATHERWOOD INS. PLAS. BASE - p.42 PLASTER - p.20	1	6.0 lbs.	Adds standard insulation at slight additional costs	Texolite, other paint or paper	IW5
 DIAMOND MESH METAL LATH PLASTER - p.14 - p.20	$\frac{3}{4}$	7.25 lbs.	Adds crack resistance. Increases plaster thickness.	Texolite, other paint or paper	IW6
 Z-RIB METAL LATH PLASTER - p.14 - p.20	$\frac{3}{4}$	7.25 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 - p.16 - p.12 - p.20	$1\frac{3}{8}$	5.5 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 - p.16 - p.14 - p.20	$1\frac{1}{4}$	7.25 lbs.	Combines excellencies of metal lath with proved advantages of floated wall principle	Texolite, other paint or paper	IW9
 $\frac{3}{8}$ " SHEETROCK - p.30	$\frac{3}{8}$	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 - p.30	$\frac{1}{2}$	2.0 lbs.	More expensive and heavier than IW10. Increases strength and fire protection	Texolite, other paint or paper	IW11

BB01B 1475

NOTES

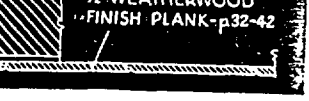
RELATIVE COSTS—The variation in possible combinations of materials makes it impossible to usefully relate costs of the constructions shown. The relative cost column for interior partitions (Pages 4 and 5) will serve if all other conditions are alike.

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 4 and 5) 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."

	Thickness of Applied Materials (In.)	Wt. of Applied Materials /sq. ft.	Special Characteristics	Suggested Decoration	Type No.
 SHEETROCK GRAIN BOARDS - p.34	3/8	1.5 lbs.	Adds beauty of fine wood grains to incombustible, unit wall construction	Self-decorating	IW12
 SHEETROCK TILE BOARD - p.37	3/8	1.5 lbs.	Deeply pressed tile pattern provides close imitation of ceramic tile when enameled	Enamel	IW13
 WEATHERWOOD BUILDING BOARD - p.32, p.42	1/2	.75 lbs.	Low cost insulating unit wall construction—textured surface—two colors	Left in natural color or painted, especially with Texolite	IW14
 1/2" WEATHERWOOD TILE - p.32, p.42	1 1/2	.75 lbs.	Various sizes for interesting tile patterns. Several colors and textures	Self-decorating. May be painted	IW15
 1/2" WEATHERWOOD FINISH PLANK - p.32, p.42	1 1/2	.75 lbs.	"Plank" may be varied in width and shade. Ogee edge on long joints	Self-decorating. May be painted	IW16
 3/8" INSULATING SHEETROCK - p.30, p.42	3/8	1.5 lbs.	Identical with IW10 but provides bright aluminum foil insulation and vapor barrier at slight additional cost	Texolite, other paint or paper	IW17
 1/2" INSULATING SHEETROCK - p.30, p.42	1/2	2.0 lbs.	Adds bright aluminum foil insulation and vapor barrier to IW11	Texolite, other paint or paper	IW18
 1" REDTOP INS. BLANKET - p.44	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 face in all three sizes. Insulation coefficient .27 B.T.U.'s/sq. ft./° difference F./in. thickness. Insulation added to wood stud wall including both air spaces is for 1-in. blanket .192; medium blanket .112; thick blanket .086. These materials add high amount of insulation to any stud wall or joisted ceiling.		Specify separately
 MED. REDTOP INS. BLANKET - p.44	Medium	4 oz.			
 THICK REDTOP INS. BLANKET - p.44	Thick	6 oz.			

INNER FACE — Masonry

	Thickness from Support to Finished Face (In.)	Wt. of Inner Face Installed /sq. ft.	Special Characteristics	Suggested Decoration	Type No.
 WOOD FURRING ROCKLATH - p.12 PLASTER - p.20	1 3/8	4.5 lbs.	Best reasonably priced method of finishing interior of masonry wall with plaster	Texolite, other paint or paper	IW19
 INS. ROCKLATH - p.12 PLASTER - p.20	3/8	4.5 lbs.	Adds reflective insulation and effective vapor barrier to IW19	Texolite, other paint or paper	IW20
 WEATHERWOOD INS. PLAS. BASE - p.42 PLASTER - p.20	1	4.0 lbs.	Adds standard insulation at small cost	Texolite, other paint or paper	IW21
 DIAMOND MESH METAL LATH - p.14 PLASTER - p.20	3/4	7.3 lbs.	Better resistance to crack producing distortions	Texolite, other paint or paper	IW22
 Z-RIB METAL LATH - p.14 PLASTER - p.20	3/4	7.3 lbs.	Stiffening effect of Z-Rib permits lighter gauge metal. Reduces plaster qualities	Texolite, other paint or paper	IW23
 3/8" SHEETROCK - p.30	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
 1/2" SHEETROCK - p.30	1/2	2.0 lbs.	Adds strength, fire protection at slight costs to IW24	Texolite, other paint or paper	IW25
 INS. SHEETROCK - p.30 p.42	3/8	1.5 lbs.	Adds reflective insulation of bright aluminum foil to IW24	Texolite, other paint or paper	IW26
 WEATHERWOOD BUILDING BD. - p.32 p.42	1/2	.75 lbs.	Low cost insulative unit wall construction	Self-decorating. May be painted, especially with Texolite	IW27
 1/2" WEATHERWOOD TILE - p.32-42	1/2	.75 lbs.	Decorative and insulative tiles in many sizes for many patterns	Self-decorating. May be painted, especially with Texolite	IW28
 3/4" WEATHERWOOD TILE - p.32-42	3/4	1.2 lbs.	Heavier, stronger, more insulative than IW28	Self-decorating. May be painted, especially with Texolite	IW29
 1/2" WEATHERWOOD FINISH PLANK - p.32-42	1/2	.75 lbs.	Interesting blend of colors. "Plank" width may be varied	Self-decorating. May be painted, especially with Texolite	IW30

BRO18 1477

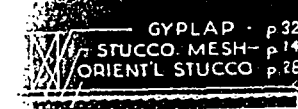
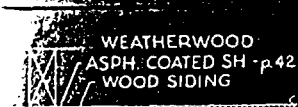
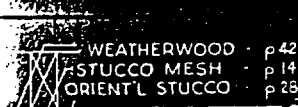
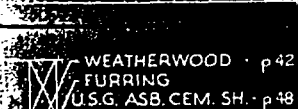
NOTES

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 4 and 5) will serve if all other conditions are alike.

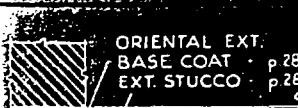
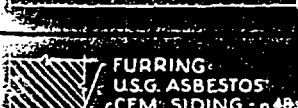
FIRE RESISTANCE—Similar variations in sheathing, masonry, etc., and lack of tests make comparisons of fireproofness difficult. The figures given under "Interior Partition Assemblies" (Pages 4 and 5) should be helpful if used with discretion.

HEAT INSULATION—See note Page 9.

OUTER FACE — Wood Studs

	Thickness of Applied Materials (In.)	Wt. of Applied Materials /sq. ft.	Special Characteristics	Suggested Decoration	Type No.
 GYPLAP - p 32 WOOD SIDING	1	3 lbs.	Fireproof, strong sheathing. Tight joints, no knots. Does not require building paper. Installed costs less than wood	Paint	EW4
 GYPLAP - p 32 STUCCO MESH - p 14 ORIENT'L STUCCO - p 28	1 1/2	14 lbs.	With gypsum plaster on Rockcloth or metal lath for interior face this construction provides maximum fire protection in stud exterior walls	Self-decorating	EW5
 GYPLAP - p 32 FURRING - p 14 U.S.G. ASB. CEM. SID. - p 48	1 2/3	3.8 lbs.	All advantages of EW4 plus incombustible siding	Self-decorating	EW6
 WEATHERWOOD - p 42 ASPH. COATED SH. - p 42 WOOD SIDING	1	1.8 lbs.	Adds standard insulation. Tongued and grooved long joints plus asphalt coating eliminate need for building paper	Paint	EW7
 WEATHERWOOD - p 42 STUCCO MESH - p 14 ORIENT'L STUCCO - p 28	1 1/2	12.8 lbs.	Insulative sheathing plus maximum stucco job. Building paper not needed.	Self-decorating	EW8
 WEATHERWOOD - p 42 FURRING - p 14 U.S.G. ASB. CEM. SH. - p 48	1 2/3	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. - p 28 BASE COAT - p 28 EXT. STUCCO - p 28	1	12 lbs.	Low cost stucco with all advantages of mill-mixed product	Self-decorating	EW1
 FURRING - p 14 STUCCO MESH - p 14 ORIENT'L STUC. - p 28	1	12 lbs.	Best stucco construction. Uniformity and permanence of mill-mixed product	Self-decorating	EW2
 FURRING - p 14 U.S.G. ASBESTOS CEM. SIDING - p 48	5/32	1.8 lbs.	Beauty of wood grain and color with permanence and low upkeep of asbestos cement	Self-decorating	EW3

BR018 1478

ROCKLATH

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

STANDARD 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.

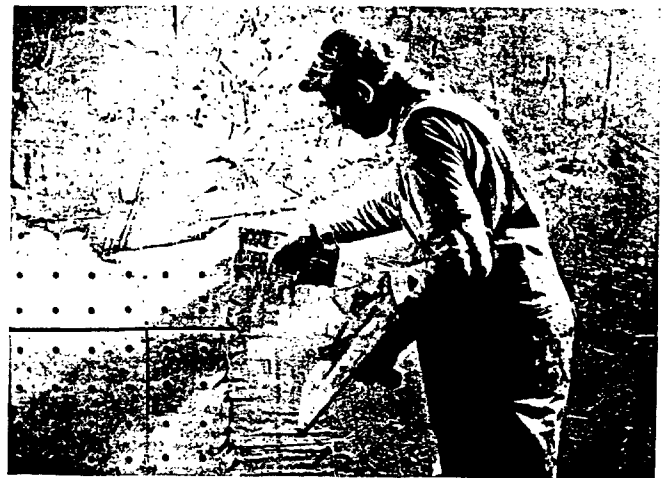


Uniform suction of Rocklath prevents plaster from slipping during application.

PERFORATED ROCKLATH

Perforated Rocklath is the same as Standard Rocklath, except that perforations are spaced at regular intervals which provide an additional mechanical bond with the gypsum plaster. This bond insures stronger interior walls and ceilings and greater resistance to cracks. Resistance to fire is greater, due to the persistence of the bond.

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.



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

INSULATING ROCKLATH

Insulating Rocklath is the same as Standard Rocklath, except that on the back is mounted a thin sheet of bright aluminum foil. Applied with the foil side next to the frame and facing an air space 3/4-in. deep or more, its insulating value is equal to that of 1/2-in. fibre insulating board.

Extensive tests have proven that such foil applied to Rocklath provides a barrier which deters the movement of vapor and consequently controls condensation. Heat passing into or out of a building must pass through the hollow spaces between framing members. About 75% of such heat travel is by radiation. Proof is conclusive that a bright metal foil effectively reduces the transmission of radiant heat in either direction.

Insulating Rocklath resists the inward passage of radiant heat in summer by reflecting it back. In winter, when heat flow is outward, it insulates because of the low emission from aluminum foil.

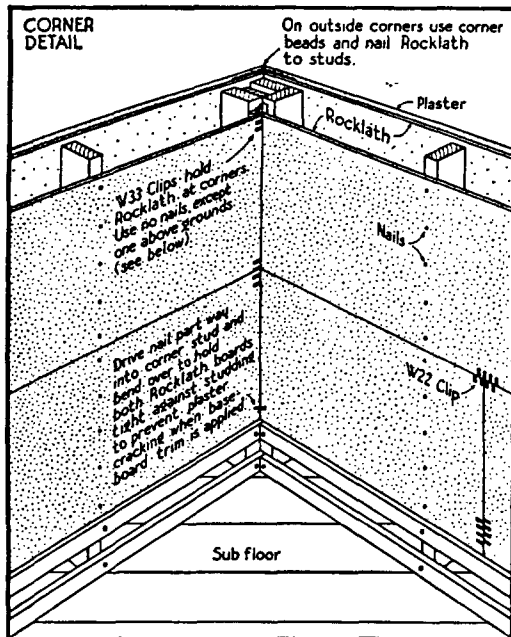
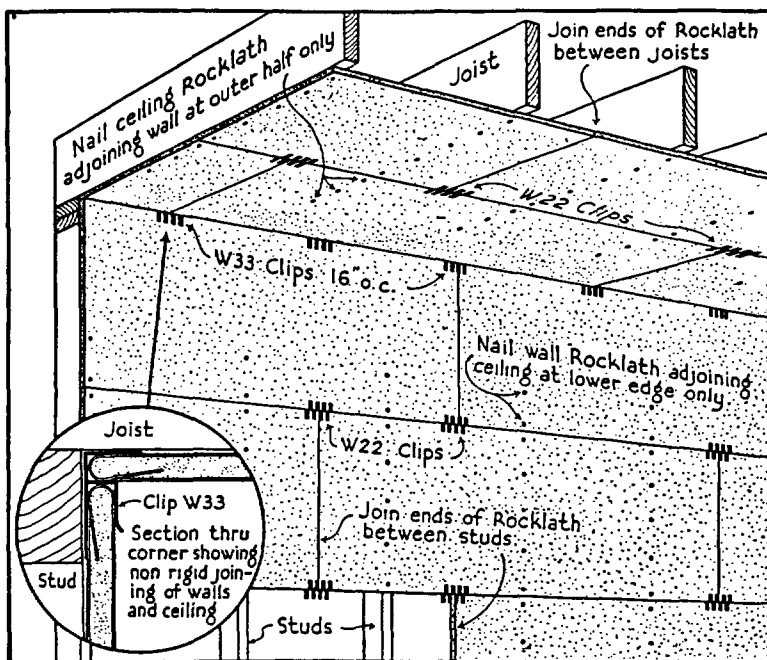


Foil backing of Insulating Rocklath provides high insulating value and is an effective vapor barrier.

BB018 1479

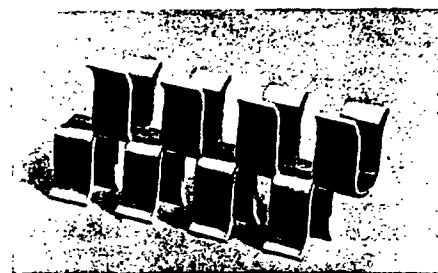
*Reg. Trade Mark

USG BRIDJOINT METHOD OF APPLYING ROCKLATH

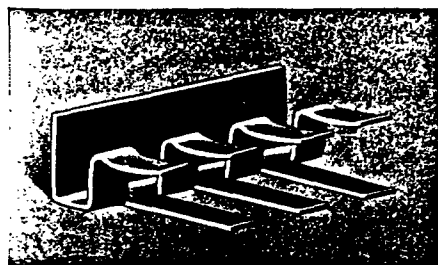


Above: Bridjoint Clips firmly attach ends of boards to continuous boards above and below each joint.

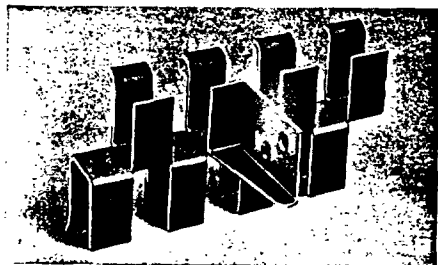
Left: Boards are not fastened to framework at corners but are secured to each other with W-33 Clips. Movements in framework are thus less likely to crack plaster. Also see inset in upper sketch.



W-22 Bridjoint Clip



W-33 Corner Clip



No. 60 Freflote

ADVANTAGES

Fireproof construction which minimizes cracking and reduces sound transmission results at lower cost from this method using clips in place of the older method where nails alone are used. Standard, Perforated or Insulating Rocklath may be used.

Rocklath is nailed to studs or joists as usual, except that ends of boards come between supports where they are reinforced by Bridjoint Clips, thus eliminating joints at the supports and minimizing cracking. At corners and ceiling angles the Rocklath is not nailed to the framework but held together with No. 33 clips, preventing transmission of stresses from the frame to the lath and plaster, as there is no connection to transmit frame movement.

Savings result from reduced nailing time; elimination of cost and application time for metal lath corner reinforcement. All odd lengths of Rocklath are used and 25% less nails are needed. Costs about the same as a nailed on job.

Freflote Bridjoint Method

The Freflote Bridjoint method is similar to the Bridjoint method with one exception:

Instead of being nailed at the supports, the Rocklath is attached with No. 60 semi-rigid Freflote Bridjoint Clips. These are designed to help in the absorption of stresses in the lath and plaster caused by movement of the framework.

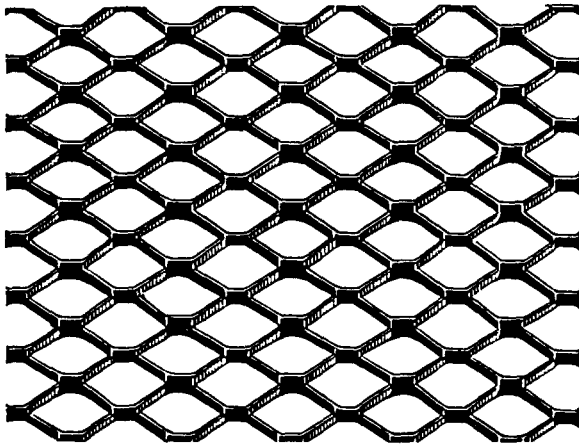
Freflote Method

The Freflote method differs from the Freflote Bridjoint method in that the end joints between the boards come over the supports.

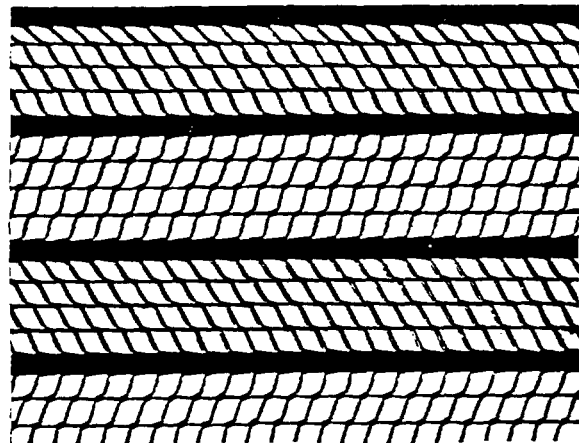
Special clips are employed which serve two purposes: they hold the boards to the supports and they reinforce the end joints.

METAL LATH

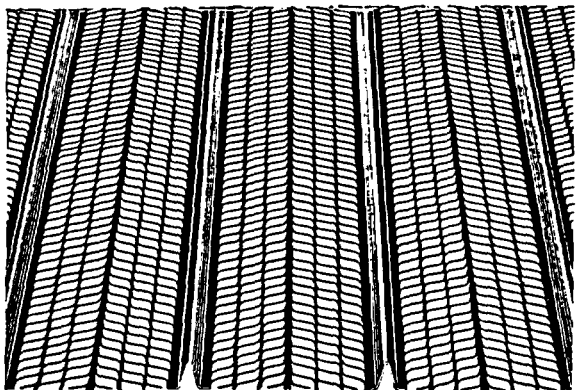
We manufacture metal lath in all types and weights in standard and special metals, and a full line of metal lath accessories, for quick national distribution.



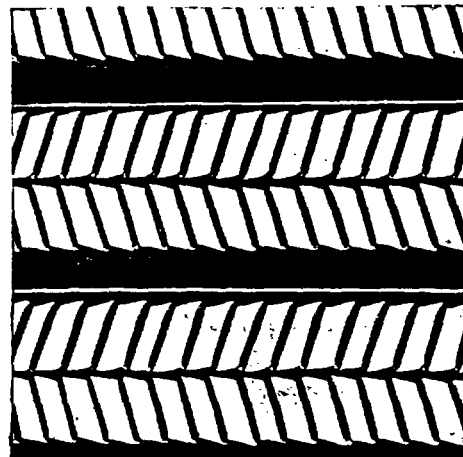
DIAMOND MESH LATH—Small mesh (5/16 in. x 9/16 in.) facilitates application and reduces mortar waste through droppings. Provides perfect key. Also made self-furring or corrugated types.



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.

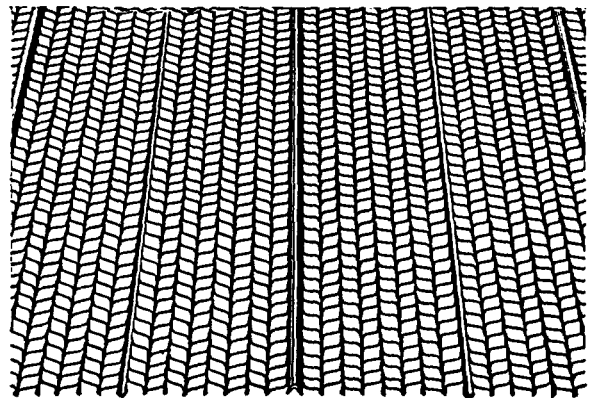


3/4-IN. RIB LATH—For spans longer than 3/8-in. Rib Lath (See table). Ribs 4.8 in o. c.; heavy weight; self-furring.

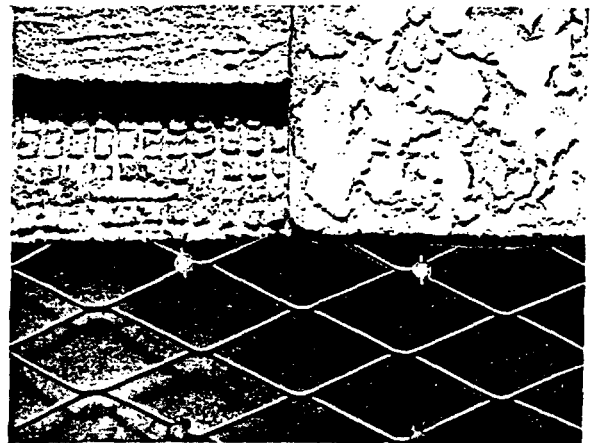


NOTE NON-SKID SHELVES TO HOLD PLASTER

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.



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



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

BB018 1481

	Type of Steel	Weight per Sq. Yd.*	Maximum Span**	Relative Cost†	Recommended Uses
DIAMOND MESH LATH Sheet Size—24x36 in. 2.2x7.00	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 2.2tt, 2.5tt, 3.0, 3.4 2.5, 3.4 2.5tt, 3.0tt, 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—24x36 in. 2.2x7.00	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 3.0tt, 3.4 3.4 3.4tt	Ceiling, 19 in. Wall, 19 in.	II	For nailing on wood construction or tying on metal furring
4-mesh Z-RIB LATH Sheet Size—24x36 in. 2.2x7.00	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 3.0tt, 3.4 3.4 3.4tt	Ceiling, 19 in. Wall, 19 in.	II	Especially adaptable for tile backing
3/8-IN. RIB LATH Sheet Size—24x36 in. 2.2x7.00	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 3.0tt, 3.4, 4.0tt 3.4, 4.0tt 3.4, 4.0tt	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—24x36 in. 2.2x7.00	Open hearth steel, painted black Copper bearing steel, painted black Cut from galvanized sheets Armco Ingot Iron, painted black	.50, .60, .75 .50tt, .60tt, .75tt .50tt .75tt	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—24x36 in. 2.2x7.00	Open hearth steel, painted black Copper bearing steel, painted black Cut from galvanized sheets	1.8, 3.6 1.8, 3.6 1.8tt, 3.6tt		III	Base reinforcement for exterior stucco

*Except 3/4-in. Rib Lath—figured per ft.

**Maximum span of maximum weight. Based on wood construction.

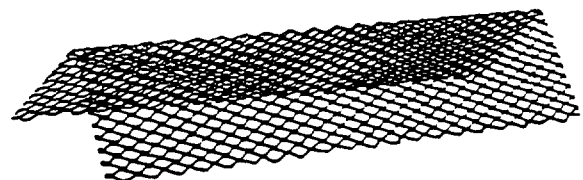
†"I" equals least expensive; "II" equals more expensive, etc.

‡Made especially to order.

METAL LATH ACCESSORIES



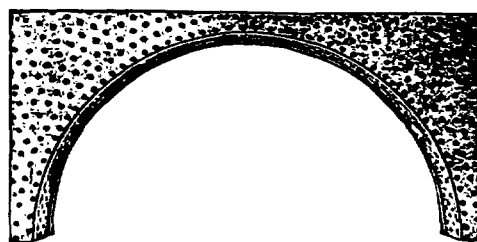
No. 7A—Curved Point Base Screed



Cornerite



No. 5A—Bull Nose 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.

BB018 1482

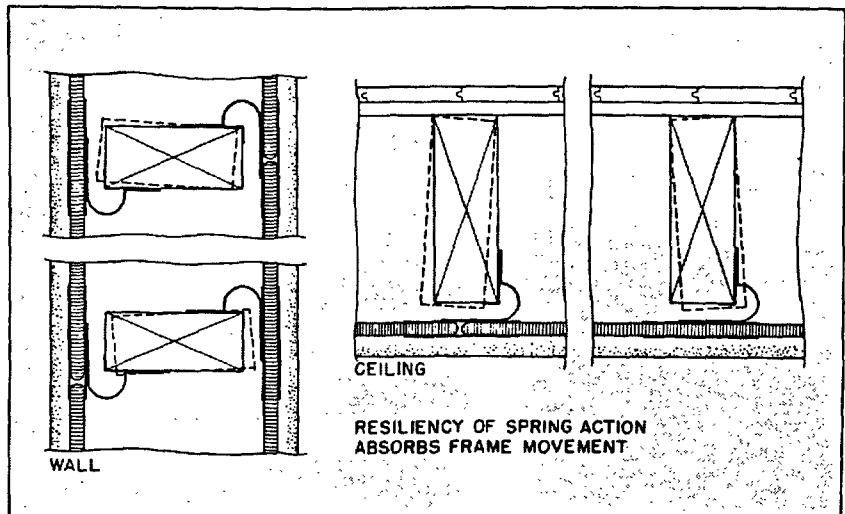
USG RESILIENT PLASTERING SYSTEMS

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

FLEXIBILITY

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.

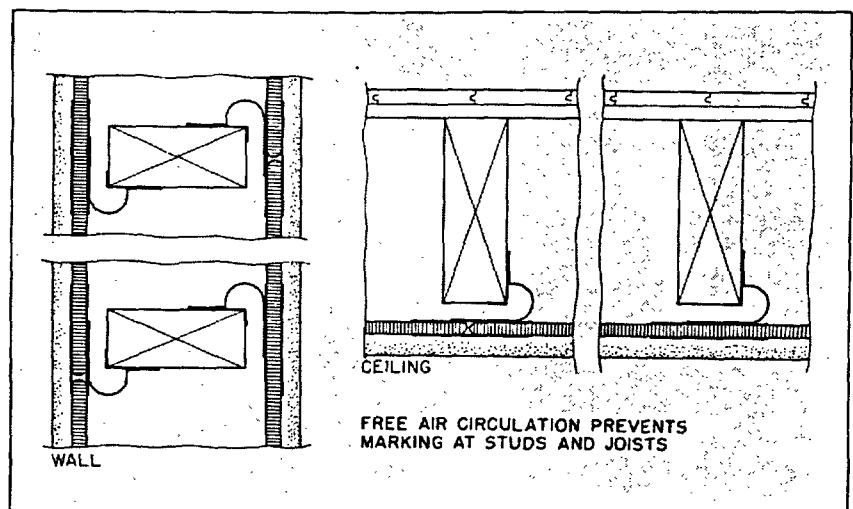
The flexibility of these systems replaces the rigidity of ordinary plastered wall and ceiling constructions without sacrificing strength.



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.

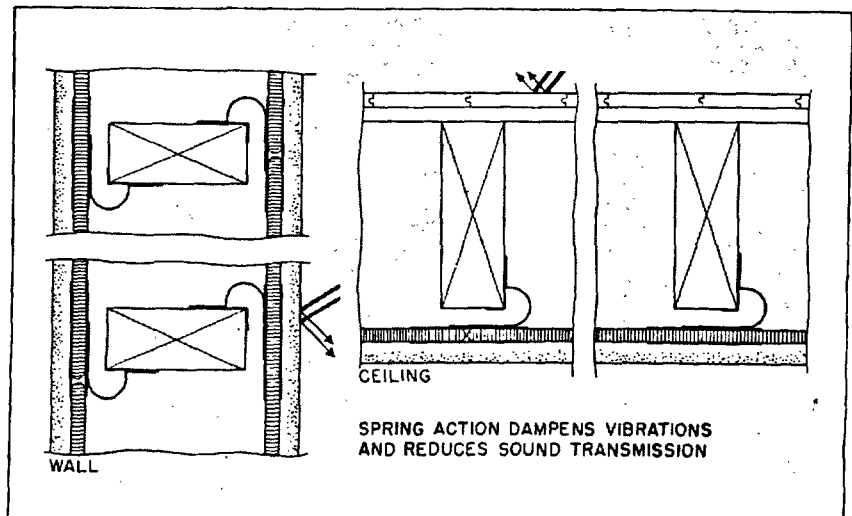
USG Resilient Clips hold the plaster away from the framework permitting almost complete equalization of the condensation. Streaking is thus practically eliminated.



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.

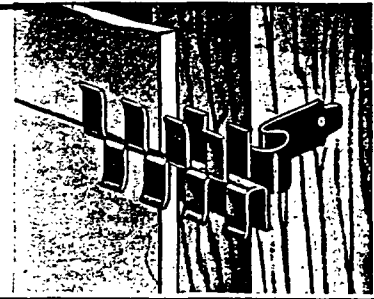
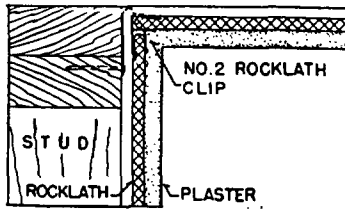
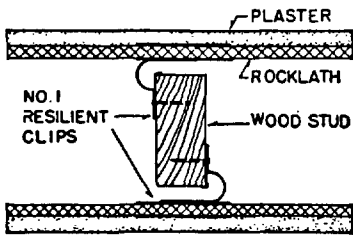
A Rocklath Resilient partition, built according to test specifications of the A. S. A., showed a sound reduction of 51.9 decibels. This is at least equal to two 3-in. tile partitions with 1-in. air space, an accepted satisfactory soundproofing construction.



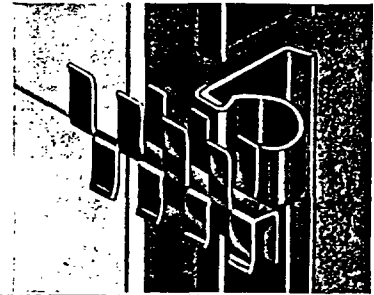
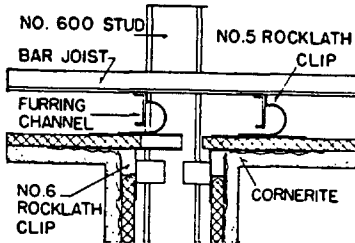
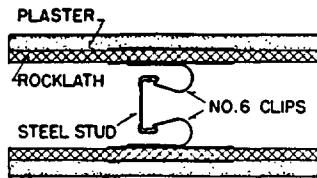
BB018 1483

FOR ROCKLATH

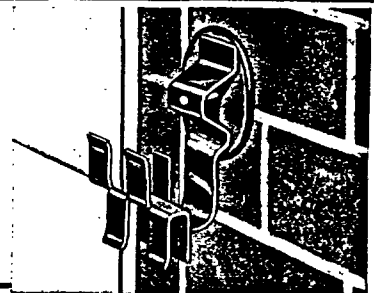
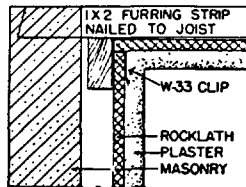
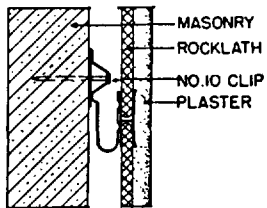
WOOD CONSTRUCTION



STEEL CONSTRUCTION

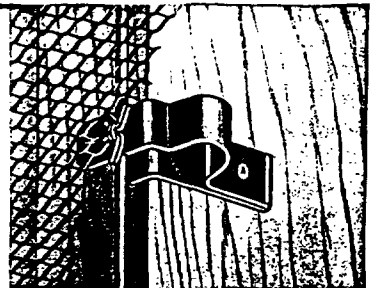
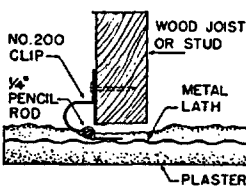
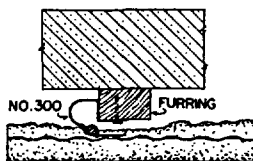


MASONRY CONSTRUCTION

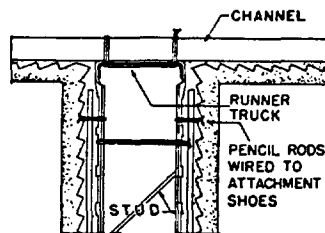
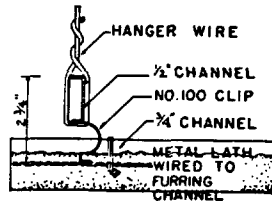
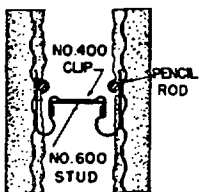


FOR METAL LATH

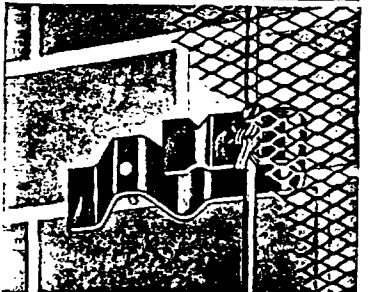
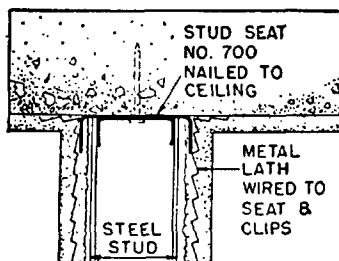
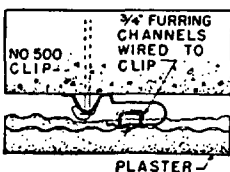
WOOD CONSTRUCTION



STEEL CONSTRUCTION



MASONRY CONSTRUCTION



BE01B 1484

USG TRUSSTEEL STUDS

USG Trussteel® Studs permit enclosure of pipes, conduits, air ducts, both vertically and horizontally, within the finished wall.

ADVANTAGES

The truss design of USG Trussteel Studs* makes for strong, light weight construction. Weight is approximately 15.3 lbs. per sq. ft. of partition. Dead load on structural members is less than with other type constructions.

With gypsum plaster on metal lath, a fire-resistant partition with a 1-hour fire rating is provided.

Attachment shoes permit speedy, substantial attachment and a 4-inch range of adjustment over actual stud length for varying ceiling heights. Shoes may be attached by wiring or crimped with pliers. Either method is equally sturdy. All parts are quickly installed with standard tools.

Runner tracks, light gauge and easily cut with tin snips, are flexible and follow contours of irregular floor surfaces. They are nailed to concrete floors with stub nails. No costly expansion bolts are required.

Holes, spaced 2 inches apart, are in the flange of the track for tying metal lath at the top. These also provide a convenient guide 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.

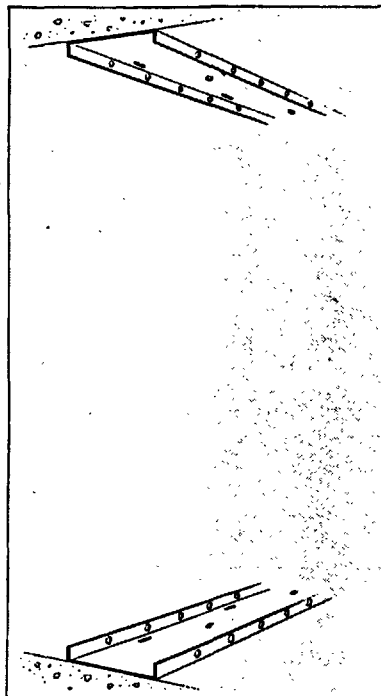
Tests conducted by the USG Laboratories in December 1939 indicated USG Trussteel Studs to be far stronger than punched channel studs at the failure point, and a negligible difference at the first plaster crack point.

SIZES

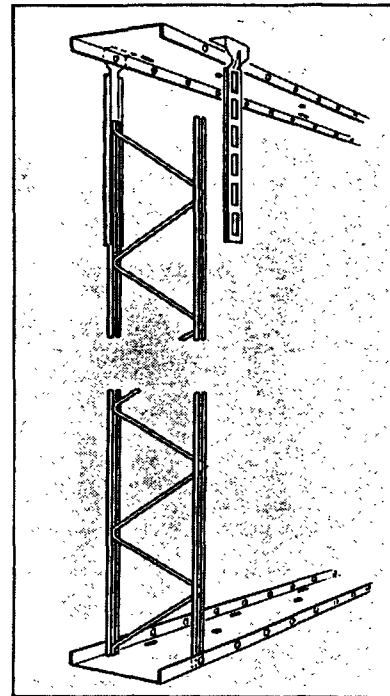
USG Trussteel Studs are made in lengths from 7 ft. to 20 ft., inclusive, in increments of 3 inches. Lengths of from 14 to 20 ft. are supplied in two sections, complete with splicing feature. These are the stock or "fixed" lengths. The adjustable feature on each of these lengths permits adjustment to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

Widths are 2, 3, 3½, 4 and 6 inches.

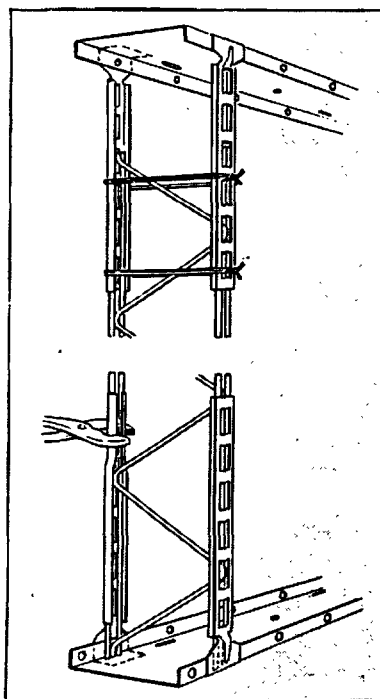
Runner tracks are made in 8 ft. 2 in. lengths, in 2, 3, 3½, 4 and 6-in. widths to fit respective sizes of USG Trussteel Studs.



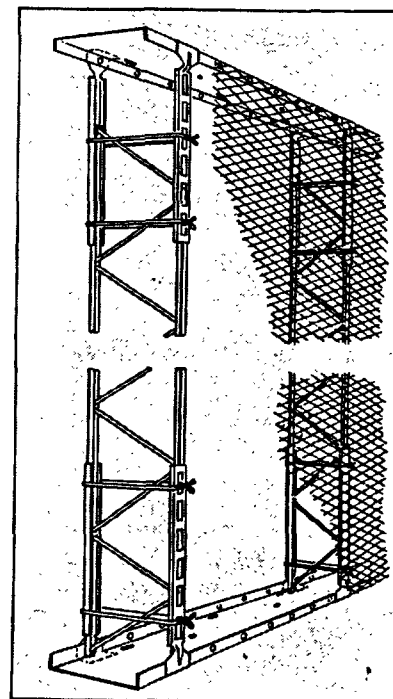
Runner track is aligned and attached to concrete floor and ceiling with stub nails.



Attachment shoes are inserted over ceiling runner track at stud spacings.



Bottom end of stud is fastened to floor runner track by wiring shoes or crimping with pliers.

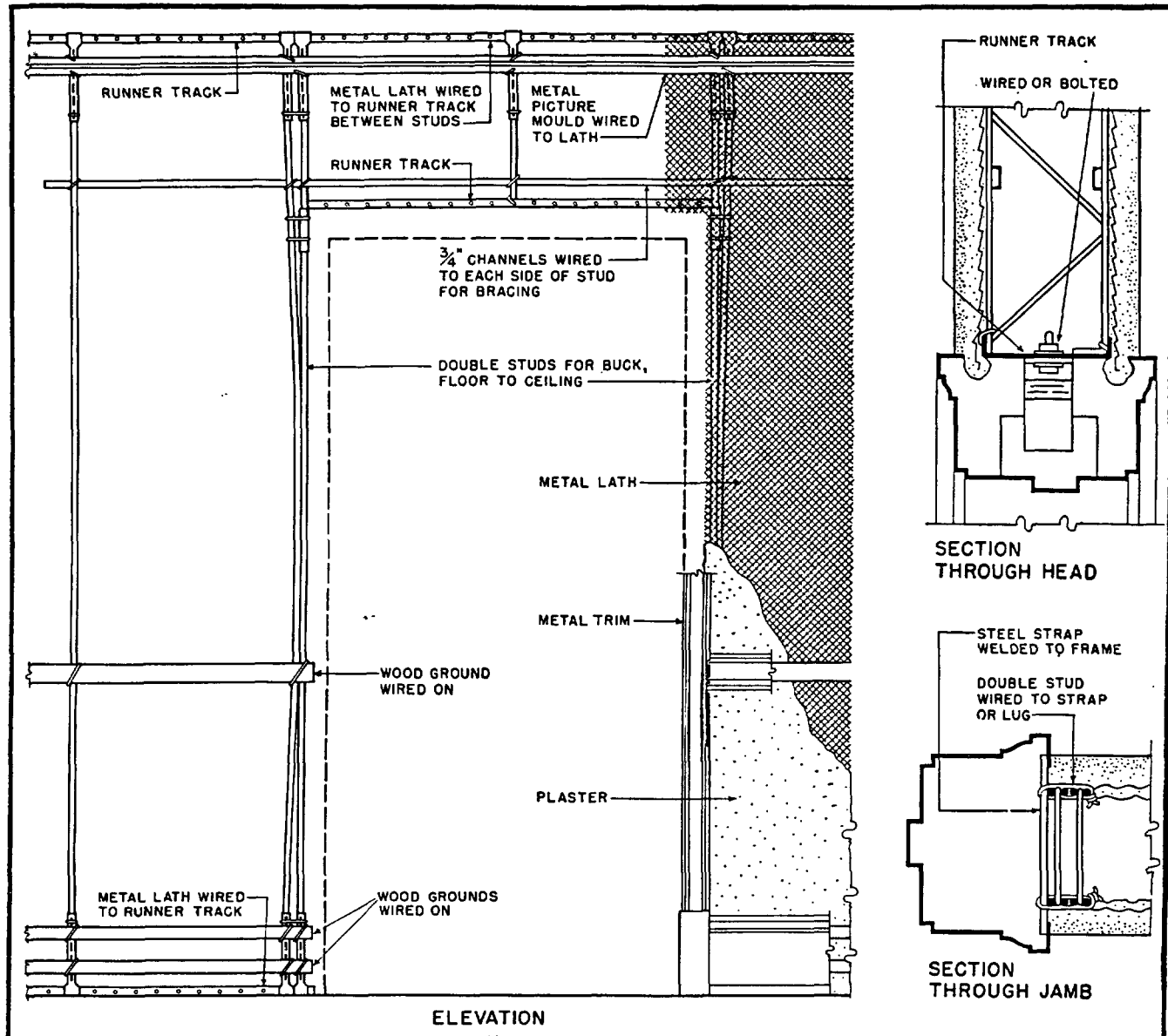


Metal lath is applied to both sides of studs with 18 gauge galvanized tie wire.

BB01B 1485

*Reg. Trade Mark

CONSTRUCTION DETAILS



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	13½ 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	31½ inches
4.0 lb. 3/8" Rib Lath	31½ inches

Length Limits—Maximum ceiling heights recommended for various size Trussteel Studs are 2-in. Stud, 10 ft.; 3 and 3¼-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 ¾-in. channel at 4 to 6 ft. intervals, vertically, to give the partitions lateral strength.

Finished Wall Thickness—Based on plastering to a ¾-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	3½-in. Finished Thickness
3 -in. Trussteel Stud	4½-in. Finished Thickness
3¼-in. Trussteel Stud	4¾-in. Finished Thickness
4 -in. Trussteel Stud	5½-in. Finished Thickness
6 -in. Trussteel Stud	7½-in. Finished Thickness

Millwork should be ordered to fit the above wall thicknesses.

U.S. GYPSUM PLASTERS

ADVANTAGES

Time Saving

One man can cover 750 sq. yds. of wall with one coat of plaster in one day.

Fireproof

One coat of plaster is fireproof for 1 hour.

Applicable

Plaster can be applied to any surface.

Adaptable to Decoration

Plaster can be decorated in many ways.

Uniform

Plaster is uniform in color and texture.

Comply with Standards

Plaster meets all standards.

BASE COATS

CEMENT PLASTER

Made of Gypsum Cement. For scratch and brown coats. Sand and water added at job. Two types: Fibered, for scratch on "open or key lath," and Unfibered for closed lath and brown coats.

Lowest cost where good sand is available; easiest working plaster with greatest covering capacity. Unaffected by local sands or waters.

Brands—Sold under the following trade names in different localities: Red Top,* Granite, Big-4,* Niagara, Peerless, Hardwall, King's Windsor,* Red Top Eldorado* (Gypsite).

PREPARED PLASTER

Gypsum plaster, sand added at mill—water only at job. For scratch and brown coats. Types: (1) Regular; for lath; (2) for masonry; (3) Sanded Wood Fibre, for lath—costs more than "Regular" but less than "Wood Fibre" (below), of which it has some qualities in lesser degree at lower cost.

Used where sand is poor. Machine mixing assures correct proportions. Oversanding is prevented. Good winter plaster, frozen sand is avoided. Can be mixed inside building.

Brands—Red Top Sanded Plaster, Red Top Sanded Plaster for Brick or Tile, Red Top Sanded Wood Fibre Plaster.

WOOD FIBRE PLASTER

Gypsum plaster, with uniformly distributed, finely shredded wood fibre aggregate added at mill—water only at job. For scratch and brown coats.

Tough, strong, dense, durable. Superior to Plasters above in fire-resistance, insulation, sound-deadening. Withstands vibrations and strains. Can be sawed like wood. Has all advantages of Prepared Plaster.

Brands—Sold under following trade names in different localities: Red Top, Red Top Eldorado (Gypsite).

BONDCRETE

Ordinary gypsum or lime plasters do not bond well with concrete. Therefore, Bondcrete has been created for scratch and brown coats over concrete. Water only is added at the job.

Bondcrete adheres strongly to dry concrete due to its cementitious qualities and its low volume change during setting and hardening.

Finish coat must not exceed 1/4 in. in thickness. Provide furring and lathing where more than 3/4 in. of plaster is required or ornamental plaster is suspended.

TYPE NUMBER: B1

APPROXIMATE COVERING CAPACITY

Plastering surface	Wood lath	Metal lath	Gypsum lath	Brick and clay tile	Gypsum tile
Sq. yds. per ton	180-210 (Sanded 2 to 1)	105-135 (Sanded 2 to 1)	225-240 (Sanded 2 to 1)	165-200 (Sanded 3 to 1)	235-255 (Sanded 3 to 1)

TYPE NUMBER: B2

APPROXIMATE COVERING CAPACITY

Plastering surface	Wood lath	Metal lath	Gypsum lath	Brick and clay tile	Gypsum tile
Sq. yds. per ton	60 to 70	35 to 45	75 to 80	45 to 55	65 to 70
(Plaster mixed with water only—no sand added)					

TYPE NUMBER: B3

APPROXIMATE COVERING CAPACITY

Plastering surface	Wood lath	Metal lath	Gypsum lath
Sq. yds. per ton	90-100 (Unsanded —water only added)	55-65 (Unsanded —water only added)	115-120 (Unsanded —water only added)

TYPE NUMBER: B4

APPROXIMATE COVERING CAPACITY

From 90 to 120 sq. yds. to the ton depending on the regularity of the concrete surface and the thickness to which Bondcrete is applied.

Results are best when a semi-rough, clean surface is provided. Bondcrete should not be applied over smooth, oily or efflorescent surfaces.

FINISHES

PREPARED FINISHES

For finish coat only. Water only added at job. Types: Trowel and Float. Trowel Finish—contains no lime to saponify paint; uniform color, no streaks from careless mixing. Positive set. Best bond to gypsum base coats—gypsum bonds best with gypsum. May be given high polish. Float Finish—selected sand, kiln dried, clean. Uniform color. Sand varied at each mill to suit local usage. Ideal for winter use.

Brands: Red Top* Trowel Finish, Red Top Universal* White

PREPARED COLORED FINISHES

For textured or floated plaster finish coats. For trowel finishing on special order. Water only added at job.

Made in white and twelve standard shades. Carefully graded and sized aggregates, and selected pigments which are proof against discoloration by cement, produce self-decorating walls of a uniformity impossible of achievement with job mixed finishes.

GAUGING PLASTER

For job mixed trowel finishes. Quick and slow setting types.

USG Gauging Plaster requires a relatively small amount of water to produce plasticity as compared with cement plaster, specifically made with a high water-carrying capacity.

Specific advantages: Specially made for gauging purposes; quickly and intimately mixed with lime to form a more perfect finish; uniform in color, being made from selected rock; can be obtained retarded specially to suit any local usage.

Brands: Sold under following trade names in different localities:

FINISHING LIME

Used with Gauging Plaster or Keene's Cement for finish coat. Types: Quicklimes, lowest cost; require somewhat exacting processing at job; more likely to produce craze-cracking, lime pops. Hydrated Limes, eliminate job slaking hazards, screening; save time. Pressure Hydrated Lime, new, improved finishing lime, requires less soaking; consistency of putty easily adjusted; increased plasticity permits thinner coats; speedy application; check cracking is reduced, lime pops eliminated; meets all new and proposed Federal Specifications.

Brands: Sold under following trade names in different localities:

KEENE'S CEMENT

For slow-setting finish and base coats, fully twice as hard and strong as any other type gypsum wall plaster. Rivals natural stone in appearance and effect. Takes high polish. Types: Standard Keene's Cement, used with lime putty and sand to make a very hard base coat or finish; in producing colored finishes, such as Caenstone, at the job, or to provide a hard, slow-setting finish which can be readily scored to imitate ceramic tile with great exactness. Resulting wall wears almost as well as ceramic tiling.

ARIZIDE MOULDING PLASTER

For ornamental moulded plaster work.

Particularly smooth working plaster of uniform setting quality. Ground much finer than other similar products, assuring more thorough solution and finer surface to the finished work. Its cooler working and slower setting qualities account for low expansion and absence of warped moulds. Slow generation of heat in setting protects gelatine or glue moulds. Slow setting gives time for blending

TYPE NUMBER: F1 Specify "Float" or "Trowel"

Trowel Finish, Red Top Adamant* White Trowel Finish, Red Top Adamant Slate Colored Trowel Finish, Red Top Adamant IXXX Trowel Finish, Red Top Badger* Gray Trowel Finish, Red Top* Silica White Sand Float Finish, Red Top Adamant Gray Sand Float Finish, Red Top Adamant White Sand Float Finish, Red Top Sand Float Finish (Light Gray).

APPROXIMATE COVERING CAPACITY

Trowel Finish: 350 to 400 yds. per ton.
Float Finish: 250 to 275 yds. per ton.

TYPE NUMBER: F2 Specify Color and Texture

Various colors may be applied in spots on the walls and blended together with burlap, trowel or float, to produce effects like Tiffany, Flemish and antique finishes of the painter, but more subtle and subdued because of the texture.

Positive control of quantities of color used is obtained through machine mixing at the mill so that joinings between separate applications will not show if proper precautions are taken.

APPROXIMATE COVERING CAPACITY

250 to 300 sq. yds. per ton, varying according to textures.

TYPE NUMBER: F3 Specify "White" or "Gray" and Type Lime Desired

Slow Set: Red Top* (Gray), Red Top Star* (White), Red Top Superfine Finishing (White).

Quick Set: Red Top* (Gray), Red Top Champion* (White), Red Top Kings Diamond (White), Red Top NYC Mills*, Red Top Quick Setting, Red Top Fast Setting.

APPROXIMATE COVERING CAPACITY

One ton mixed with two tons of dry hydrated lime by weight, covers about 1000 to 1400 sq. yds.

TYPE NUMBER: F4 Specify Quick, Hydrated or Pressure Hydrated and Type Gauging Plaster Desired

Quicklimes: Cheshire* Quicklime (High Calcium), Peerless Quicklime (High Calcium).

Hydrated: Red Top Ivory*, Red Top Grand Prize*, Red Top, Cheshire* Hydrate (High Calcium), Plastimax* Finishing Hydrate (High Calcium).

Pressure Hydrated: USG Hydrated Lime.

APPROXIMATE COVERING CAPACITY

When used with proper proportions of Gauging Plaster a ton of Quicklime covers about 1000 sq. yds.; Hydrated Lime about 500 to 700 sq. yds.; Pressure Hydrated about 500 to 700 sq. yds.

TYPE NUMBER: F5

Red Top Casting Keene's, specially for casting hard plaster ornaments; has final set of about 2 hours. Red Top Scagliola Keene's, specially for producing fine imitation marble by the Scagliola process. Red Top Quick Troweling Keene's, solely for use with lime putty as gauging material to produce harder, gauged lime putty finishes; sets in about 2 hours.

APPROXIMATE COVERING CAPACITY

One ton used neat, according to specifications, will cover about 400 to 500 sq. yds.

TYPE NUMBER: F6

and working out trapped air bubbles and for working the plaster into angles and corners of moulds. Even when green, moulds of Arizide have great strength. Breakage by handling and manipulation in the moulding and casting stage is diminished.

Brands: Sold under following trade names in different localities: Red Top* (Gray), Red Top No. 1 (White), Red Top No. 2 (White), Red Top King's Diamond (White), Golden Seal (White).

*Reg. Trade Mark

BD018 1488

AMERICAN STANDARD SPECIFICATIONS

For Gypsum Plastering Including Requirements for Lathing and Furring

Reprinted by permission of A.S.A., A.I.A., A.S.T.M.

Copyright 1939 by Am. Inst. Archt. and Am. Soc. for Test. Mat'ls.

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.

PERSONNEL OF SECTIONAL COMMITTEE ON SPECIFICATIONS FOR PLASTERING

A.S.A. Project A 42

SPONSORS:

The American Institute of Architects
American Society for Testing Materials

CHAIRMAN

W. R. MacCormack
Massachusetts Inst. of Technology, Cambridge, Mass.

VICE-CHAIRMAN:

Theodore Irving Coe
American Inst. of Architects, 1741 New York Avenue,
Washington, D. C.

SECRETARY:

J. W. McBurney
National Bureau of Standards, Washington, D. C.

DRAFTING SECRETARY:

F. R. Wragg
U. S. Housing Authority, San Francisco, Calif.

American Concrete Institute:

Pearson, J. C.
American Forest Products Industries, Inc.:
Kimbrell, R. G.

American Institute of Architects:

Coe, Theodore I.; MacCormack, W. R.

American Society for Testing Materials:

Pearson, J. C.; Schweim, H. J.; Walker, Stanton;
Welch, F. C.; Wells, L. S.

Building Trades Employers' Association of New York:

Pearson, F. E.
Contracting Plasterers' International Association:
McDonnell, Edward

Finishing Lime Association of Ohio:

Johnson, L. E.

Gypsum Association:

Jones, H. Z.

Insulation Board Institute:

Miller, R. T.

Metal Lath Manufacturers' Association:

Lurie, E. M.

National Association of Building Owners and Managers:

Cheyney, C. Robert

National Association Real Estate Boards:

Bohnen, Arthur

National Lime Association

Stauffer, S. W.

National Sand and Gravel Association:

Walker, Stanton

Operative Plasterers' and Cement Finishers'

International Association:

O'Reilly, J. F.

Portland Cement Association:

Kaiser, W. G.

U. S. Housing Authority:

Wragg, F. R.

Wood, Wire and Metal Lathers' International Union:

McSorley, W. J.

Members-at-Large:

Lynas, A. O.; Lynch, W. J.; McBurney, J. W.;
McNulty, J. D.; Payne, W. A.

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 ingredients. 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 27.

STANDARD SPECIFICATIONS FOR GYPSUM PLASTERING Chapter I

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 ³	Ready-sanded	C 28 - 30
	Wood-fibered	
	Calcined gypsum for finishing coat	
MOLDING PLASTER ³		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 1½ 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. 27.

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.

(e) **Gypsum Sand Float Finish** shall be mixed in the proportions of 1 part of gypsum neat unfibred 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	3/8 in., min.
MONOLITHIC CONCRETE CEILINGS	1/8 in., min. 3/8 in., max.

NOTE.—If monolithic concrete ceiling surfaces require more than 3/8 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 rodged, 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 troweled 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.

BR018 1491

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,¹ or any subsequent revision thereof.

Gypsum lath shall conform to the following dimensional requirements:

Thickness.....	5/16, 3/8, or 1/2 in.
Width.....	16 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.....	1 1/8 in.	3 3/8 in.
Width.....	1 1/8 in.	1 5/8 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.....	16, 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.....	550 lb.	442 lb.
2 in.....	1260 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 1-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.

¹ 1936 Book of A.S.T.M. Standards, Part II, p. 97.

(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 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 3/16-in. inserts are used, the lower end shall be punched for 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 3/16-in. inserts with 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 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.....	1 1/2-in. cold-rolled channels
Up to 4 ft.....	1 1/2-in., 1.12-lb. hot-rolled channels
Up to 5 ft.....	2-in. hot-rolled channels or 1 1/2 by 1 1/2 by 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 1/2 in.		Flat expanded, 2.5 lb.	Flat expanded, 3.0 lb. Wire lath, 2.48 lb.	Flat expanded, 3.0 lb.* 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. ^b 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. 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. 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 1/2 in.		Flat rib, 3.4 lb.* 3/8-in. rib, 3.0 lb. ^d V-Stiffened, flat expanded, 3.4 lb. Sheet lath, 4.5 lb.		3/8-in. rib, 3.0 lb. ^d

* 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 3/8-in. rib lath.

* 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
Bar joists	16 sq. ft., max.	No. 8 W. & M. gage galvanized wire
Steel beams		2 strands of No. 14 W. & M. gage galvanized wire
		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.....	3/16-in. round, mild-steel rods or No. 6 W. & M. gage galvanized wire
16 sq. ft., max.....	7/32-in. round, mild-steel rods or No. 5 W. & M. gage galvanized wire
25 sq. ft., max.....	1 by 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.....	{ 1/4-in. pencil rods or } { 3/4-in. channels } { 3/8-in. pencil rods or } { 3/4-in. channels }	12 in.
Up to 2 ft.....	{ 3/8-in. pencil rods or } { 3/4-in. channels }	19 in.
Up to 2 ft. 6 in.....	{ 3/8-in. pencil rods or } { 3/4-in. channels }	12 in.
Up to 3 ft.....	3/4-in. cold- or hot-rolled channels	23 1/2 in.
Up to 3 ft. 6 in.....	3/4-in. cold- or hot-rolled channels	19 in.
Up to 4 ft.....	3/4-in. cold- or hot-rolled channels	16 in.
Up to 4 ft.....	1-in. cold- or hot-rolled channels	23 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. 8 (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 (74-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 65-31 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 55) 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, $\frac{1}{4}$ in. thick, will cover from 150 to 200 sq. yds., depending on the texture selected.

APPLICATION—See Specifications on opposite page.

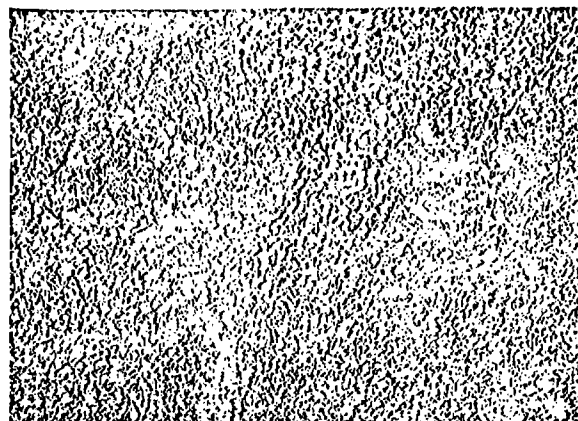
COLORS

Supplied in 12 colors appropriate for exterior use and in 12 pastel shades for finishing interior plaster surfaces.

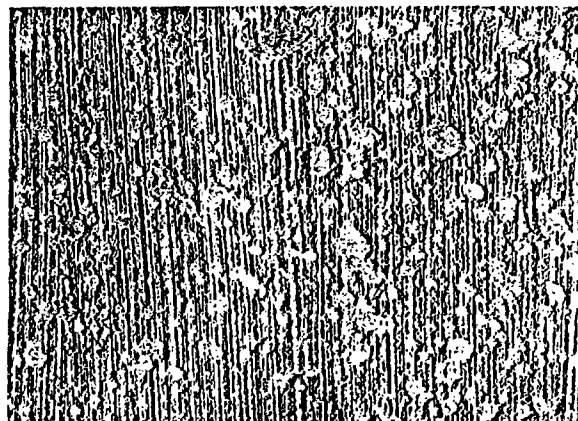
ORIENTAL INTERIOR FINISH

USG Oriental Interior Finish is fundamentally the same product as USG Exterior Stucco. Applied over gypsum plaster base coats in colors adapted to interior decoration, it brings all the advantages of Oriental Exterior Stucco to interior walls and ceilings. Its advantages are the same as those outlined above for Exterior Stucco.

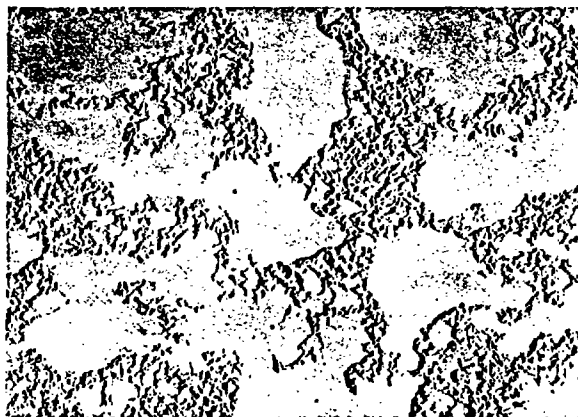
COLONIAL
Light stipple—
troweled
slightly to
produce
highlights



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



BR01B 1495

ORIENTAL EXTERIOR STUCCO

MASTER SPECIFICATIONS

NOTE—Notes are explanatory or advisory only and should not be included in the specifications.

(1) WORK INCLUDED

The following surfaces shall be finished with Oriental Exterior Stucco:

NOTE—Here list and locate all work included under this contract, together with the description of texture and color selected. If more than one texture or color is used on the work, list, locate and describe separately.

(2) EXAMINATION

This contractor shall examine all base surfaces to receive stucco and shall report to the architect in writing any defects which will detrimentally affect the work under this contract. Commencement of work under this contract, without such notice, will be construed as acceptance of the base surfaces, and full responsibility for the final condition of the finished work.

(3) SAMPLE PANELS

The contractor shall furnish on the site, where directed, three (3) sample panels one (1) square yard in area for the approval of the architect. Panels shall be executed on the base specified and in accordance with the architect's selection of textures and colors. The stucco work shall be finished in accordance with the approved panel or panels.

(4) GENERAL

All materials shall be as manufactured by the United States Gypsum Company. All work shall be performed by skilled workmen.

(5) MATERIALS

(5a) Red Top Expanded Metal Stucco Mesh—1½-in. mesh, painted; weight [1.8] [3.6] lb. per sq. yd. Nails shall be Red Top Furring Nails.

(5b) Red Top Self-Furring Diamond Mesh Lath—(Galvanized) (Copper bearing steel, painted) (Pure iron, painted); weight 3.4 lb. Nails shall be 6d galvanized.

NOTE—Select either for frame construction as desired. Where Gyplap as recommended is used as a non-shrinking, fire-resisting sheathing use clause 5b.

(5c) Base Coat—Oriental Exterior Stucco Base Coat.

(5d) Finish Coat—Oriental Exterior Stucco Finish, color No. (specify).

(6) LATHING

NOTE—Include only for frame construction.

(6a) Expanded Metal—Apply the expanded metal across the studs. Secure with self-furring nails in accordance with the

manufacturer's directions approximately 6 in. apart on studs. Lap pieces of expanded metal 1 in. Carry metal around all corners to the first support. Thoroughly secure the metal at all openings.

(6b) Diamond Mesh Lath—Apply the Self-Furring Diamond Mesh Lath across the studs. Lap lath ½ in. on sides and 1 in. on ends. Carry metal around all corners to the first support. Secure with 6d galvanized nails not more than 16 in. on centers horizontally and 6 in. on centers vertically. Drive nails well in and bend to engage at least two lath strands.

(7) MIXING AND APPLICATION OF STUCCO

(7a) General—

(1) Use a clean, tight mixing box, about 3½ x 7 ft., raised about 4 in. at one end. Mix with a hoe. Clean the mixing box after each gauging.

(2) Use only clean water, free from alkali and impurities; keep tools clean. Do not rinse tools in gauging water.

(3) Do not mix more material than can be applied in about one hour.

(4) Do not mix one gauging with another and do not re-temper stucco after it has commenced to set.

(5) Do not apply during freezing, cold or wet weather, nor when rainstorms threaten.

NOTE—Freezing will cause disintegration as well as color difficulty. Slow or sluggish drying or a rainstorm before hardening takes place, generally results in cloudy effects and color distortion. Careful treatment of this phase of stucco work is the greatest guarantee of uniformity in color. The material should not be applied to greasy surfaces. Integral waterproofing or anti-freeze solutions should not be used.

(6) Keep stucco in a dry place. Do not store on ground.

(7b) Base Coats—Add only clean water to Oriental Exterior Stucco Base Coat and mix to the proper consistency. Apply in two coats. The first coat shall be ⅜ in. to ½ in. thick, scratched. After from 3 to 5 days apply the second coat not less than ⅜ in. thick properly rodged and floated to a true plane. Rake or thoroughly scratch each coat to provide a key for the succeeding coat. Allow second coat to cure from 7 to 10 days. In hot weather, wet down each coat daily.

(7c) Finish Coat—Add only clean water to Oriental Exterior Stucco Finish and mix to the proper consistency. Allow finish coat to soak from 20 to 30 minutes. After the base coats are completely dry, spray wall sufficiently to cut suction (avoid drowning surface). Apply finish coat not less than ⅛ in. or more than ¼ in. thick, as required for the finish selected.

The finish shall be:

NOTE—Here specify or describe the finish selected. USG Bulletin OS-3 describes in detail the methods used to obtain various textures.

BB01B 1496

U.S. WALLBOARDS

Sheetrock for interior finishing and Gyplap for exterior sheathing are both made by enclosing a light weight score of fireproof gypsum in a fibrous envelope.

SHEETROCK ADVANTAGES

Sheetrock will not burn or transmit high temperatures. Atmospheric changes will not cause it to contract or expand. It will not warp or buckle. Joints between boards are tight and, when properly finished, remain that way, and may be completely concealed.

Sheetrock contains nothing to rot or decay; walls and ceilings are durable and lasting.

Made in large, light weight units which fit standard spacing in wood frame construction, Sheetrock is quickly erected.

Recessed-Edge Sheetrock—Recessed-Edge* Sheetrock used with Perf-A-Tape* makes possible a type of wall construction which offers stronger, smoother, more permanent reinforcement at the joints than is provided in the usual wall constructions.

This added reinforcement at the joint is entirely concealed, and provides a smooth, shadowless, permanent base for any type of decoration.

The strength of the joints produced by this construction permits application of the boards horizontally on side walls and at right angles to ceiling joints without the use of headers, increasing bracing quality of the boards and resulting in stronger construction around joints at corners and openings. May be applied vertically.

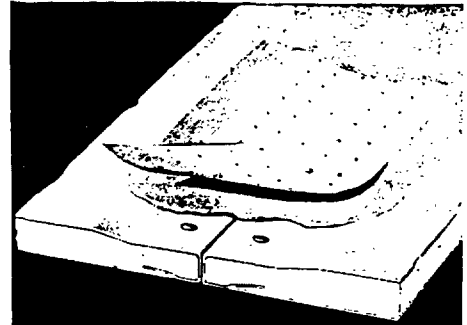
Insulating Sheetrock—A thin, smooth sheet of aluminum foil applied to the back of Sheetrock gives the boards in construction an insulating efficiency equivalent to $\frac{1}{2}$ " insulation board construction (.66 B.T.U.). This foil is also one of the most effective vapor barriers known.

Finishes—Plain Sheetrock, which permits any type of decoration, is available with recessed or square edges, insulated or uninsulated.

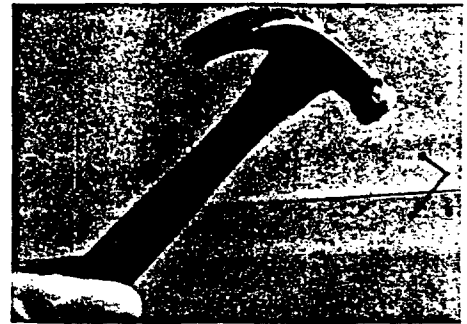
Wood Grained Sheetrock, available in walnut or knotty pine, simulates the natural wood finishes, by a photographic process which reproduces the grains perfectly. It is available with square edges, insulated or uninsulated.

Sheetrock Tile Board is so scored that when the surface is finished with lacquer or enamel, a close resemblance to ceramic tile is produced. Tile impressions are $4\frac{1}{2}$ " square. Available with square edge.

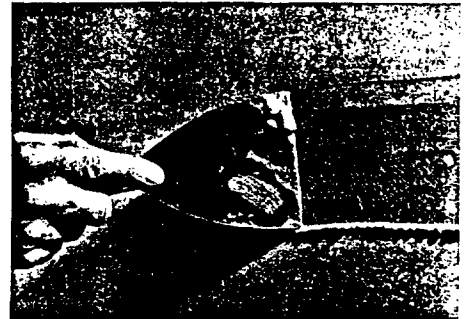
Recessed-Edge offers a wallboard construction that makes possible stronger, smoother, and better-looking wallboard jobs.



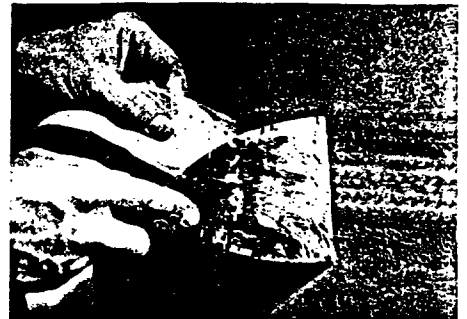
When sheets are nailed in place, recessed edges form a channel at each joint.



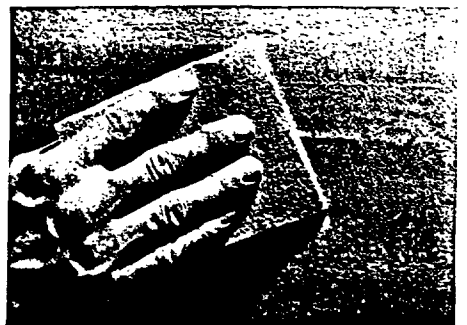
Channel is filled with special cement, quickly and easily applied.



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.



SIZES AND RELATIVE COSTS

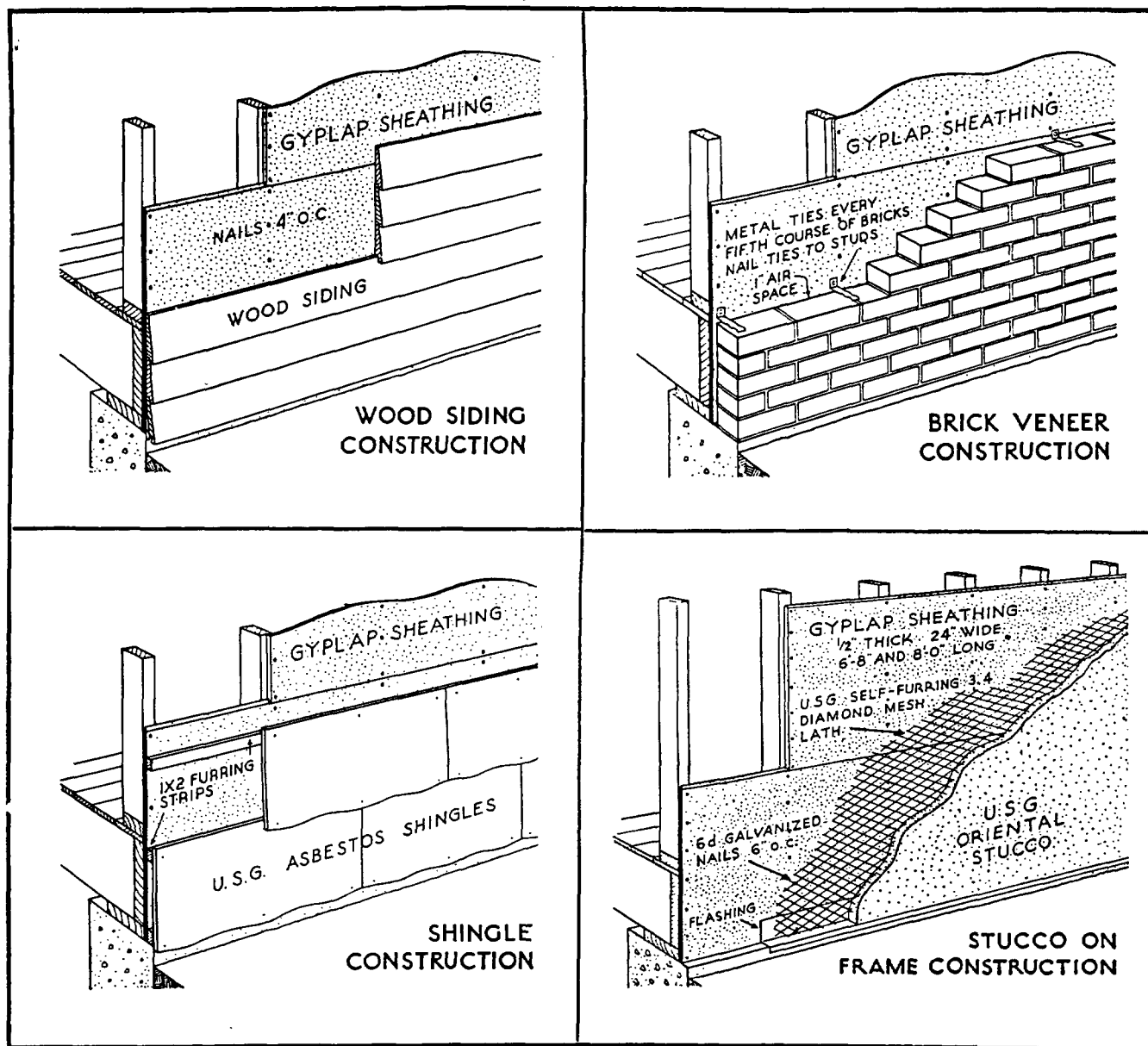
	Thickness	Width	Length	Relative Cost**
Recessed-Edge	$\frac{3}{8}$, $\frac{1}{2}$ in.	4 ft.	6, 7, 8, 9, 10, 11 and 12 ft.	II
Square Edge	$\frac{1}{4}$ in.	4 ft.	6, 7, 8, 9, 10, 11 and 12 ft.	I
Walnut Finish Knotty Pine Finish	$\frac{3}{8}$ in.	4 ft.	6, 7, 8, 9 and 10 ft.	III
Insulating	Any of the above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

* Reg. Trade-Mark

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

BB018 1497

GYPLAP FIREPROOF SHEATHING



Gyplap is made by casting a gypsum core within a heavy, water-resistant fibrous envelope. The long edges of the 2 ft. 0 in. by 8 ft. 0 in. boards are tongued and grooved. Each board is a full half inch in thickness.

Costing less to buy and less to erect than wood sheathing, Gyplap provides much needed weathertightness (building paper not required) and bracing strength at this important location in a wood frame building.

The large units span the spaces between seven studs, tie them together, and are nailed directly to them with ease and dispatch. The horizontal tongued and grooved edges fit tight—the vertical joints are made over the studs.

Gyplap is more quickly and easily cut than lumber and no allowance for "lap" is required when Gyplap is used.

DEFLECTION OF SHEATHING WITH DIFFERENT LOADS

From Armour Institute Strength Tests

Wood Frames and 7/8" x 8" Wood Sheathing			Wood Frames and Gyplap Sheathing
Load in Lbs.	Applied Diagonally Panel 4' x 8' Deflection in Inches	Applied Horizontally Panel 4' x 8'	Applied Horizontally Panel 4' x 8' Deflection in inches
100	.01	.10	.00
500	.05	1.02	.05
1000	.12	4.19	.09
1500	.19	9.24	.13
2000	.29	10.44	.20
2500	.46	11.54	.27
3000	.60	12.09	.39
3500	.97		.53
4000	...		.84
Loads at end of test	3925 lb.	3150 lb.	4425 lb.

*Reg. Trade Mark

BB01B 149B

WEATHERWOOD TILE AND PLANK

Weatherwood products build; insulate; decorate; and quiet sound; in one low-cost operation.

Weatherwood is 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.

USG Self-Spacing, Floating Joint with Ogee Edge.

Cross scored tile applied without regard to joist spacing.

Weatherwood Tile applied with adhesives to flat surfaces.

TILE

Size	Thickness	Color and Surface	Edge
12 x 12 in. 12 x 24 in. 16 x 16 in. 16 x 32 in. 24 x 24 in. 24 x 48 in.	½ in. regularly; 1 in. on order	½ in. Hi-Lite in Textured or Regular; 1 in. Hi-Lite Textured only	Ogee
These sizes cross-scored only** 12 x 24 in. 16 x 32 in. 24 x 48 in.	½ in. regularly; 1 in. on order	½ in. Hi-Lite in Regular or Textured; 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

6, 8, 10, 12 or 16 in. wide x 8, 9, 10 or 12 ft. long	½ in.	Blendtex Textured only; Hi-Lite on order	Ogee Long Edges
---	-------	--	-----------------

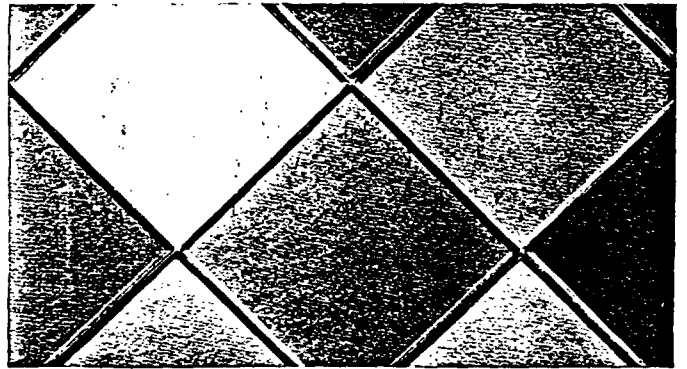
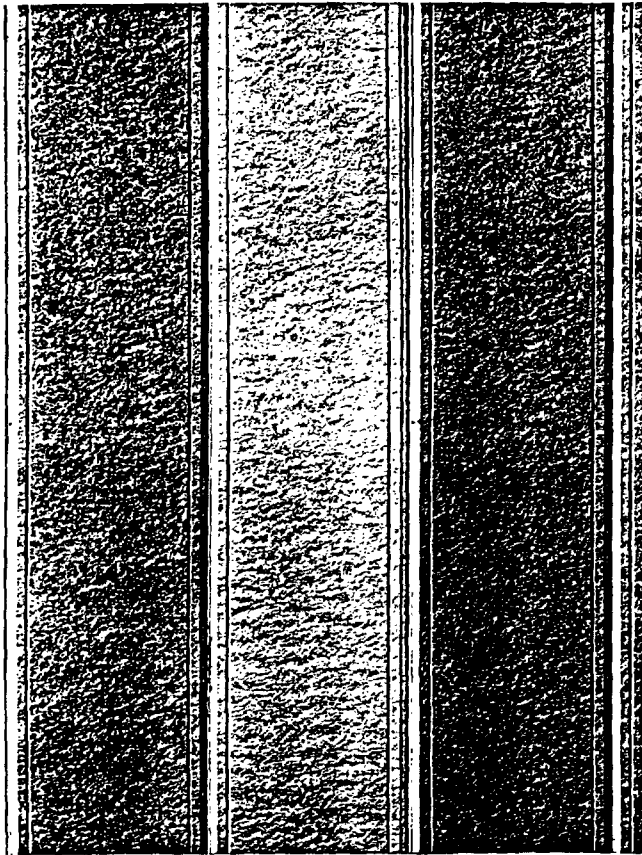
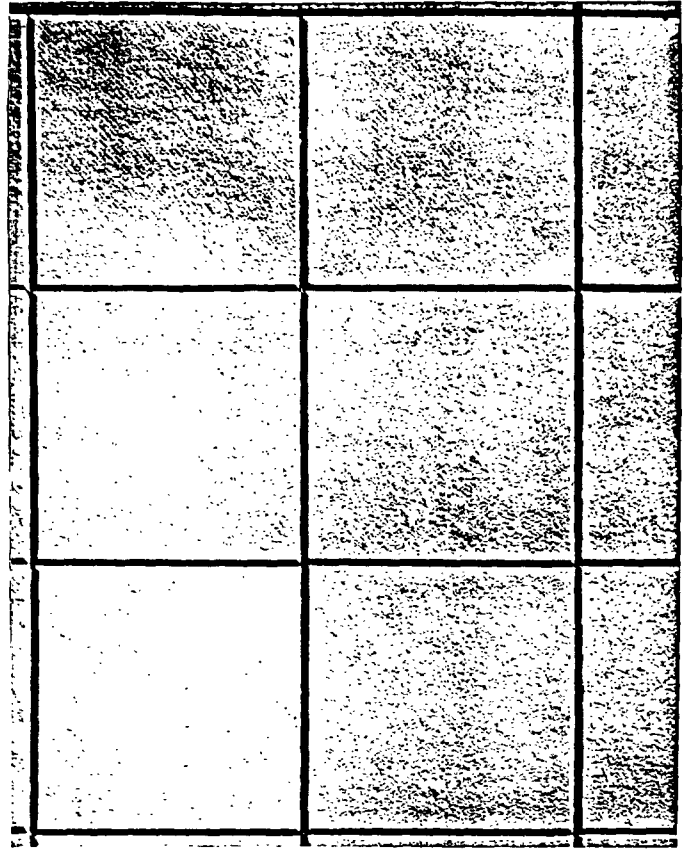
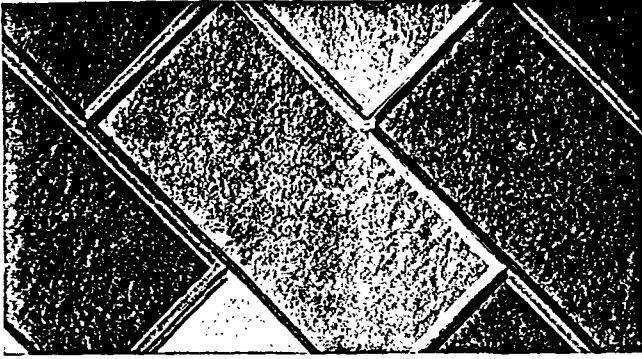
BOARD PANELS

4 ft. wide x 6, 7, 8, 9, 10 or 12 ft. long; 4 or 5 ft. long on order	¾, ½ in. regularly; 1 in., 1½ in. or 2 in. on order	Hi-Lite in Regular; Grey-Tan in Textured; Hi-Lite Textured, on order only	Square
--	--	---	--------

**CROSS SCORED TILE

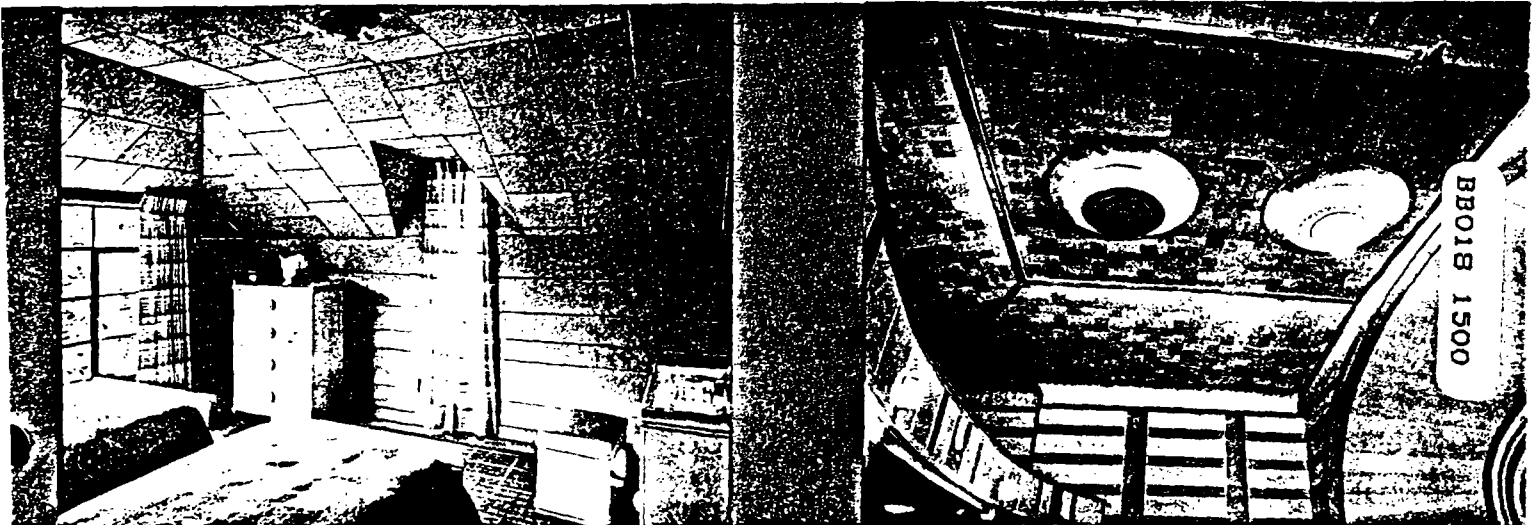
Tile and Paneltile indicated may be cross scored to represent two square tiles. Advantages are that two tiles are applied with the speed of one and they may be applied without regard to joist spacing.





Weatherwood Plank in random widths on walls,
Weatherwood Tile on ceilings.

Weatherwood is adapted to a wide variety
of decorative effects.



USG SHEETROCK GRAIN BOARDS

USG Sheetrock Grain Boards present the appearance of wood with the advantages of gypsum. The graining, knots and coloring peculiar to 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

One of the most important advantages of Sheetrock Grain Boards 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 shellac.

ECONOMICAL

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.

SIZES

Sizes	Thickness	Weight
4 x 6 Feet.....	3/8 in.	1500
4 x 7 Feet.....		Pounds, Ap-
4 x 8 Feet.....		proximate
4 x 9 Feet.....		Shipping
4 x 10 Feet.....		Weight

QUICKLY APPLIED

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.

MOULDINGS

Although Sheetrock Grain Boards may be used without panel strips of any kind, 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.

CLEANABILITY

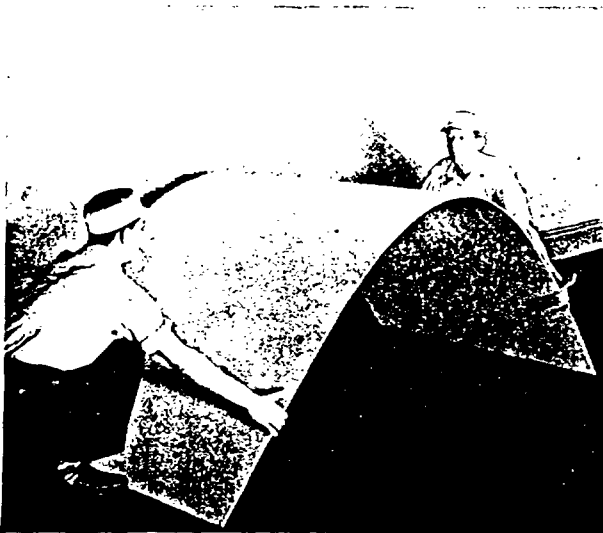
Sheetrock Grain Boards are easily cleaned with a mild soap and water.

RECOMMENDED USES

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

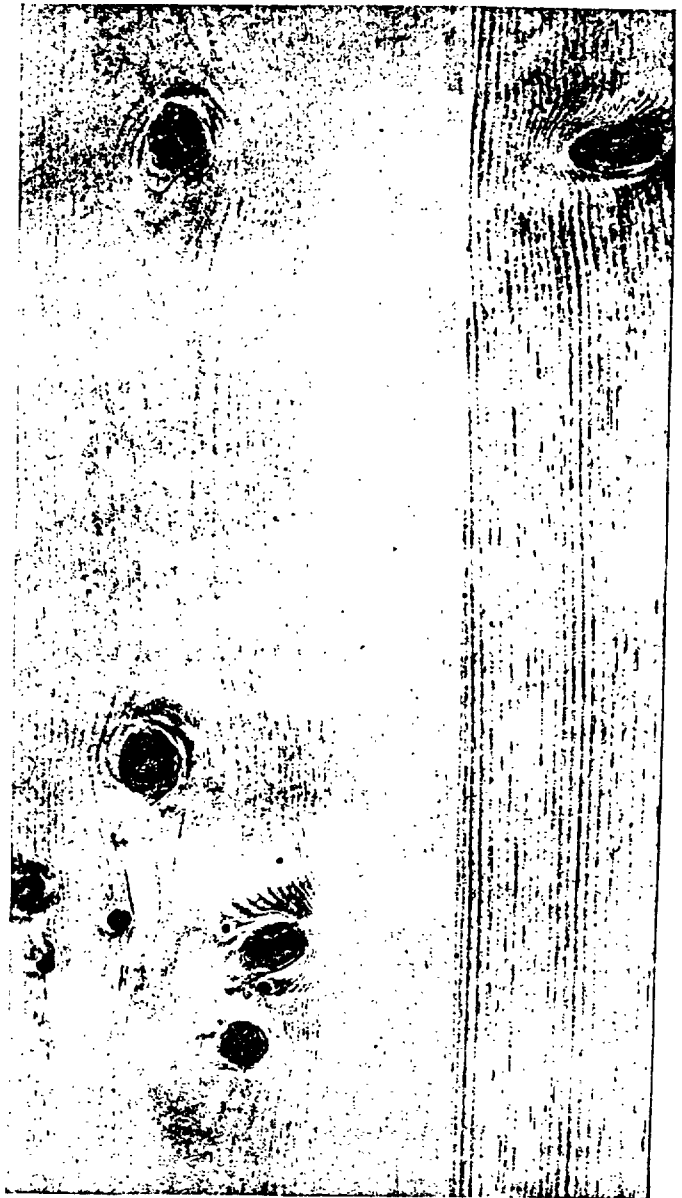
Flexibility of Sheetrock adapts it for use on curved surfaces.

Large sheets permit speedy erection.





Walnut Finish



Knotty Pine Finish

Office paneling is just one of many uses of these Grain Boards.



Knotty Pine finish adds distinction even to attic rooms.



USG 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.

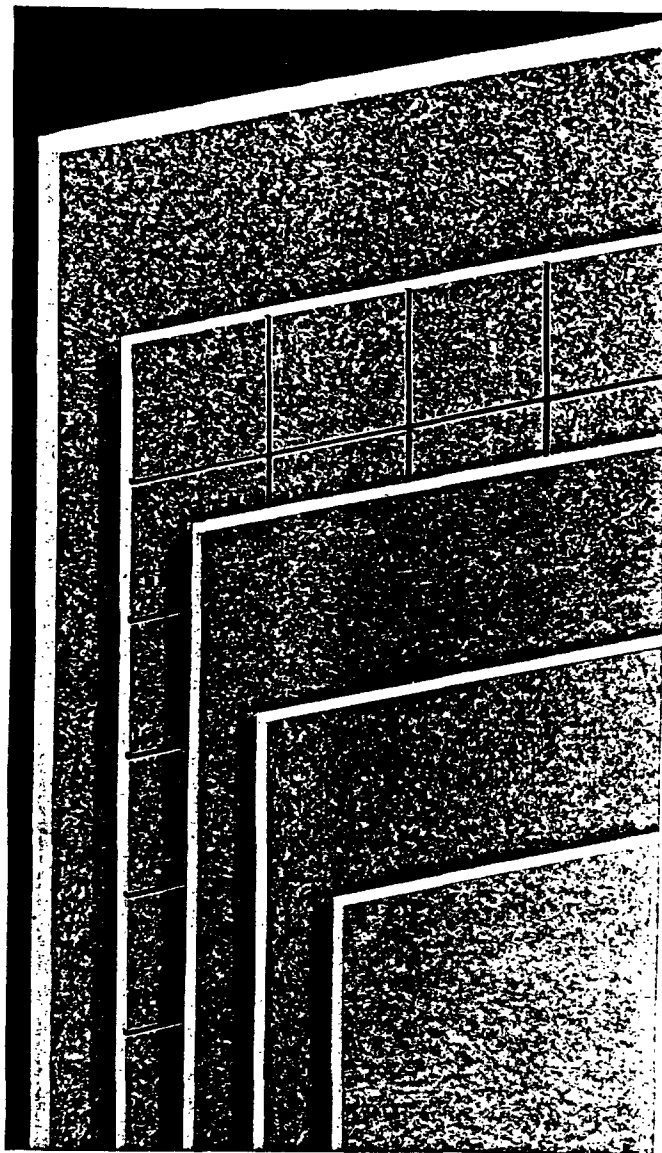
Structoboard — Less dense than Hardboard but rigid and economical. Sheet sizes: 4 ft. x 2, 3, 4, 6, 8, 9, 10 and 12 ft. $\frac{1}{4}$ in. thick.

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.

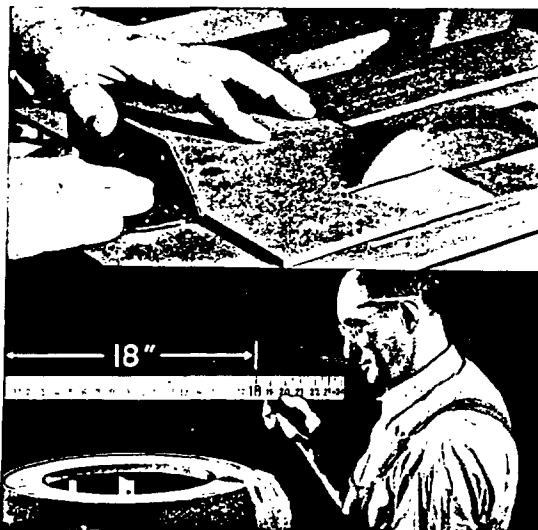
Treated Weatherwood Hardboard is $\frac{1}{8}$, $\frac{3}{16}$ or $\frac{1}{4}$ inch thick. Sheet sizes: 4 ft. x 2, 3, 4, 6, 8, 9, 10 and 12 ft.

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



USG Hardboards are easily cut and bent to small diameters.

Flexibility of USG Hardboards suggests new design possibilities.



BB018 1503

USG 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.

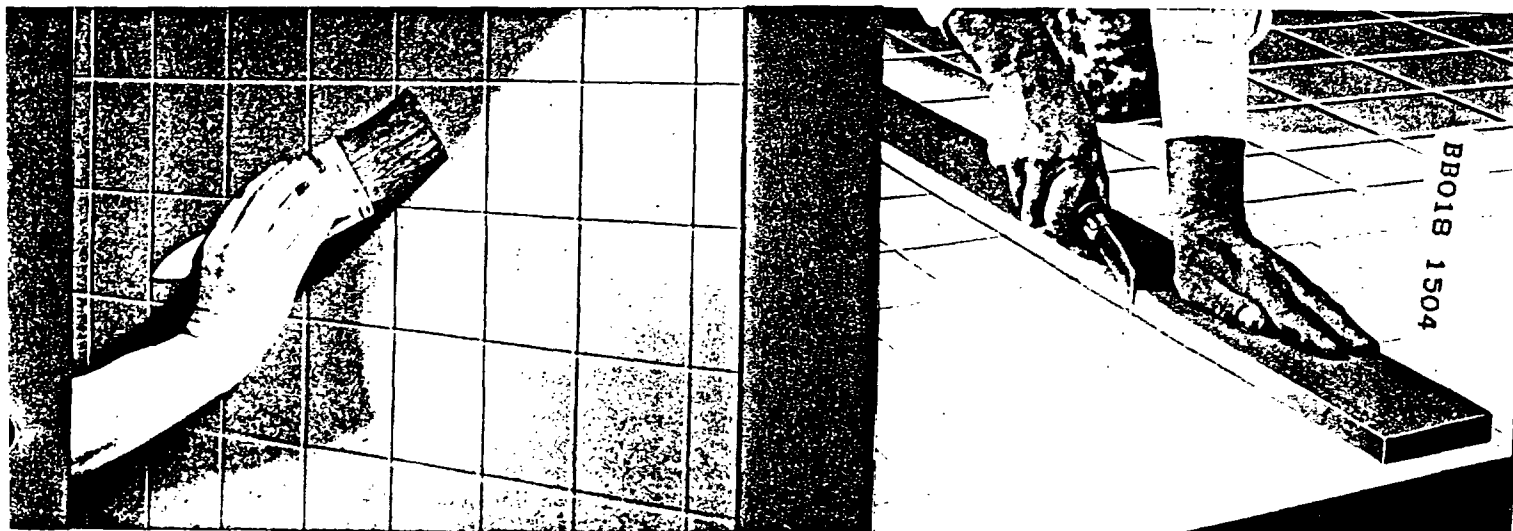
SIZES

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.

Paint covers well over Tile Board.



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

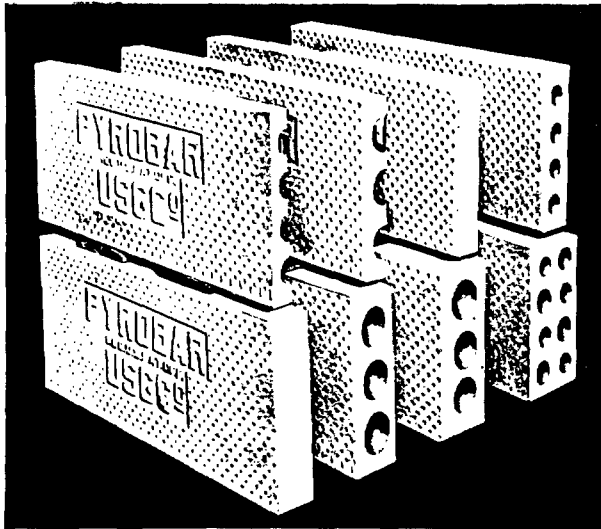




PYROBAR GYPSUM TILE

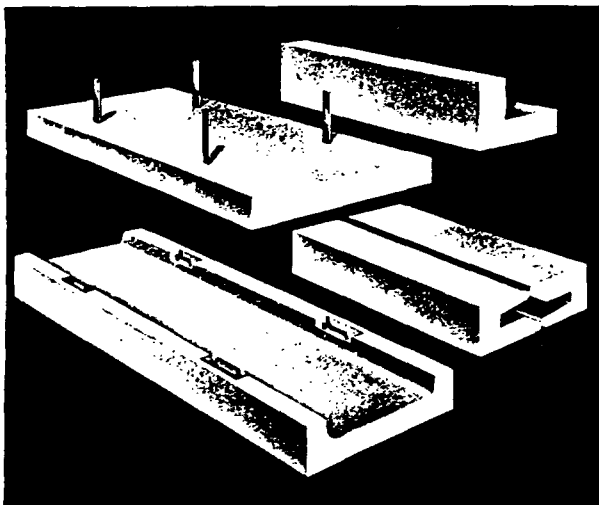
For: partitions and furring; beam, girder and column fireproofing

USG PYROBAR GYPSUM TILE FOR PARTITIONS, BEAMS AND GIRDERS



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.



Pyrobar Beam and Girder Tile

For fireproofing steel beams and girders. Steel at 1000° F. begins to lose strength rapidly. It is impossible for Pyrobar-protected steel to reach a higher temperature than 212°F. until the Pyrobar has completely calcined. Calcination of and heat transfer through Pyrobar requires hours under severe conditions.

Fireproof

The fire-resisting qualities of Gypsum Tile have been established by many tests during the past 38 years.

Pyrobar Partition Tile used in conjunction with Pyrobar Beam and Girder Tile provide a complete fireproofing system.

Ease of Erection

Pyrobar Beam and Girder Tile, easily cut and fitted, meets the wide variety of conditions which construction imposes.

Partition Tile can be laid rapidly, as each unit provides 2½ sq. ft. of wall surface. True, square edges make it easy for the workman to lay walls straight and plumb; saving plaster.

Light in Weight

Pyrobar Tile weighs from 24 to 46 per cent less per square foot than clay tile of an equal thickness. This enables the designer to effect worth-while savings in steel for columns, girders and beams. It also reduces freight, hauling, hoisting and labor charges.

Adaptability to Alteration

One of the important requirements for partitions in office buildings, hotels and many other buildings is that they be easily removed or altered. New openings in Pyrobar Partitions may be cut out with a saw. New trim fits over the edges of the partition tile, saving replastering. In most cases units removed can be salvaged for other uses.

Fixtures Readily Attached

Light trim can be nailed directly to Pyrobar Partition Tile without shattering or breaking it. Heavy fixtures are attached by bolting through the partition.

Economy

Pyrobar is economical for partitions because less plaster and mortar are required. There are 40 per cent fewer joints in a wall of Pyrobar Tile than in a wall of the same thickness but having units with only 1 sq. ft. of face surface. This results in important savings of mortar.

Practice has shown that Pyrobar Tile require 20 per cent less plaster than is used over clay tile. This is because they are cast in steel moulds, assuring straight edges and true faces. They are dried, not burned, and consequently are not warped or distorted. The true, even surface requires no extra plaster for truing up to grounds.

Pyrobar Tile is also economical because of the ease and rapidity of erection of large units, and because of its high percentage of salvage when changes are made.

Good Plaster Base

Gypsum readily bonds with Gypsum. Pyrobar is therefore an ideal base for Gypsum plaster. Even when not plastered Pyrobar present a good appearance, clean-cut, uniform and white.

Three-inch hollow Pyrobar Partitions plastered on both sides cost but little more than the most economical plastered wood stud partition, and in most locations show useful savings in first costs and maintenance over other partition constructions generally used in fireproof buildings. (See tabular comparison of partition costs on Pages 4 and 5.

Erecting

All fireproofing shall be erected in strict accordance with the United States Gypsum Company's standard details. All units shall be laid in gypsum mortar with full flush joints, true to line and plumb.

BB01B 1505

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

CLIP

Type

F

H

T

Weight per
lin. ft., lbs.

L-34

3"

4"

2"

15

L-45

4"

5"

2"

18.5

L-46

4"

6"

2"

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"

7 3/8"

4 1/4"

1 1/2"

2"

12.5

B-50

6"

8 1/4"

4 1/4"

1 1/2"

2 1/2"

13

B-65

7 1/2"

9 3/4"

4 1/4"

1 1/2"

3 1/4"

15

B-80

9"

10 1/2"

4 1/4"

1 1/2"

4"

16

B-100-C (Channels)

4 1/2"

4 1/2"

1 1/2"

4 3/8"

10

STRAP TYPE SOFFIT TILE

24-in. Lengths

24" LENGTHS

CLIP

Type

F

C

T

W

Weight
per lin.
ft., lbs.

S-10

15 1/4"

2 1/2"

2"

10"

13

S-11

15 1/4"

2"

2"

11"

13

S-12

17 1/4"

2 1/2"

2"

12"

14.5

S-13

17 1/4"

2 1/2"

2"

13"

14.5

S-14

19 1/4"

2 1/2"

2"

14"

16

S-15

19 1/4"

2"

2"

15"

16

SOFFIT TILE

CHICKEN WIRE MESH
REINFORCING FULL MESH

SECTION

PLAN

TILE SECURED TO BEAM
SOFFIT WITH 2 1/2 x 3 x 1/8"
PLATES IN WIRE LOOPS
FOUR PLATES PER TILE.

3" HOLLOW
PYROBAR
ON SIDES

TYPICAL
INSTALLATION

Type

A

B

C

D

Weight
per lin.
ft., lbs.

Max.
width
of flange

R-30-S

7 1/4"

3"

3 1/4"

1"

8

3"

R-40-S

8 1/4"

3 1/4"

4 1/4"

1 1/4"

9

4"

R-50-S

9 1/4"

3 1/4"

5 1/4"

1 1/4"

10

5"

R-60-S

10 1/4"

3 1/4"

6 1/4"

1 1/4"

11

6"

R-70-S

11 1/4"

3 1/4"

7 1/4"

1 1/4"

12

7"

R-80-S

12 1/4"

3 1/4"

8 1/4"

1 1/4"

13

8"

R-90-S

13 1/4"

3 1/4"

9 1/4"

1 1/4"

14

9"

R-100-S

14 1/4"

3 1/4"

10 1/4"

1 1/4"

15

10"

R-115-S

15 3/4"

3 3/4"

11 3/4"

1 3/4"

16

11 1/2"

R-130-S

17 1/4"

3 3/4"

13 1/4"

1 3/4"

17 1/2

13"

R-145-S

18 3/4"

4"

14 3/4"

2"

19

14 1/2"

R-160-S

20 1/4"

4"

16 1/4"

2"

20 1/2

16"

R-175-S

21 3/4"

4"

17 3/4"

2"

22

17 1/2"

B01B 1506



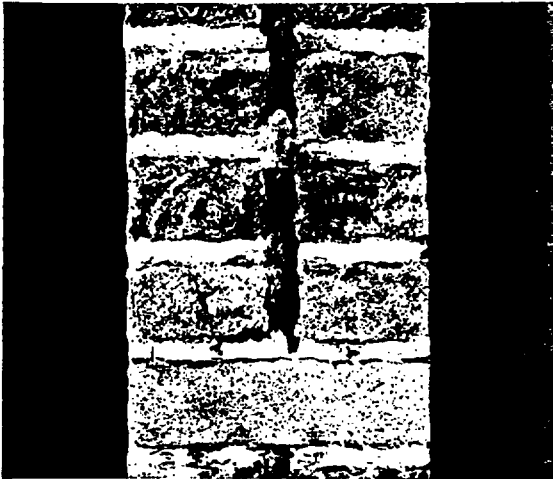
MASON'S LIME

MASONRY MORTARS—WATERPROOFING—IN CONCRETE—

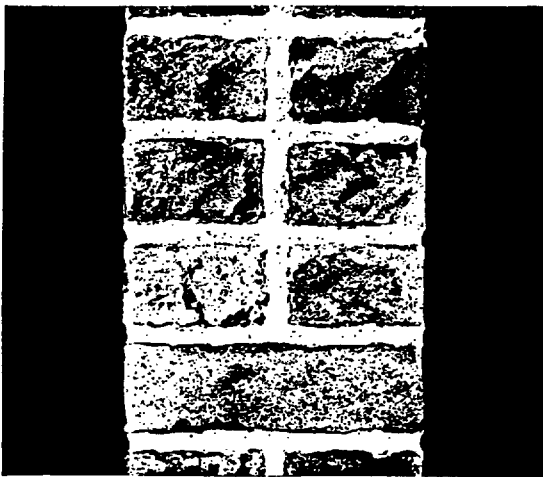
WHITEWASH . . . HIGH CALCIUM—DOLOMITIC—HYDRATED OR QUICK



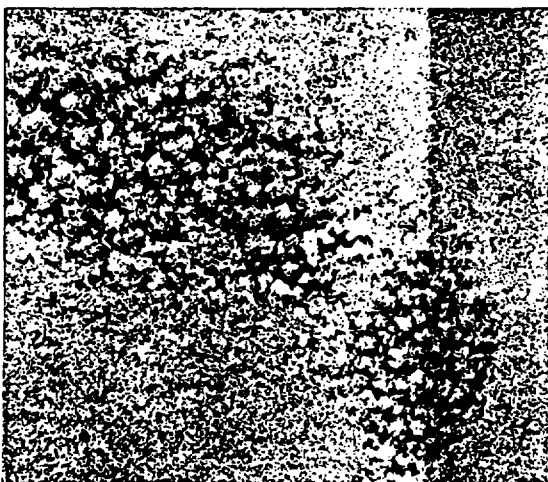
USG MASON'S LIME IN BUILDING CONSTRUCTION



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.

BB01B 1507

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.		

USG BRANDS OF MASON'S LIME

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:

Rep Top Mason's Hydrate.....50-lb. paper bags
Snowdrift Mason's Hydrate.....40-lb. paper bags
Marble Rock 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
USG Pebble Mason's Quicklime.....180-lb net wood barrels or steel drums

USG Crushed Mason's Quicklime....180-lb. net wood barrels or steel drums
Peerless Pulverized Mason's Quicklime...100-lb. paper bags and 180-lb. net wood barrels or steel drums
Peerless Crushed 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. paper bags, 90-lb. steel drums and 180-lb. wood barrels

USG Lump Lime is shipped in bulk. All above brands may be shipped in bulk.

DIRECTIONS—HYDRATED LIME

Hydrating—First pour water in box, then add Hydrated Finishing Lime to the water, distributing it uniformly. The water must cover the lime.

Use sufficient water—about 6½ gallons to 50 pounds of hydrate, an amount sufficient for a soft, wet paste.

Soaking—Allow to remain undisturbed for at least 6 hours, preferably over night. Protect from frost and drying up until used.

Soaking develops plasticity, and putty should not be allowed to dry after it has reached the correct buttery consistency.

Mixing—Mix putty with sand or with sand and cement, adding sufficient water to bring mix to a hokable consistency.

DIRECTIONS—QUICKLIME

Slaking—Add water and lime gradually while mixing, constantly agitating mixture to prevent burning of unslaked portion. Mix to a thin consistency and screen through a quarter-inch mesh screen.

If dolomitic lime is used, the lime must not be hoed or stirred except to level out any hot, dry areas which do not receive water.

Aging—After screening, run mixture into aging box. Lime must be aged until it is cool and the putty is hokable. Lime putty produced from quicklime should never be used until aged at least one week, and a longer time is preferable to assure complete slaking.

Mixing—Mix putty with sand or with sand and cement, adding sufficient water to bring mix to a hokable consistency.

1508



STRUCTURAL INSULATION

Weatherwood Plaster Base—Weatherwood Asphalt Coated Sheathing

Weatherwood Roof Insulation—Weatherwood Tile and Plank

Weatherwood Building Board . . . Insulating Sheetrock—Insulating Rocklath

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 <i>Plain or "Fasnaf"</i>	18x48 in.	$\frac{1}{2}$, $\frac{3}{4}$ " and 1" in.	725 lbs.	V-Joint Long Edges	Fasnaf Joint Reinforcement: Reinforcing snaps quickly into place to give horizontal joints additional plaster reinforcement.
Weatherwood Asphalt Coated Sheathing	2x8 ft.	$\frac{5}{8}$ 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.	$\frac{5}{8}$ in.	1225 lbs.	Square	Can be used as structural sheathing under all types of frame siding, brick veneer or stucco constructions.
	3x8 ft.	$\frac{1}{2}$ in.	750 lbs.	V-Joint Long Edges	Economical for low cost construction.
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; aluminum 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.	$\frac{1}{4}$ in.	1050 lbs.	Square	Fireproof; aluminum 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.	¾ in.	1500 lbs.	Natural Color	Walnut and Knotty Pine	Square	Photographic reproduc- tion of wood panels.	
Weatherwood Insulating Building Board	4 ft. W. x 4*, 5*, 6, 7, 8, 9, 10, 12 ft.	¾ in.	580 lbs.	Ivory and Gray-Tan	Skin and Textured	Square Butt Joints	Finish resists scratching, scuffing; high light re- flection.	
		½ in.	725 lbs.					
		1* in.	1450 lbs.					
		1½* in.	2125 lbs.					
		2* in.	2300 lbs.					
Weatherwood Tile	12x12 in.	½ 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 4 Sides	Can be applied without regard to stud or joist spacing.	
	16x32† in.							
	24x24 in.	¾ in.	1250 lbs.		Textured	Ogee Long Edges	Can be applied vertically or horizontally.	
	24x48* in.							
12x24*† in.								
16x32* in.								
24x48* in.								
Weatherwood Finish Plank	6, 8, 10, 12 or 16 in. W. x 8, 9, 10 or 12 ft. L.	½ in.	725 lbs.	Gray-Tan Blend	Textured	Ogee Long Edges	Can be applied vertically or horizontally.	
Weatherwood Paneltile	1x4 ft. 2x4 ft. 4x4 ft. 4x8 ft.	¾ in.	1250 lbs.	Ivory	Textured	Ogee 4 Sides	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 Page 32 for further Weatherwood data.

Sheetrock—Fireproof wallboard made of gypsum. 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 Pages 30, 34, 35 and 37.

Rocklath—Fireproof lath made of gypsum. Has the same properties as Sheetrock. Made in three types: Standard Rocklath, Perforated Rocklath, which has evenly spaced perforations to provide an extra mechanical bond with the plaster, and Insulating Rocklath, which has a backing of aluminum foil that provides high insulation value and an effective vapor barrier. See Page 12.

The Conductivity Rating of Weatherwood products is approximately .33 B.T.U. per in. of thickness

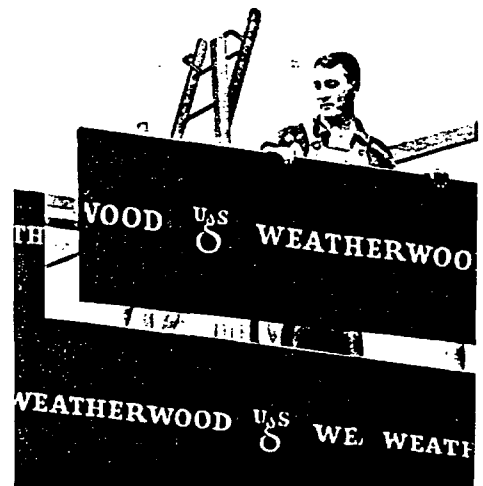
Weatherwood Insulating Plaster Base

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



Insulating Sheetrock Reflection Type

(Right) Has same heat reflection qualities as Insulating Rocklath. Extensive tests have shown that the aluminum 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.

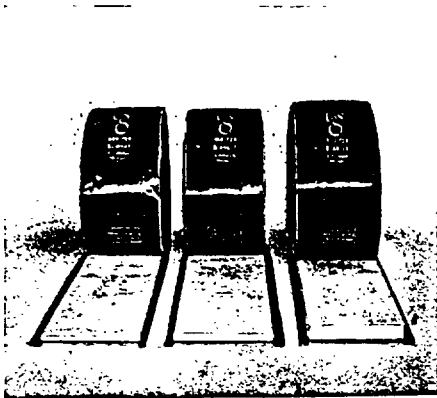


BB01B 1510



BLANKET INSULATION

RED TOP INSULATING WOOL



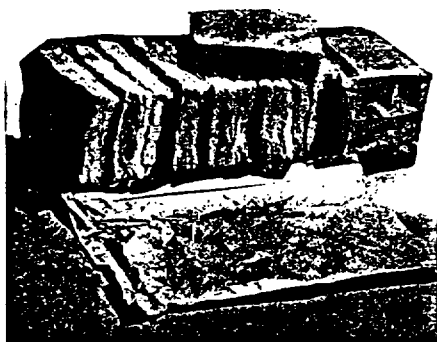
Red Top Roll Blankets

Rolls are recommended for large areas



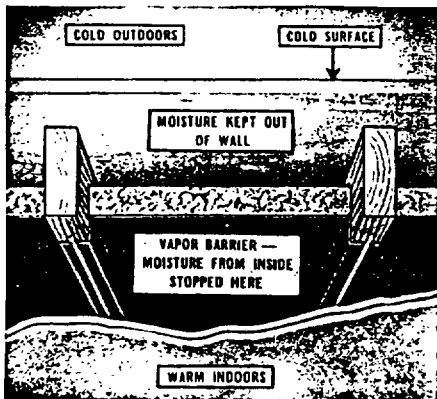
Red Top Bats

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. Made in three thicknesses: One inch, medium and thick, in rolls of 50, 75 and 150 square feet (net area), respectively. Also available in bats 3 ft. long in the same thicknesses.

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 per inch.

Range of Sizes

Made in: 1-in.; Medium; and Thick blankets, to meet various climatic, job and price requirements.

Light Weight

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, 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.

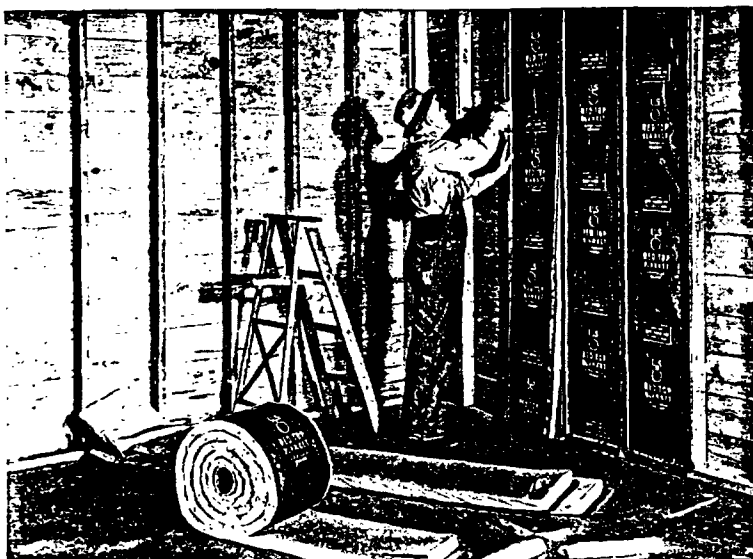
Cost

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.

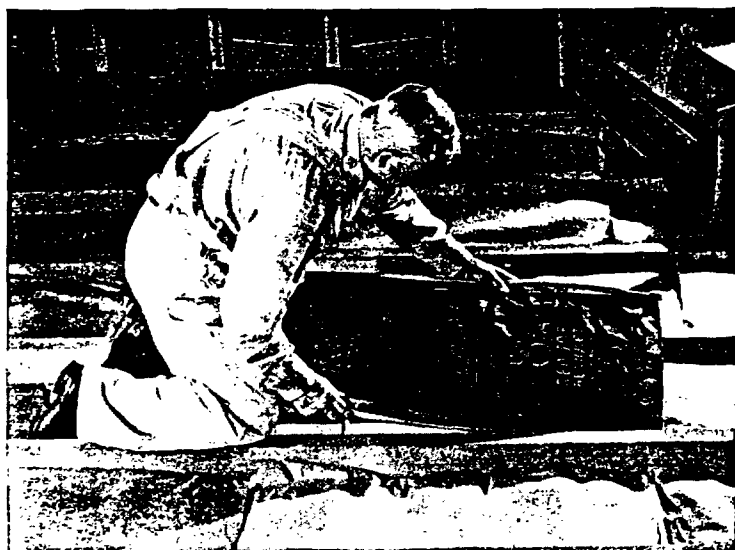
BB01B 1511



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	.32	.14	.091	.068
Composition, slate or tile roofing on wood sheathing				



ASPHALT ROOFINGS

ROLLS—INDIVIDUAL—STRIP SHINGLES—LOCK SHINGLES

THICK AND SQUARE BUTTS . . . QUALITY—COLOR—USEFUL DESIGNS



USG ASPHALT SHINGLES FORTIFY THE ROOF AGAINST FIRE, RAIN, SNOW AND WIND

When you select a roof for your home, you have every right to expect that its beauty should be more than "skin deep". Like people, some roofs show their age rapidly while others seem to retain their handsomeness through the years.

The natural beauty of USG Asphalt Roofings and Shingles goes more than skin deep—it is built into the product from front to back, side to side and top to bottom. That's why any USG asphalt roofing material will fortify your roof—fortify it against fire, sun, rain, snow and wind.

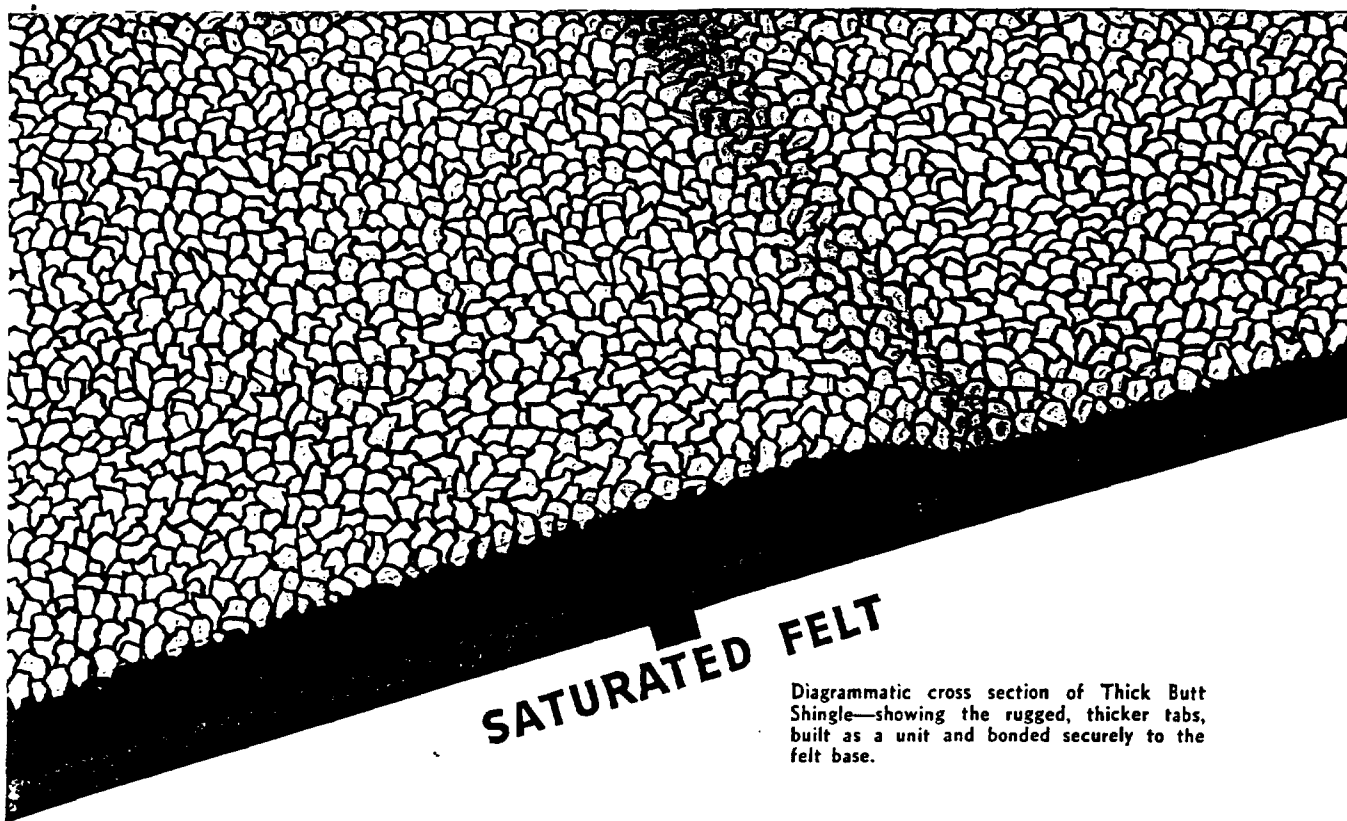
This "fortification" provided by USG Asphalt Shingles and Roofings is no accident. Rigid control over raw materials and manufacturing processes places exacting

requirements on the products at each phase of their manufacture. Thus, your USG roofing material is fortified at each step of production so that it, in turn, may fortify your roof.

520 U. S. municipalities have outlawed inflammable roofs as a menace to the safety of their communities. If you live in one of a certain group of states, your fire insurance rates can be reduced as much as 33⅓ per cent by applying a USG Asphalt Roof.

Resistance to the ravaging attacks of sun, rain, snow and wind adds years to the life and beauty of your roof and reduces its cost per year to an almost negligible amount. It's not only important to fortify your roof with a USG Asphalt Roof—it's also thrifty.

BB018 1513



SATURATED FELT

Diagrammatic cross section of Thick Butt Shingle—showing the rugged, thicker tabs, built as a unit and bonded securely to the felt base.

USG THICK BUTT SHINGLES FOR MASSIVE BEAUTY THAT ENDURES

The USG Thick Butt Shingle was developed to replace flat uninteresting surfaces with deep rugged shadow lines, producing a roof which has quality and weather resistance written boldly in its every line.

Extra thickness of life-giving asphalt is built up at the base of the shingle and carried back well beyond the exposed area.

Ordinary Thick Butt Shingles are made in alternating layers of granules and coating, applied one over the other to build up bulk. *But USG Research sought a better way—found it—and proved its superiority.*

With the USG "Monolithic Method" the extra thickness is composed of one moulded block of asphalt mastic bonded securely to the felt base and affording a bulldog grip on the granules which are embedded into its surface only.

A solid, unified base replaces the "layer-cake-method". Full bodied mastic replaces the under layer of granules. Asphalt is the life of the roof—it is the asphalt that has the ability to fight sun and weather. Therefore, the "Monolithic" base developed by USG Research gives the shingle a unified body without layers to separate—composed solely of asphalt mastic and located at the weather-line where wear is most severe.

The Thick Butt Shingle, made by the scientific "Monolithic Method", is further evidence that "USG always means quality". It is made in modern blends and solid colors, plain or textured.

TEXTURING PRODUCES THE BEAUTY OF CYPRESS GRAIN PLUS OTHER WEAR-WORTHY ADVANTAGES

Texturing produces a rustic weathered effect combined with advantages which defy weather. Steam heated engraving rolls deep-etch the grain into the face of USG Thick Butt Shingles without danger of fracturing the felt because of the heavy cushion of asphalt mastic. The granules are embedded more firmly into the base by this method. Texturing has the same effect as corrugation in stiffening the tabs to keep them from lifting in the wind. The grooves form drainage channels which tend to conduct the rain away from the cutouts. The texture lines eliminate surface checks and cracks. They also act as joints to absorb expansion. Adding greater strength and security to the rugged beauty of cypress graining, the USG Textured Thick Butt Shingle has won its leadership on merit.



ASBESTOS CEMENT

ROOF SHINGLES—SIDINGS

GLATEX, THE ORIGINAL MINERAL GLAZE FINISH

ASBESTOS CEMENT ROOF SHINGLES AND SIDING

USG Asbestos Cement Roof Shingles and Sidings are made of asbestos fibres and portland cement felted together and set under great pressure. They are permanent, economical, water-resisting and fire-resisting. They carry the highest ratings of the Underwriters' Laboratories, Inc.

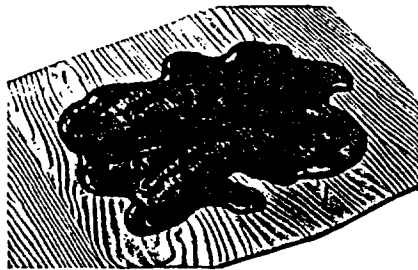
Sidings are specially treated for water repellency. Colors are true and uniform.

The Glatex Process—A new method of manufacturing asbestos cement siding which gives it a harder, more durable finish

than ever before produced. It is fully cleanable, non-porous and non-absorbent.

The Glatex finish is a mineral glaze baked on and into the shingles at high temperature. Oil, grease, soot and other stains due to ordinary exposure are easily removed with soap and water.

Glatex is available at present only in No. 600 Siding in white, cascade green and silver brown.



Even Dirty Oil Will Not Penetrate "Glatex" Surface



Wipes Off—Like Cleaning a China Dish

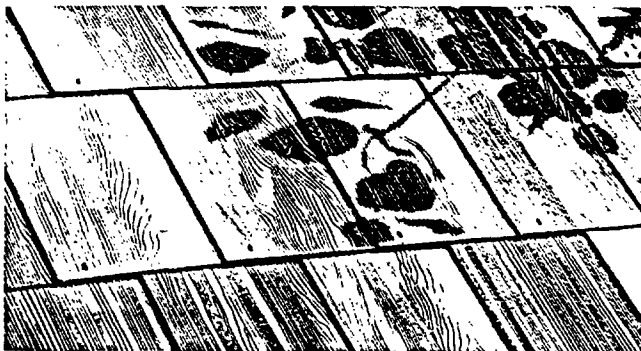


The Surface Is Restored to Its Original Freshness

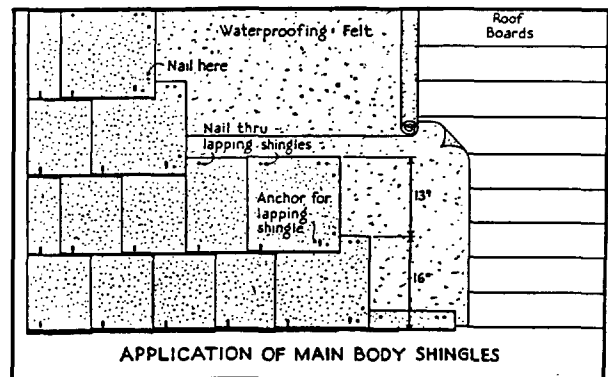
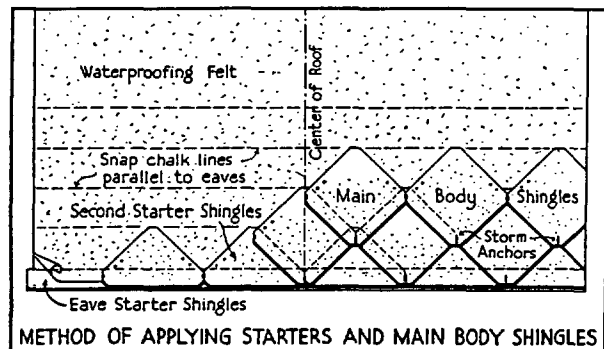
ROOF SHINGLES



No. 100 USG Hexagonal Method Shingles—Smooth surface, uniform thickness. Class B Underwriters' Label. Gray, green, red, black. 16 x 16 x $\frac{3}{8}$ in. Approximate weight per square: 250 lbs.



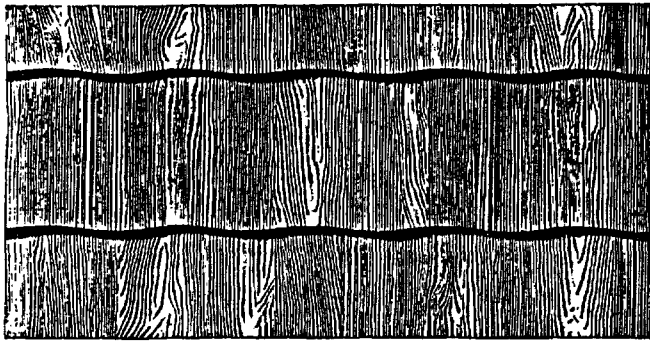
No. 300 USG Dutch Lap Shingles—Idealized wood grain texture, uniform thickness. Class B Underwriters' Label. Gray, green, black, red. Size 16 x 16 x $\frac{3}{8}$ in. Approximate weight per square: 266 lbs.



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

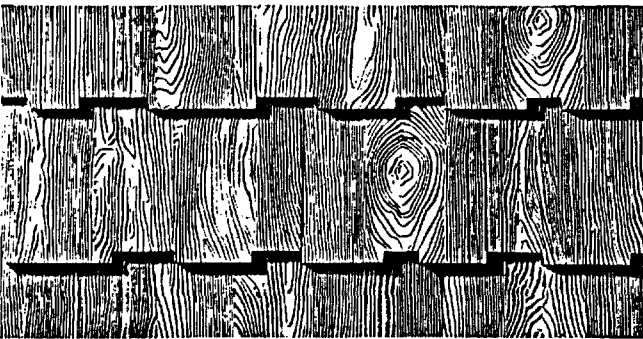
BB01B 1515

SIDINGS



No. 600 USG Wavy Butt Siding—Idealized wood grain texture, uniform thickness. Bright gray, white. Size $12 \times 27 \times \frac{3}{8}$ in. Approximate weight per square: 183 lbs.

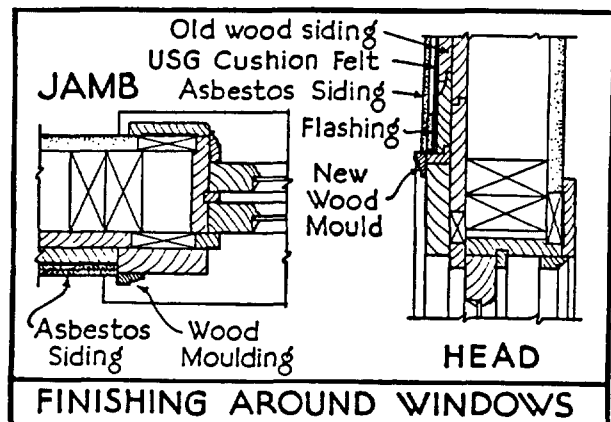
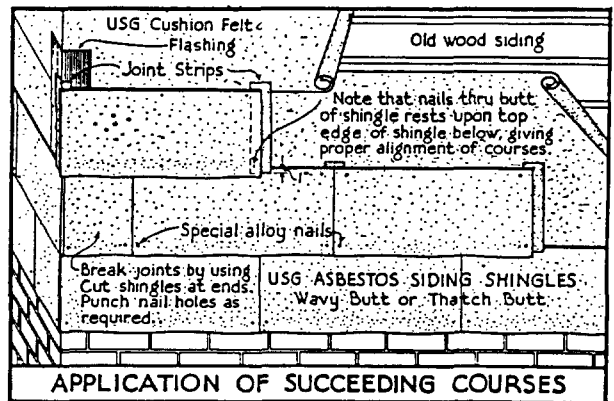
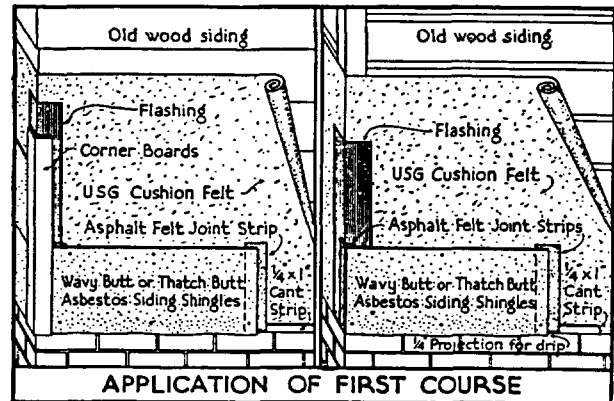
No. 600-A USG Wavy Butt Siding—Same texture. Bright gray and white. Size $9\frac{1}{2} \times 27 \times \frac{3}{8}$ in. Approximate weight per square: 186 lbs.



No. 700 USG Thatch Butt Siding—Idealized wood grain texture, uniform thickness, deep wavy lines. Bright gray, white. Size $12 \times 27 \times \frac{3}{8}$ in. Approximate weight per square: 183 lbs.



No. 900 USG Clapboard—Idealized wood grain texture, uniform thickness. White. Size $9 \times 27 \times \frac{3}{8}$ in. Approximate weight per square: 187 lbs.



INSO-BAK

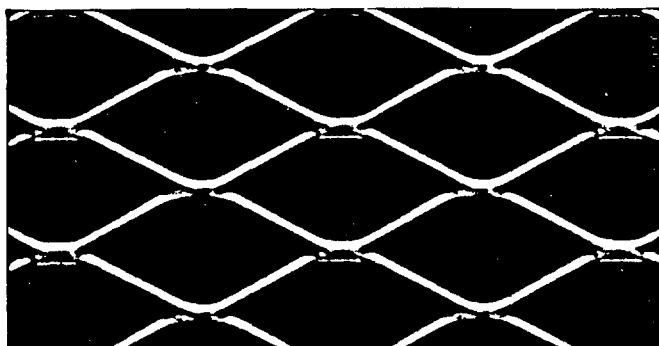
Inso-Bak is a $\frac{3}{8}$ in. thick asphalt coated insulation board for use under asbestos cement siding and shingles. Particularly useful for remodeling work; takes the place of building paper, adds insulation; an ideal backing for asbestos cement siding. Large units—2 ft. x 5 ft. (long edges ship-lapped). Inexpensive.

BB018 1516



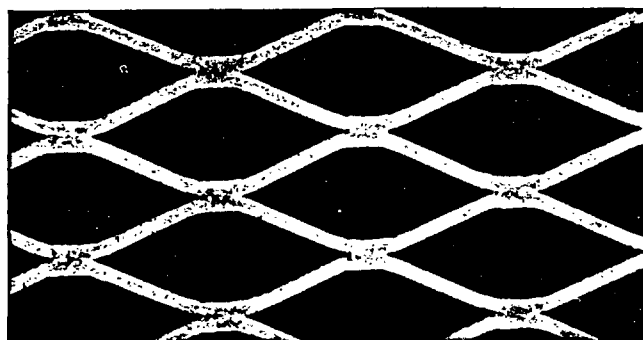
EXPANDED METALS

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



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 bulk in addition to the thickness of the steel from which it was cut. 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.

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.

Variety of Finishes—These metals will take any type of coating: nickel, chrome, copper, good grades of paint, and rubber, either by dipping or anodic process.

Strength—Econo Mesh and Shelf-X are made of cold-drawn steel strands.

Light in Weight—These materials are both far lighter than an equal area of sheet steel in the same gauge.

Appearance—USG Expanded Metals present a neat clean appearance.

Uses

Accepted as ideal for window guards, open mesh partitions, railings and similar applications, these light, sturdy sheets are adaptable to many other purposes. USG Expanded Metals are attracting the attention and use of architects and designers for non-slip, self-cleaning catwalks; substantial grilles; metallic furniture; special containers and "retainers," where ventilation, strength and light weight must be combined—to suggest but a few current applications.

Various Metals Used

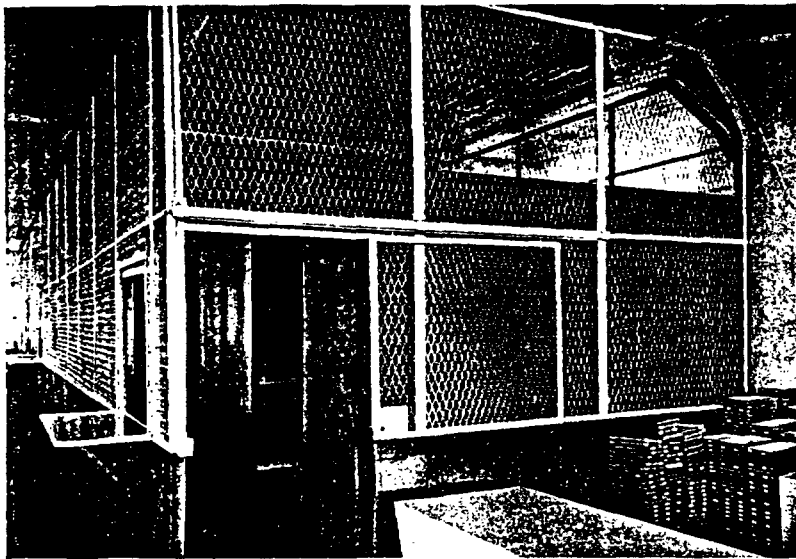
USG Expanded Metals of open hearth and stainless steels are carried in stock. They can also be produced in aluminum, copper and other metals.

Design and Development Service

We maintain a design and development service which we invite architects to use. Problems submitted, of course, remain confidential.

Guide to the Selection of USG Expanded Metals

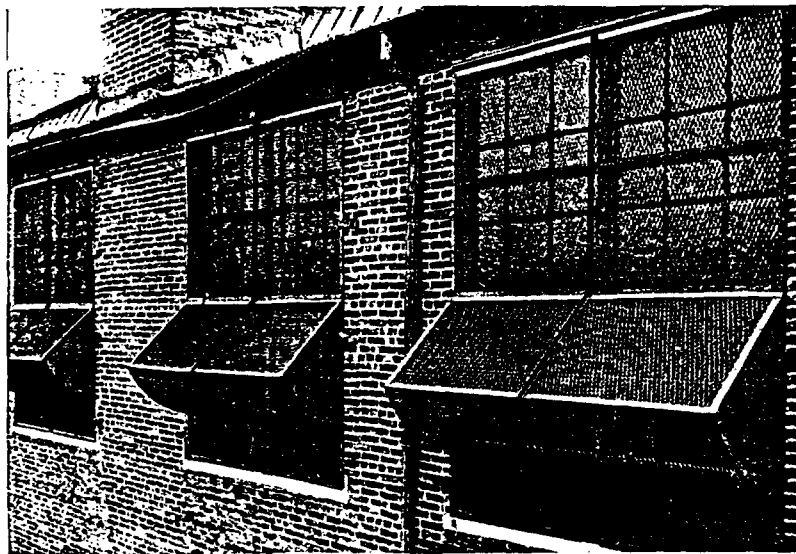
Style No.	Wt. per sq. ft. (lbs.)	Sq. in. sec. area per ft. of width	Size of ea. diam- ond (in.)		Sheet size		Approx. open area	Made from U. S. Standard Ga. No.	Recommended uses						
			Wide	Long	Width (short way of diamond)	Length (long way of diamond)			Machine Guards	Window Guards	Lockers	Parti- tions	Furni- ture	Trays & Racks	
ECONO MESH															
1½ in. #18	.70	.20	.50	1.20	4 & 6 ft.	8 ft.	65%	18	•						
¾ in. #16	.54	.16	.87	2.00	4 & 6½ ft.	8 ft.	76%	16	•	•	•				
¾ in. #13	.80	.24	.87	2.00	4 & 6 ft.	8, 10, 12 ft.	76%	13	•	•	•				
¾ in. #10	1.19	.35	.87	2.00	4 & 6 ft.	8 ft.	69%	13		•					
¾ in. # 9	1.80	.53	.87	2.00	4 & 6 ft.	8, 10, 12 ft.	68%	10		•					
1½ in. #10	.79	.23	1.37	3.12	4 & 6 ft.	8 ft.	81%	13		•		•			
1½ in. # 9	1.19	.35	1.37	3.12	4 & 6 ft.	8, 10, 12 ft.	80½%	10		•		•			
1½ in. #68	.68	.20	1.37	3.12	4 & 6 ft.	8 ft.	84%	12				•			
SHELF-X															
1½ in. #18	1.14	.34	.28	1.06	4 ft.	8 ft.	35%	18					•		
1½ in. #18	.70	.20	.50	1.26	3 & 4 ft.	8 ft.	60%	18					•		
1½ in. #16	.87	.25	.50	1.26	3 & 4 ft.	8 ft.	60%	16					•		
¾ in. #16	.54	.16	.89	2.12	3 & 4 ft.	8 ft.	73%	16						•	
¾ in. #13	.80	.24	.89	2.12	3 & 4 ft.	8 ft.	73%	13						•	
1½ in. #16	.31	.91	1.40	3.25	3 & 4 ft.	8 ft.	81%	16						•	
1½ in. # 9	1.19	.35	1.40	3.25	3 & 4 ft.	8 ft.	78½%	10						•	



PARTITIONS

USG Expanded Metals are used to build both portable and permanent partitions. They have ample rigidity and make a good appearance. When made up into panels according to our recommendations they may be reclaimed 100% for future use. These metals provide barriers against thievery since to break through it is necessary to cut a large opening. Expanded Metal cannot readily be bent away from a small cut.

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

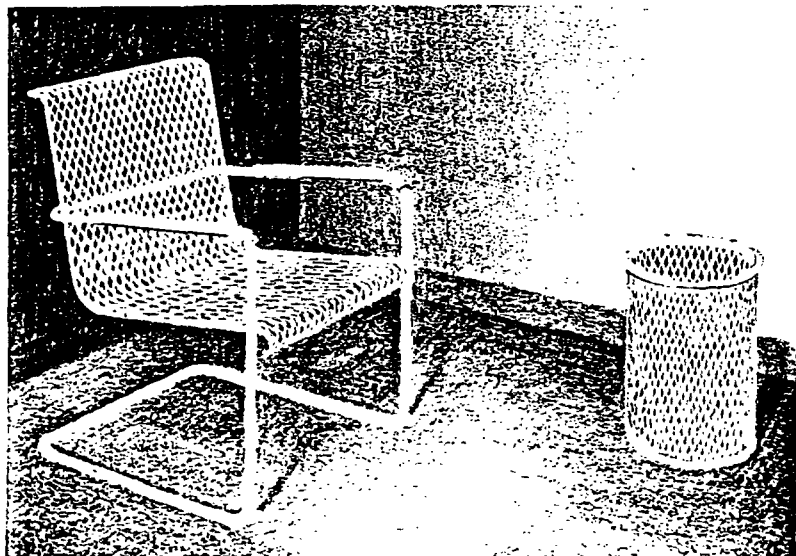


GUARDS

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.



EQUIPMENT

The appearance, strength and workability of Shelf-X adapts it for use in the fabrication of grilles, tables, chairs, display pieces and other special items.

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.

The UNITED STATES GYPSUM COMPANY is prepared to assist in the development of new uses for Expanded Metals. Our confidential Design and Development Service is maintained for this purpose.

BRO18 1518



WATER THINNED PAINTS

INTERIOR—EXTERIOR

FLAT-TEXTURE . . . PRIMERS—SPACKLING COMPOUNDS

PAINTERS PLASTERS

TEXOLITE WATER-THINNED PAINTS

Texolite Water-Thinned Paint employs the newly developed protein-base vehicles. It combines all the color values of tempera and fresco, yet may be applied with ease and freedom.

Furnished in paste form, water only is added to make it ready for application.

Advantages

Texolite dries in about one hour. It does not crack, peel, yellow or fade when applied as directed. One coat covers most surfaces. There is no objectionable paint odor or fire hazard. Texolite is easy to mix and apply. It dries to a hard dry film which repels dust.

Texolite is low in cost and provides other economies. For example, one gallon covers walls and ceilings of an average room; since it is water-thinned, there is no thinner cost; it applies quickly, saving labor.

Where Used

Texolite can be used for almost every type of interior. It is not recommended for kitchens, bathrooms or rooms which are subject to excessive humidities and condensation on wall surfaces. Practically any other interior surface, however, can be painted with Texolite: gypsum wallboards, fibre and insulating wallboards, new and old plaster, concrete, etc.

Properties

Purity of Colors—Since the paint vehicles used in Texolite have a crystal-like transparency and do not acquire color or darken with age, they reveal the pure color of the pigments which they bind permanently to the surface.

High Light Reflection—Tests made by the scientific section of the National Paint, Varnish and Lacquer Association, Inc., have established that Texolite colors have high reflectance percentages.

Quick Drying—Two coats can be applied, one over the other, with practically no interruption to the painter's work. When the first coat is finished the second can be started.

No Paint Odor—Since water is the thinner, volatile solvents which give unpleasant odor to oil-base paints are eliminated.

Fire Safe—The use of water as a thinner removes any possibility of fire hazard.

Durability—The film produced by Texolite has several times the adhesive power of oil film. It hardens with age without cracking or peeling. It is, however, desirable to use oil-base paints for such surfaces as baseboards and doors which are subject to abrasion.

Washability—Texolite painted walls and ceilings are washable after the film has matured for several months. They can be washed clean gently, but should not be subjected to the abrasive action of vigorous scrubbing.

New, Yet Time Tested

Made for interior use, Texolite was nevertheless the choice for the exteriors of most of the buildings at the Chicago, Dallas and Cleveland Fairs. It complies with specifications of all Federal Departments and construction agencies.

Colors

Texolite is furnished in white and ten colors which produce a soft, glareless sheen.

TEXOLITE DEEP COLORS

Texolite Deep Colors bring new possibilities to home and commercial decorating. They have all the advantages of Texolite. Used to provide brilliant color effects in homes, apartments, hotels, schools, shops, restaurants, show windows, etc. Mixed with white Texolite they provide practically any

color or shade.

Because Texolite Deep Colors are made in a balanced formula, they can be mixed with regular Texolite or inter-mixed with themselves without danger of streaking or color flotation.

Twelve colors are available.

DURACAL, POWDER CASEIN PAINT

Duracal is prepared for application to walls and ceilings by mixing with water. It is designed for use on plaster, concrete, brick, stone, wallboard or primed wood surfaces. It is especially adapted for use over new plaster as it is not affected by lime.

Furnished in eight colors and white. An unlimited

variety of blends may be obtained by intermixing the standard colors in any proportion.

Duracal colors are high in reflection value and have such excellent hiding power that seldom is a second coat needed. Dry quickly and form a smooth coat that will not chip, flake or rub off when applied as directed.

CEMENTICO HYDRAULIC CEMENT PAINT

A porous masonry paint with unusual capacity for bringing life and color to stucco, brick, poured concrete and similar porous surfaces. It may also be used over interior porous masonry such as basement walls.

It is not intended for use over non-porous surfaces, over lime or gypsum plaster, over sidewalks or floors,

or over wood or painted surfaces.

Cementico comes in dry powdered form, and is mixed with water.

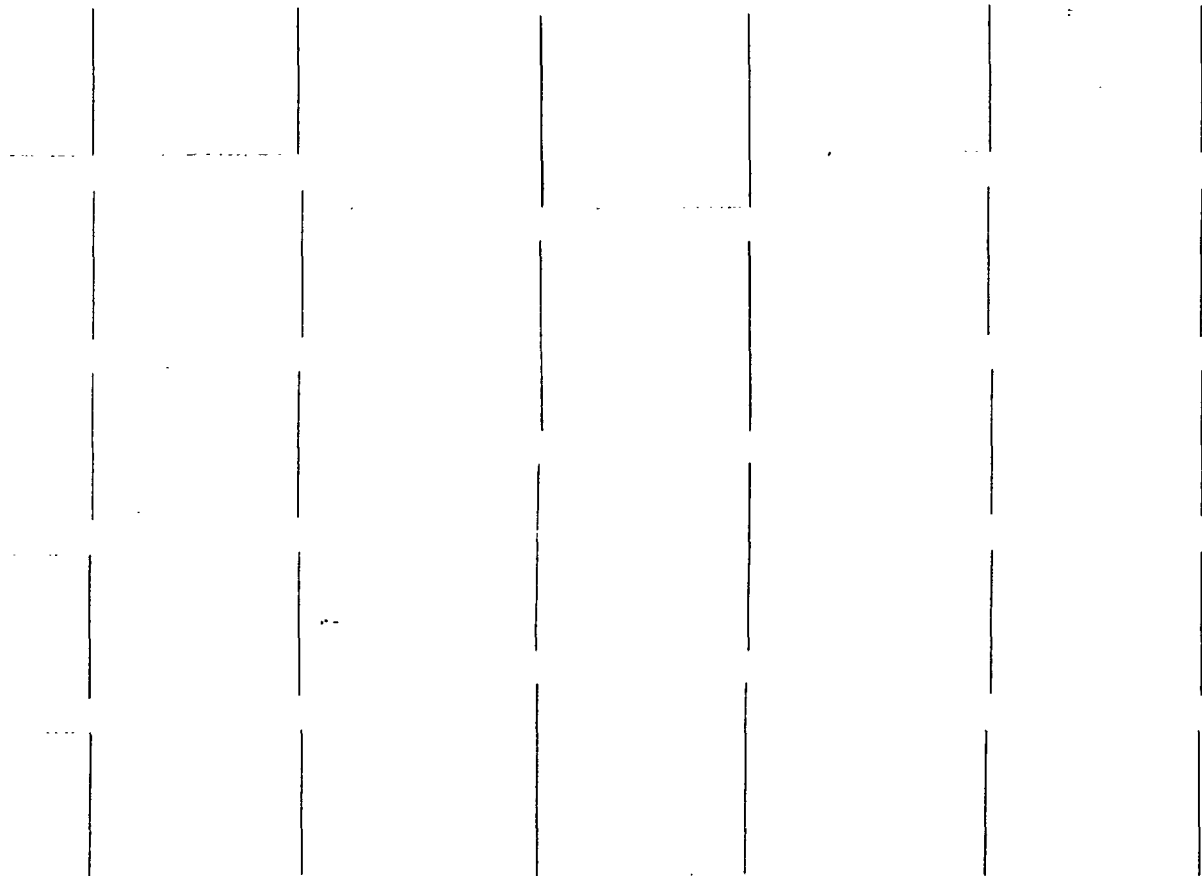
The color pigments are limeproof, assuring brilliance and long life. Available in ten colors and white.

STANDARD COLORS AVAILABLE IN USG WATER-THINNED PAINTS

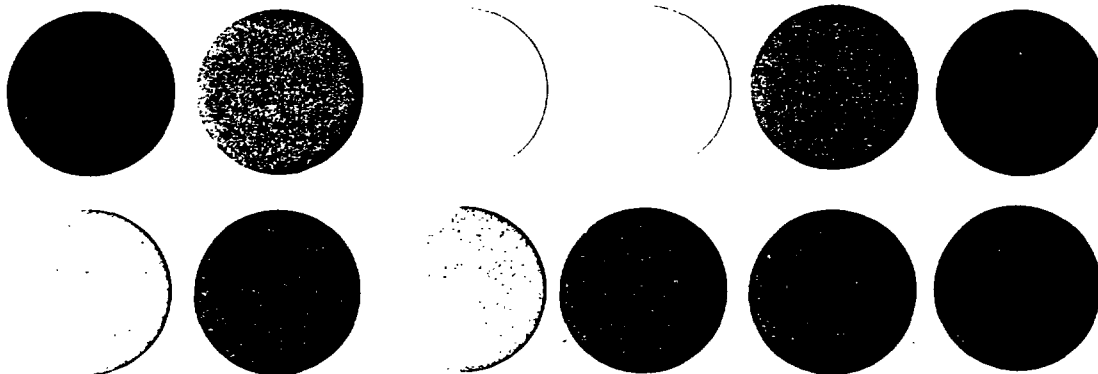
TEXOLITE

DURACAL

CEMENTICO



TEXOLITE DEEP COLORS



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.....60-72
Blue.....57-66
Yellow to Ivory.....75-81

MEDIUM TINTS OF:

Gray.....49-59
Tan.....52-60
Green.....50-55
Blue.....44-49
Yellow.....65-70

STRONG TINTS OF:

Gray.....30-40
Tan.....30-41
Green.....35-44
Blue.....21-27
Yellow.....53-58

SOLID COLORS:

Red.....11-20
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.

BR018 1520

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 in homes, hotels, apartments, offices, stores, shops, schools, hospitals, factories and warehouses. 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 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.
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 flaking. 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 good 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.	Arch 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 Lime-proof Colors or applied white and color supplied by further treatment.
Same as Textone when highest quality is not demanded.	USG TEXTURE PAINT* —a lower priced plastic paint than Textone, used in the same manner, but in applications where the utmost in quality of finish is not a primary essential.	For same purposes as Textone, but provides less coverage and generally not quite so high in quality. Can provide excellent textures in both period and modern styles.

*Reg. Trade Marks

BO18 1521

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.
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, enamels, casein and water thinned paints. Reg. Trade Marks.

BB018 1522

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 proofed 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 Econo-Brite*.

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 page 57 the constructions are tabulated and compared for quick selection. On later pages, each type is described, detailed and fully illustrated.

LIGHT WEIGHT

Through the utilization of hollow constructions, or light weight aggregates the well known inherent lightness of all gypsum decks is enhanced — usefully reducing the loads to be carried by the supporting framework.

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 Econo-Brite*.

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
Pyrobar* Short Span Tile (3 in. hollow).....	.39
Pyrobar* Short Span Tile (4 in. hollow).....	.35
2½ in. Sheetrock-Pyrofill*	.38
2½ in. Sheetrock-Pyrofill plus ½ in. Weatherwood....	.24
3 in. Sheetrock-Pyrofill*	.35
2½ in. Weatherwood-Pyrofill* (½ in. board).....	.26
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 ROOF AND FLOOR DECK 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	58 and 59
	2 in. x 15 in. x 8 ft.	12	.58	I		
2 1/2" TONGUE AND GROOVE 	2 1/2 in. x 10 in. x 6 ft.	15	.53	I	For floor and roof slabs with close beam spacing	58 and 59
SHORT SPAN TILE 	Solid: 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	60 and 61
	Hollow: 4 in. x 12 in. x 30 in.	15	.35	III		
LONG SPAN SOLID TILE 	3 in. x 18 in. x up to 5 ft. 6 in.	17	.49	II	For light weight roof decks where subpurlins are not feasible	60 and 61
	3 1/2 in. x 18 in. x up to 6 ft. 9 in.	20	.45	III		
	4 in. x 18 in. x up to 7 ft. 9 in.	23	.42	IV		
SHEETROCK PYROFIL 	2 1/2 in. Standard	11.5	.38	I	For light weight, low cost, speedy erected roof slabs	62 and 63
	plus 1/2 in. insulation	12	.24	II		
WEATHERWOOD PYROFIL 	3 in. Standard	10.5	.19	II	For light weight, low cost roof slabs with additional insulation value	62 and 63
PYROFILL MONOLITHIC 	3 in. Thick	13	.35	I	For light weight, full fireproof floor and roof slabs. Speedily erected. Not adapted to small areas	62 and 63
	3 1/2 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	62 and 63
	3 1/2 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 insulation to suit	64 and 65
	1/2 in. Insulation	3	.39	I		
	1 in. Insulation	3.5	.25	II		
	1 1/2 in. Insulation	4	.18	III		

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

**Furnished with special section steel subpurlins.

BB01B 1524

57

USG GYPSUM PLANK

Light weight, fireproof, insulating gypsum plank, steel bound for added strength and tongued and grooved on four edges to form a continuous roof deck for average floor loads such as those required for apartments, hotels and schools.

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 by test at 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 56.

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.

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.

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.

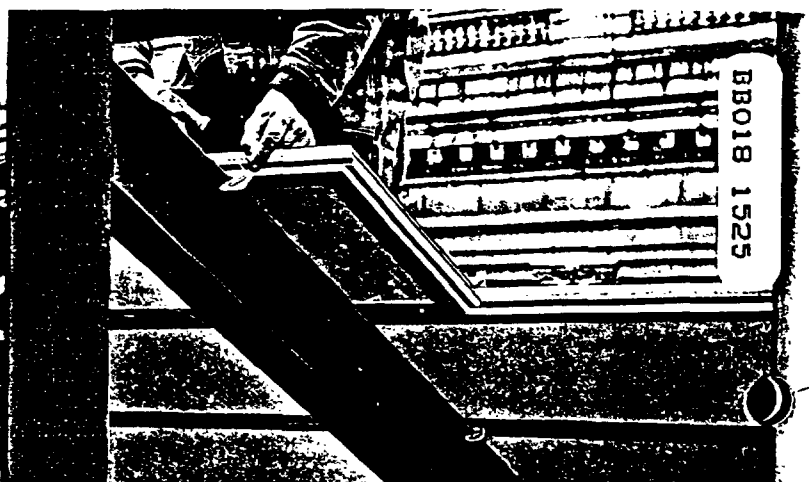
ILLUSTRATIONS PAGES 58 AND 59

(Page 58 Left) Tongue and groove edges permit USG Gypsum Plank to cantilever. Therefore, ends do not have to meet over supports.

(Page 58 Right) USG Gypsum Plank are anchored to steel supports by galvanized steel clips secured to lower flange of advancing groove.

(Page 59 Left) USG Gypsum Plank are economical and easy to erect since they are installed much like wood.

(Page 59 Right) Underside of USG Gypsum Plank roofs present a neat, trim appearance and are highly light reflective.



15" WIDE

2"

GALVANIZED STEEL EDGING

EXPANDED METAL EDGES

Diagram illustrating the connection of a U.S.G. Steel Bound Gypsum Plank to a Purlin using a Wood Nailer and Flashing. The connection is secured with a 3" x 2" x 5/16" Angle.

Diagram illustrating the roof edge assembly components and their connections:

- 2" x 6" WOOD NAILER
- FLASHING
- 3" x 2" x 5/16" ANGLE
- ROOF COVERING
- PURLIN

**EAVE ANGLE
DETAIL**

Diagram illustrating the cross-section of a curb and gutter assembly. The components labeled are:

- CONTINUOUS ANGLE
- 2" STEEL BOUND GYPSUM PLANK OR 3" CURB TILE
- ROOF COVERING
- CANT
- 1/4" PLATE
- CHANNEL FRAMING

A cross-sectional diagram of a parapet wall. The wall is shown on the left, with a sloped top surface labeled 'CANT'. The cant is covered with a layer labeled 'ROOF COVERING'. Below the roof covering, a horizontal line represents the 'PURLIN'. The base of the wall is labeled 'WALL'.

2" STEEL BOUND GYPSUM PLANK OR 3" GYPSUM CURB TILE

CANT

PURLIN

BEAM

TRUSS

FL

END WALL DETAIL

DETAIL "A"

SKYLIGHT CURB DETAIL

U.S.G. STEEL BOUND GYPSUM PLANK

WOOD NAILER

PURLIN

This diagram illustrates the connection between two U.S.G. Steel Bound Gypsum Planks. The planks are shown as horizontal sections. A vertical PURLIN is positioned between them. A WOOD NAILER is shown as a horizontal section at the top, with a nail passing through it into the top of the gypsum planks. The diagram shows the planks meeting at a joint, with the purlin and nailer providing structural support and fastening.

GABLE DETAIL

CONTINUOUS ANGLE
2" STEEL BOUND GYPSUM
PLANK OR 3" GYPSUM CURB TILE.

A cross-sectional diagram of a truss structure. It shows a sloped member at the top, a horizontal member below it, and a vertical member on the right. The space between the sloped and horizontal members is filled with a stippled pattern, labeled "DRAINAGE FILL". The bottom horizontal member is labeled "BOTTOM CHORD OF TRUSS" with an arrow pointing to it.

SKYLIGHT CURB DETAIL



USG PYROBAR ROOF TILE

These precast tile units are manufactured in two types 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 56, 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 62). Likewise they make excellent replacements for the 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.

DESIGN

Tile are made in 3-in. thick solid units and 3-in. and 4-in. thick hollow units. The solid and 4-in. hollow units are reinforced with electrically welded, galvanized steel mats designed to afford top and bottom reinforcing. 3-in. hollow tile are reinforced with two 3/8-in. cold rolled channels at each end of which two wires are secured to serve as lateral-tie reinforcement and to provide end anchorage.

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.

PYROBAR LONG SPAN ROOF TILE

Pyrobar Long Span Roof Tile may be used without sub-purlins where the purlin spacing does not exceed 7 ft. 9 in. The tile may be purchased "pre-notched" to fit over purlin flanges. Lap joints are provided where purlin flanges are too narrow to supply bearing for the ends of two tile.

Pyrobar Long Span Roof Tile will not prove as economical as the short span tile when much cutting and fitting is required.

PYROBAR SHORT SPAN ROOF TILE			TEE SIZES AND ALLOWABLE SPANS			
Size (In.)	Weight per Sq. Ft.**	Specific Advantages and Uses	Based on 50 lbs. per Sq. Ft. Total Roof Load Tees Spaced 2 ft. 6 3/4 in. C. to C. M = 1/10WL			
Solid: 3x12x30	17 lbs.	Solid Tile: For ornamental type roofs where fireproof units of flexibility and good nail holding power are required. Also adapted to industrial buildings, flat or pitched roofs.	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	
Hollow 3x12x30 4x12x30	12 1/2 lbs. 15 lbs.	Hollow Tile: For roofs where built-up roof covering is to be used, for which their nail holding power is ample. Lighter in weight than solid tile with added thermal insulation value.	No. 218 USG 2.77 lb. Bulb Tee	7 ft. 5 in.	7 ft. 10 in.	1.08
			2 1/2 in. x 2 1/2 in. 5.5 lbs.	7 ft. 8 in.	8 ft. 1 in.	2.15
			2 1/2 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

**Add weight of tees to weight of tile to obtain weight of roof deck.

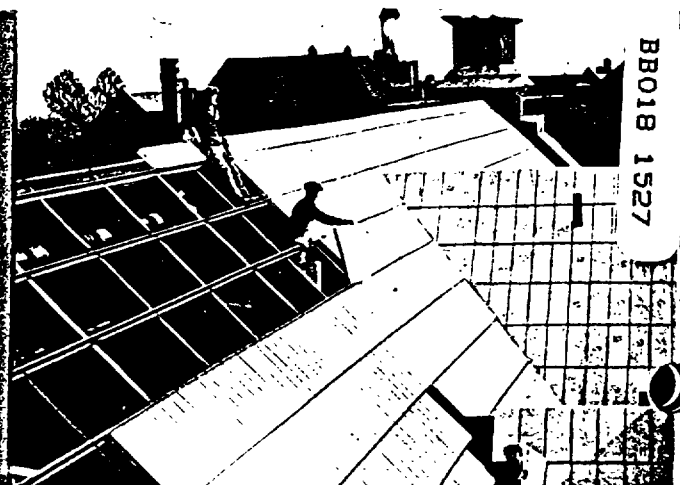
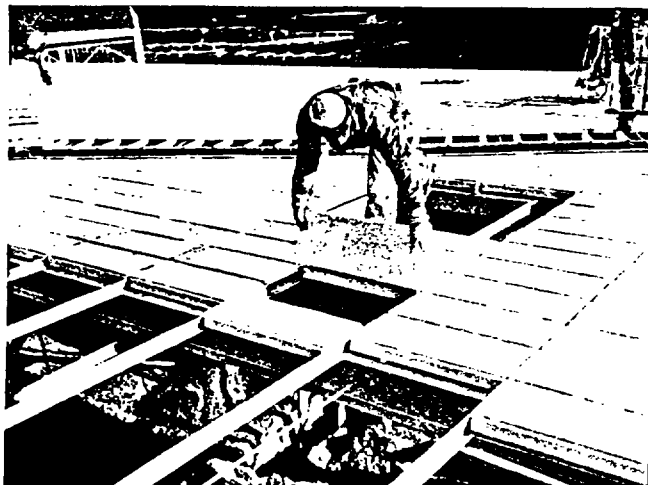
ILLUSTRATIONS PAGES 60 AND 61

(Page 60 Left) Quick, easy erection results from ease of handling small, light Pyrobar Roof Tile.

(Page 60 Right) Pyrobar Roof Tile are adapted to construction involving steep slopes.

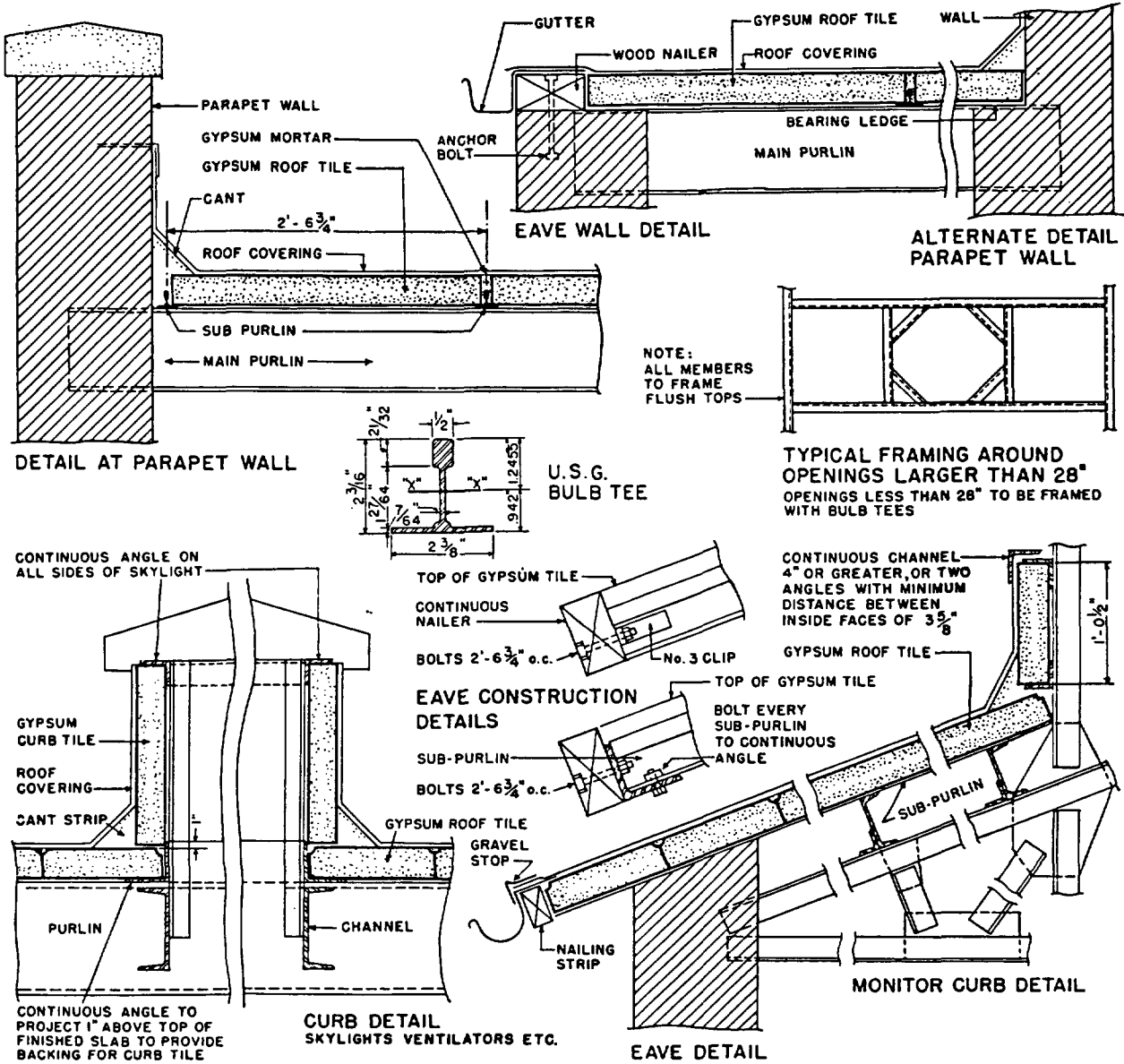
(Page 61 Left) Equally adapted to flat as sloping roofs, Pyrobar Roof Tile are being installed here on a long, wide surface.

(Page 61 Right) Underside of roof showing light reflecting quality of Pyrobar Roof Tile.



*Reg. Trade Mark

TYPICAL PYROBAR ROOF TILE CONSTRUCTIONS



U.S. 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 sub-purlins are insulated with Pyrofill. 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 30-37, 42 and 43.

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, 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 56) and sound absorptions of approximately .30 (for the ½-in. thickness) and .45 (for the 1-in. thickness) 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*	Weight in lbs. per sq. ft.	Min. Slab Thickness**		Wt. per sq. ft. in. lbs.	
						½" Bd.	1" Bd.	½" Bd.	1" Bd.
No. 17S USG 8-lb. Bulb Tee	6'-6"	6'-10"	1	2½"	11.5	2½"	3"	10.0	10.5
No. 218 USG 8.3-lb. Bulb Tee	7'-7"	8'-0"	1.02	2½"	11.5	2½"	3"	10.0	10.5
12-lb. Rail	8'-11"	9'-3"	1.5	2½"	12.0	2½"	3"	10.5	11.0
16-lb. Rail	11'-2"	11'-6"	2	2½"	12.5	2½"	3"	11.0	11.5
20-lb. Rail	13'-3"	13'-8"	2.5	3"	15.0	3"	3"	13.5	12.0

*Total slab thickness including Sheetrock or Weatherwood; minimum thickness of Pyrofill 2 in.

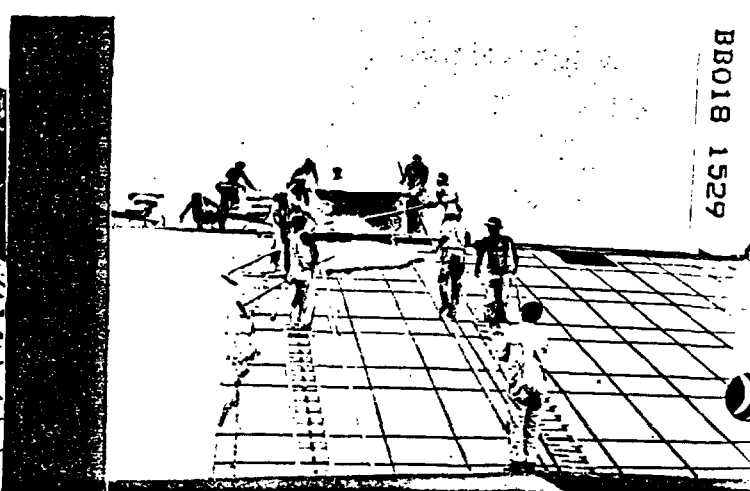
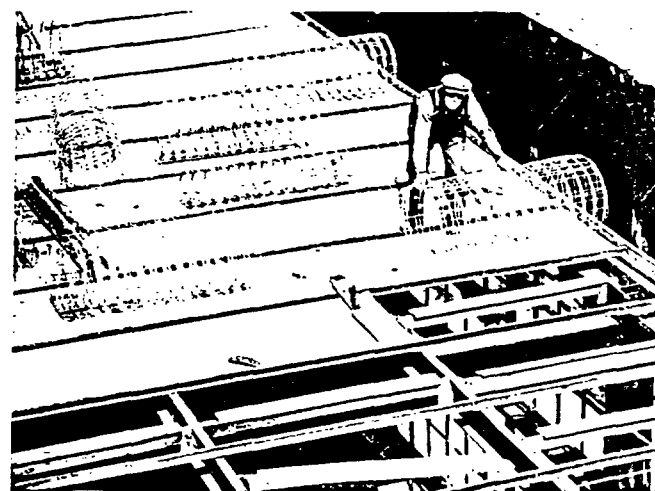
ILLUSTRATIONS PAGES 62 AND 63

(Page 62 Left) Galvanized steel fabric is laid over permanent Sheetrock or Weatherwood form.

(Page 62 Right) Pyrofill, plastic gypsum material, is poured over fabric and permanent form.

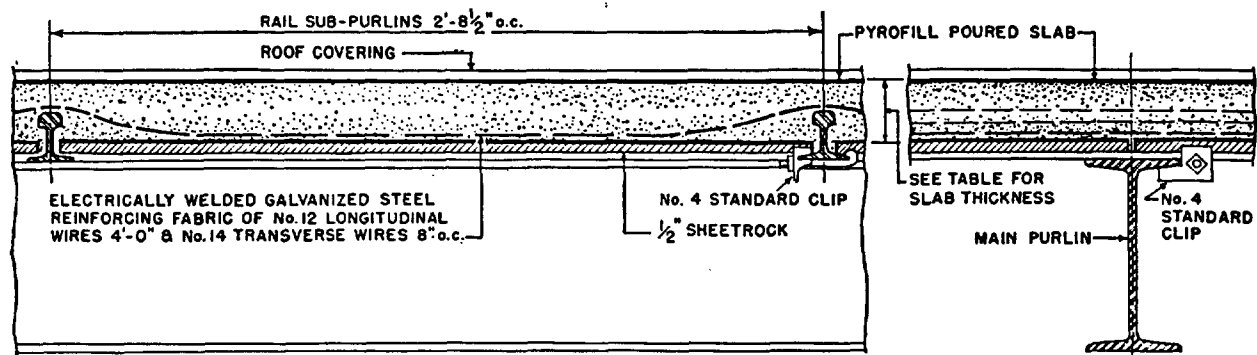
(Page 63 Left) Pyrofill construction is adaptable to any type of steel framing or truss construction.

(Page 63 Right) Underside of Pyrofill roof, illustrating the high light reflection quality of this construction.

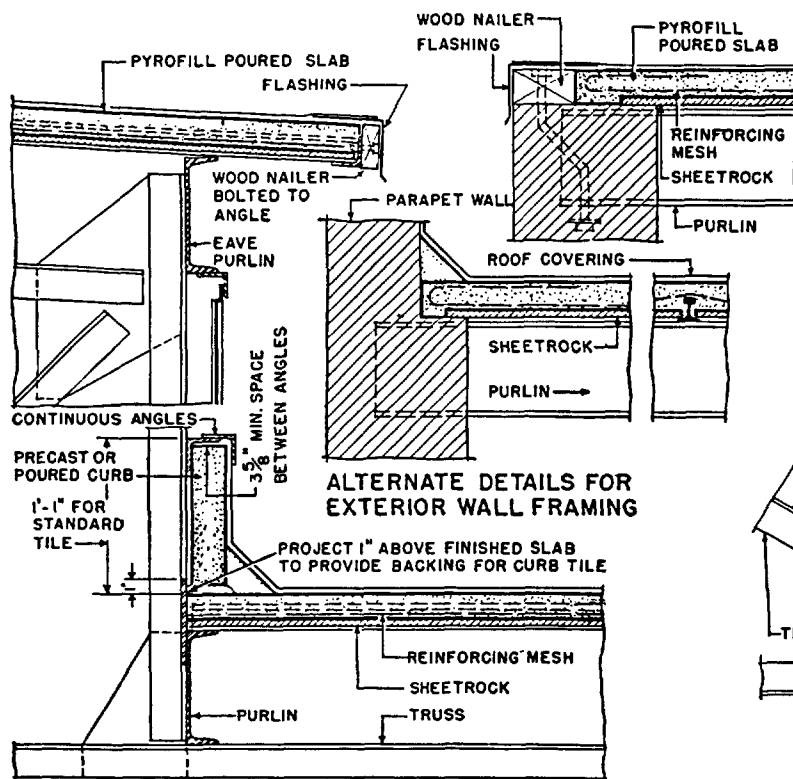


*Reg. Trade Mark

TYPICAL PYROFILL CONSTRUCTIONS

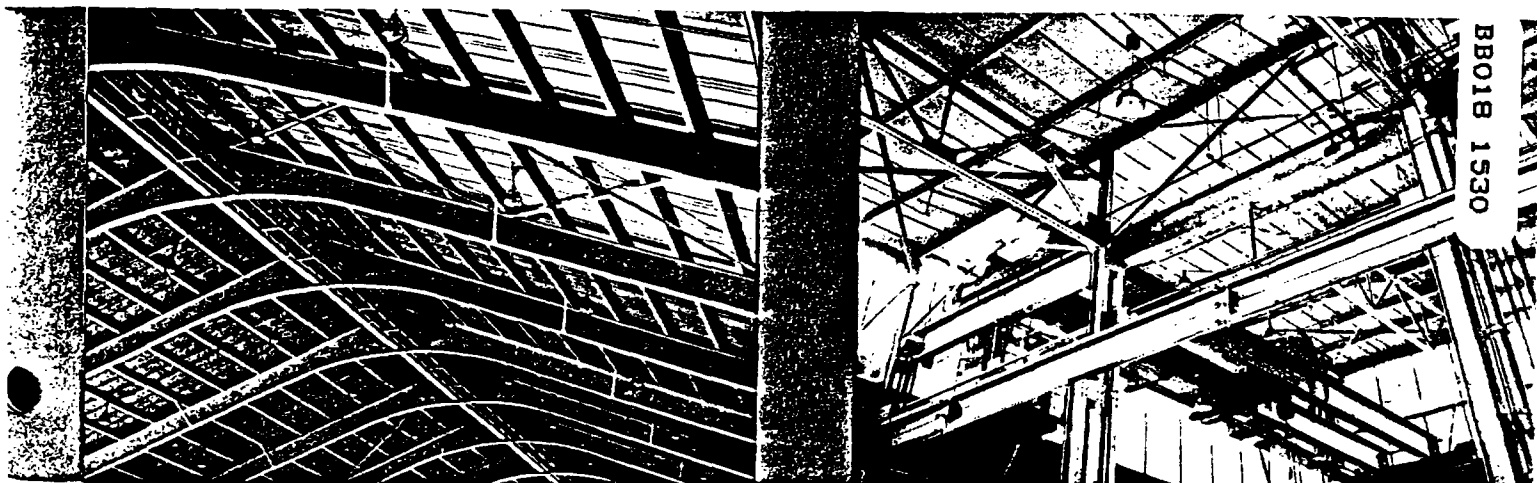
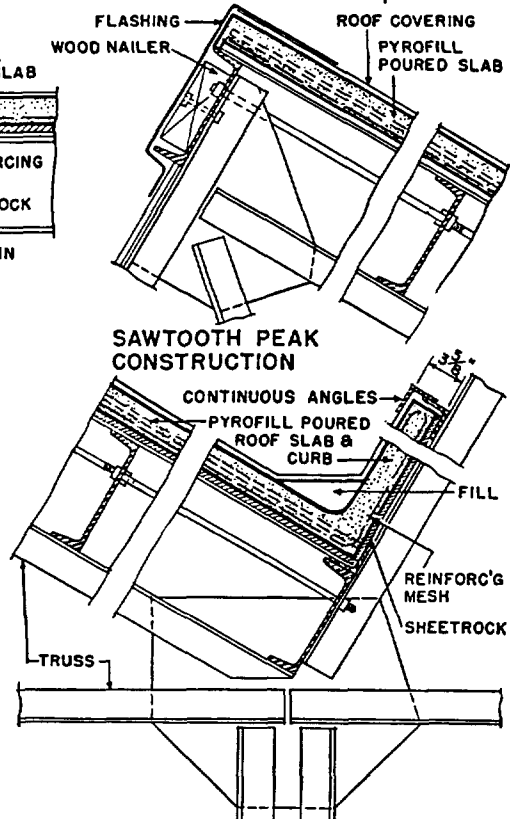


TYPICAL SECTION THROUGH ROOF SLAB



ALTERNATE DETAILS FOR EXTERIOR WALL FRAMING

CURB AND EAVE CONSTRUCTION FOR MONITOR



BB018 1530

USG STEEL ROOF DECKS

Light weight, preformed, interlocking, 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. For clear spans from 4 ft. 0 in. to 8 ft. 0 in.

ADVANTAGES

High Load Carrying Capacity—Permits wide spacing of purlins reducing the amount of structural steel needed. Strength and rigidity in the deck plates are provided by stiffening beads between the reinforcing ribs.

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.

DESIGN

Deck plates (standard width 18 in.) in lengths from 4 ft. 0 in. to 8 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 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. Flanges are locked together with clips.

Except when made of galvanized steel, all plates are painted a semi-gloss light gray to provide glareless 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 pages 32 and 42.

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

ALLOWABLE LIVE LOADS IN LBS. PER SQ. FT.

Factor of Safety — Four

Gauge | Purling Spacing

	4'0"	4'6"	5'0"	5'6"	6'0"	6'6"	7'0"	7'6"	8'0"
22	83	66	53	44					
20			81	67	56	48	41		
18 ^g					71	60	52	45	39

*Factor of safety—3.5

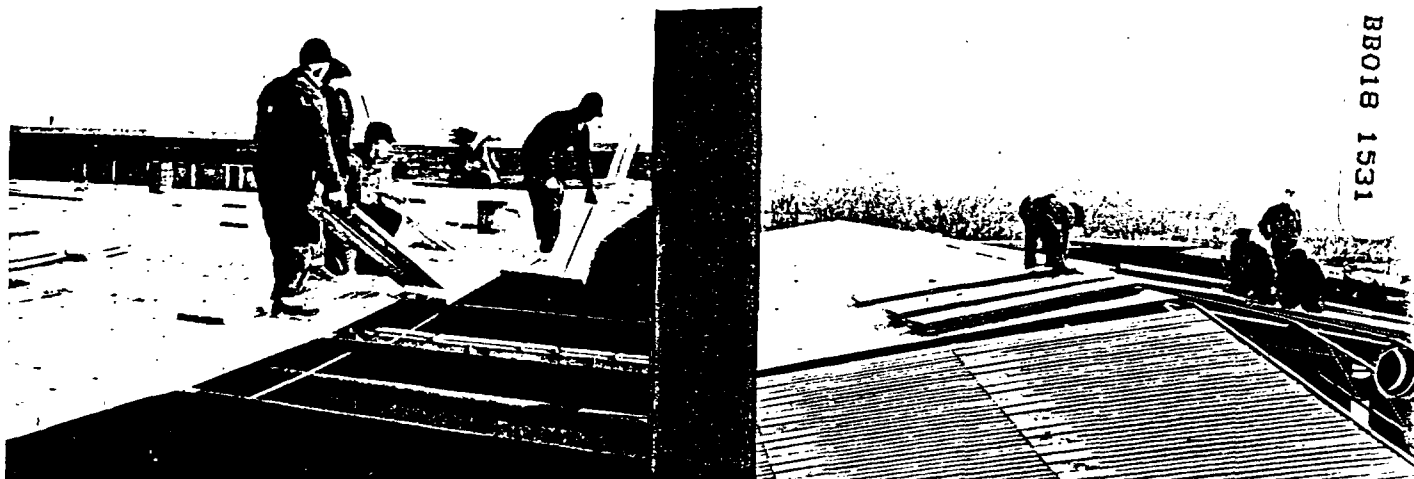
ILLUSTRATIONS PAGES 64 AND 65

(Page 64 Left) Small size, light weight allows speedy erection.

(Page 64 Right) Illustrates adaptability of USG Steel Deck Plates to sloping roof surfaces.

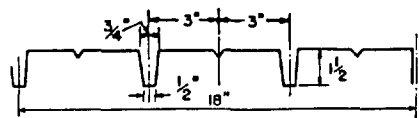
(Page 65 Left) USG Steel Deck Plates make neat appearance.

(Page 65 Right) Illustrates high light reflection quality of USG Steel Deck Plates.

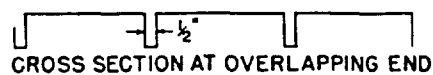


BB018 1531

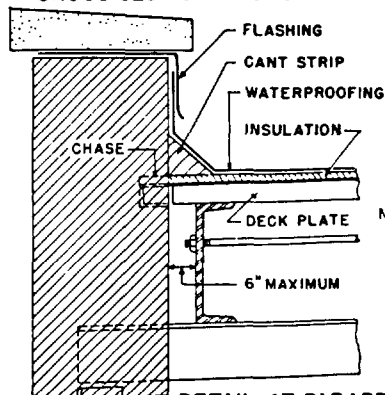
TYPICAL STEEL DECK CONSTRUCTIONS



CROSS SECTION AT CENTER

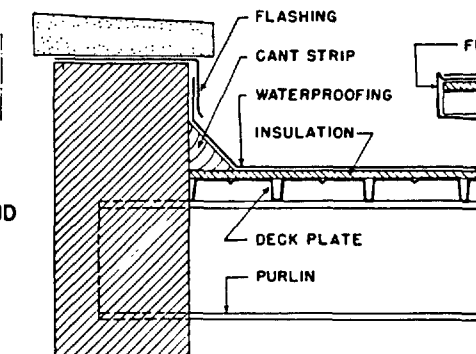


CROSS SECTION AT OVERLAPPING END

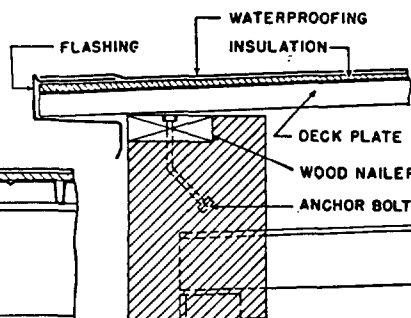


DETAIL AT PARAPET

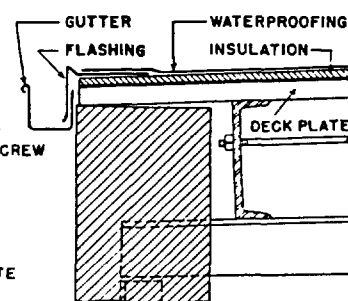
NOTE: END OF DECK MUST BE SUPPORTED. IF PURLIN IS NOT AVAILABLE WITHIN 6" OF WALL, CHASE MAY BE USED.



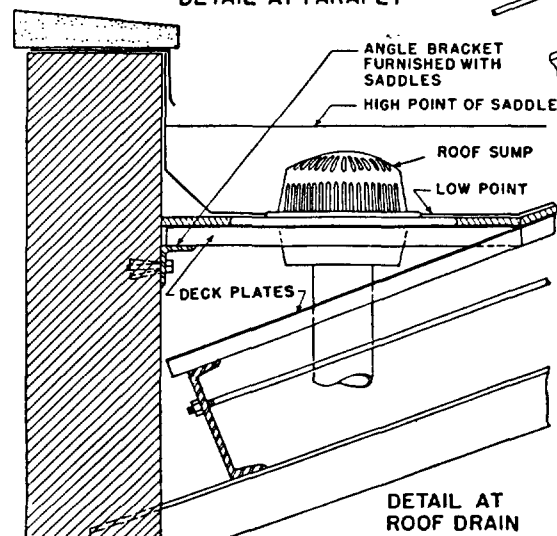
DETAIL AT PARAPET



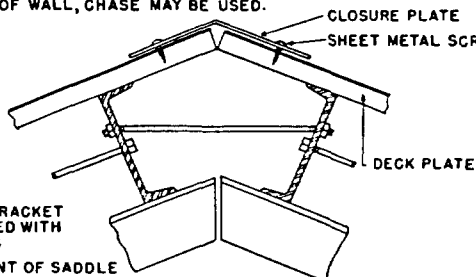
OVERHANG GABLE DETAIL



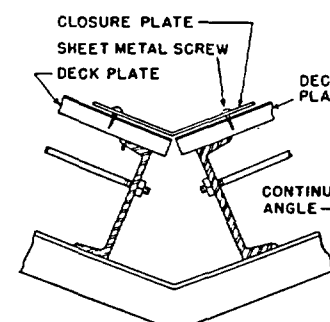
EAVE DETAIL



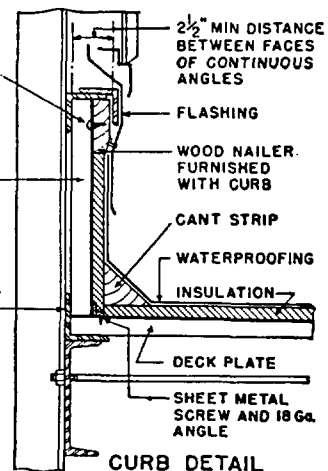
DETAIL AT ROOF DRAIN



RIDGE DETAIL

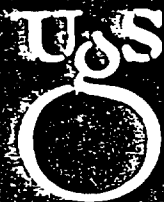


VALLEY DETAIL



CURB DETAIL





SOUND CONTROL SERVICE

SCOPE OF THE SERVICE

The United States Gypsum Company maintains a complete service for architects covering all phases of the control of sound in buildings.

This service includes engineering assistance of a high order; a variety of sound absorbent materials meeting a wide range of acoustical and economic requirements, supported by thorough laboratory research and development. All materials except Sabinite are applied by USG district sound control contractors.

ENGINEERING ASSISTANCE

Our corps of experienced acoustical engineers is completely equipped to assist architects on any problems involving acoustical correction.

This service is rendered without obligation.

For new construction it is advisable to call in our engineers before plans are drawn. Their advice at that time usually effects more efficient acoustics and greater economy.

They are prepared to advise corrective methods when acoustical difficulties are experienced in existing buildings.

RESEARCH AND DEVELOPMENT

All USG sound control materials are the result of directed research at the Building Materials Research Laboratories of the United States Gypsum Company.

This laboratory occupies an entire building in Chicago, with 20,000 square feet of floor space especially equipped for research and testing.

The work is carried out under the direction of trained physicists, chemists and architectural engineers. The personnel includes some fifty individuals.

This laboratory is one of the few owned and maintained by a manufacturer of acoustical products.

Its purpose is two-fold—to serve in the development of new acoustical products, and to supervise the maintenance of the excellence physically and acoustically of the production of our plants.

INSTALLATION

USG district sound control contractors have been trained to conform to manufacturers' standards in the installation of all acoustical materials. They receive the full benefit of our engineering and laboratory facilities in the production of both a correct acoustical and material result for purchasers.

MEMBER OF



ACOUSTICAL MATERIALS ASSOCIATION

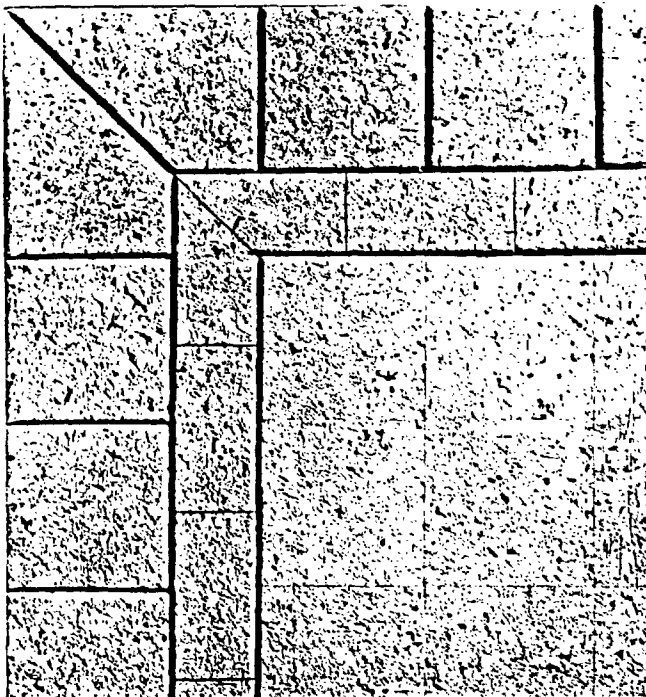
Absorption figures used in this catalog are quoted from the Official Bulletin of the Acoustical Materials Association, of which the United States Gypsum Company is a member. Copies of the bulletin may be obtained from any representative of the USG Engineering Sales Division.

GUIDE TO THE SELECTION OF USG SOUND CONTROL MATERIALS

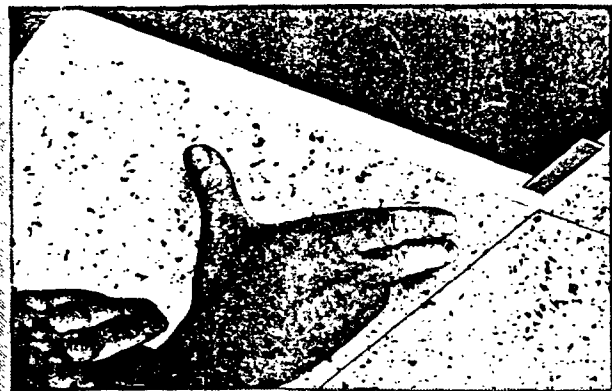
Material	Type	Thickness	Noise Reduction Coefficient	Fireproof Rating	Paintability	Cleanability	Relative Cost*	Pages
ACOUSTONE	Mineral Wool Fibre Tile	7/16 in.	.60	Incombustible	Good	Good	V	68 and 69
		1 1/16 in.	.65	Incombustible	Good	Good	VI	68 and 69
		1 3/16 in.	.70	Incombustible	Good	Good	VII	68 and 69
		1 5/16 in.	.75	Incombustible	Good	Good	VIII	68 and 69
PERFATONE	Metal Facing; Absorbent Wool Pad	2 1/2 in.	.85	Incombustible	Good	Good	IX	68 and 69
QUIETONE	Wood Fibre Tile	1/2 in.	.60	Combustible	Fair	Fair	III	70 and 71
		1 in.	.70	Combustible	Fair	Fair	IV	70 and 71
SABINITE	Acoustical Plaster	1/2 in.	.50	Incombustible	Fair	Fair	I	70 and 71
		3/4 in.	.55	Incombustible	Fair	Fair	II	70 and 71
		Sabanite M 1/2 in.	.55	Incombustible	Fair	Fair	I	70 and 71

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

U.S. GAC OUSTONE



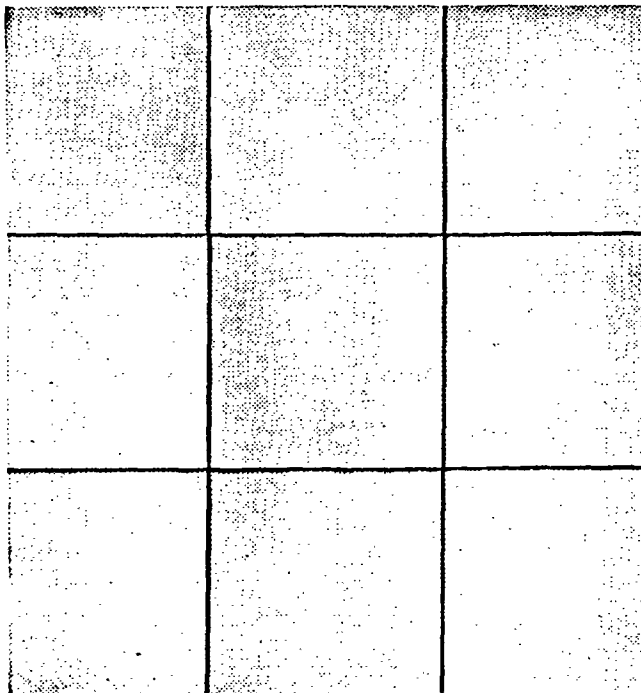
Cemented to surface or suspended by grillage. Metal splines assure surface alignment when tile are cemented.



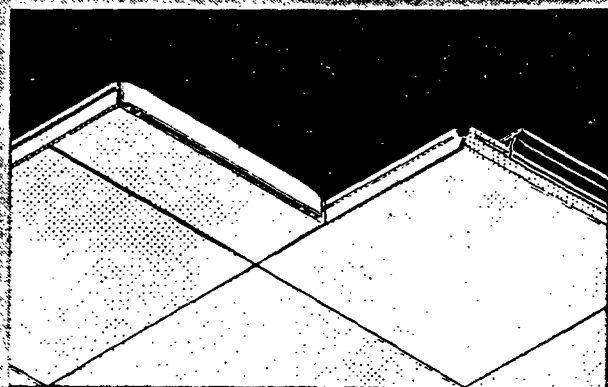
Unpainted	Coefficients						Noise Reduction Coefficient
Thickness	128	256	512	1024	2048	4000	
1/16 in.	.06	.16	.61	.90	.82	.82	.60
1/16 in.	.08	.22	.73	.91	.81	.85	.65
3/16 in.	.15	.26	.79	.92	.85	.85	.70
15/16 in.	.20	.40	.84	.88	.85	.88	.75

*Average of coefficients 256 to 2048, inclusive, to nearest 5%. Noise Reduction Coefficients are not reduced by mill pointing.

U.S. OPERATONE



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



Type Pad	Coefficient						Noise Reduction Coefficient
	128	256	512	1024	2048	4000	
B	.19	.61	.98	.99	.82	.68	.85
C	.24	.65	.93	.98	.79	.68	.85

*Average of coefficients 256 to 2048, inclusive, to nearest 5%. Mounting: Metal supports applied to 1 x 2-in wood furring.

BB018 1535



UNITED STATES GYPSUM COMPANY

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, 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%. 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 — not surface dyed or painted. Integral coloring to match any decorative scheme furnished on order. 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 $\frac{7}{16}$ -in., $1\frac{1}{16}$ -in., $1\frac{3}{16}$ -in. and $1\frac{5}{16}$ -in. thicknesses.



Acoustone ceiling, County Court House, Oshkosh, Wis.
Architect: Granger and Bollenbacher, Chicago, Ill.

In Perfatone a perforated metal tile conceals the sound absorbent pad. Type B pad is completely covered with a flameproof membrane which prevents infiltration of dirt into the wool. Type C is covered on face, back and 24-in. edges with the same membrane, and then completely wrapped in flameproof muslin. 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.

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.

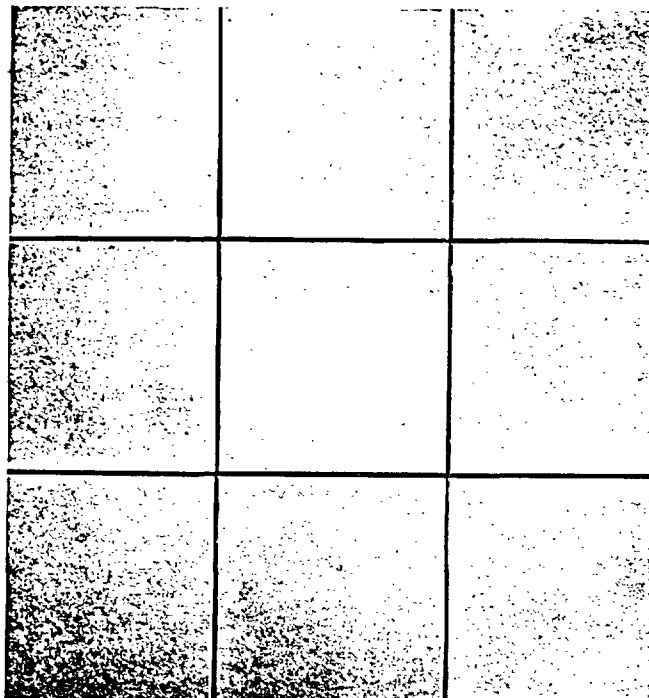
Perfaboard and Perfabestos—When sound absorbing materials are to be exposed to severe abrasion, Perfaboard (perforated hardboard) or Perfabestos (perforated asbestos board), are recommended for their wear-resisting qualities. These are attached to furring strips and backed with sound-absorbing pads.



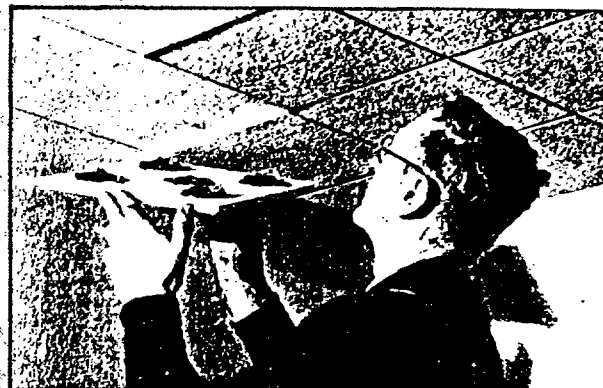
Perfatone walls and ceiling, studio of Radio Station WCCO, Minneapolis, Minn.
Architect: Fred Semmens, New York City.

BB018 153b

U.S. QUIETONE



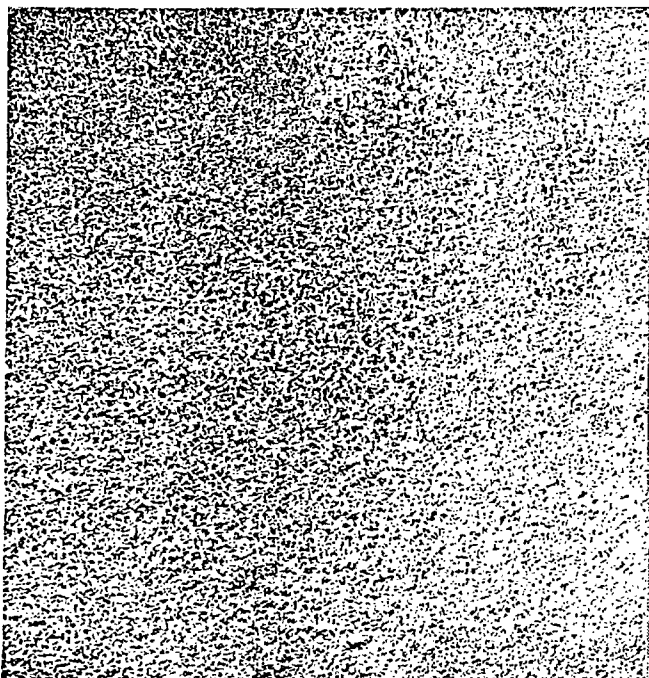
Applied with plastic cement directly to any clean, level surface.



Thickness	Coefficients					*Noise Reduction Coefficient
	128	256	512	1024	2048	
½ in.	.19	.30	.58	.64	.80	.60
1 in.	.30	.52	.73	.82	.75	.70

*Average of coefficients 256 to 2048, inclusive, to nearest 5%. Absorption coefficients based on cemented to plaster mountings.

U.S. SABINITE



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



Type	Thickness	Coefficients					*Noise Reduction Coefficient
		128	256	512	1024	2048	
F	½ in.	.34	.30	.31	.61	.69	.50
F	¾ in.	.36	.37	.55	.67	.67	.55
M	½ in.	.35	.26	.54	.79	.69	.55
38	½ in.	.25	.26	.32	.60	.76	.50

*Average of coefficients 256 to 2048, inclusive, to nearest 5%.

BB01B 1537

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

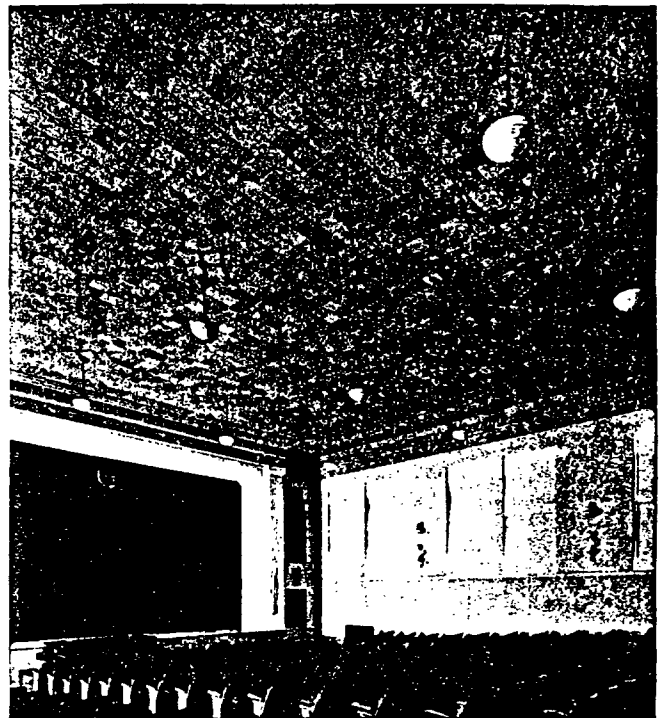
Inexpensive application and low material cost recommend Quietone for economical installations. It classes among the high efficiency sound absorbents, having a high uniform absorption from normal voice frequencies up through the higher pitched noise frequencies. Quietone, in any of the available colors, has high light reflecting value. It is easily cleaned with a vacuum cleaner.

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, George Washington High School, Alexandria, Va.
Architect: Division of School Buildings, State of Virginia.

Sabinite Acoustical Plaster combines the features of standard plaster finish with permanent 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 painted after application without loss of efficiency. It is sanitary and vermin-proof.

VARIETIES

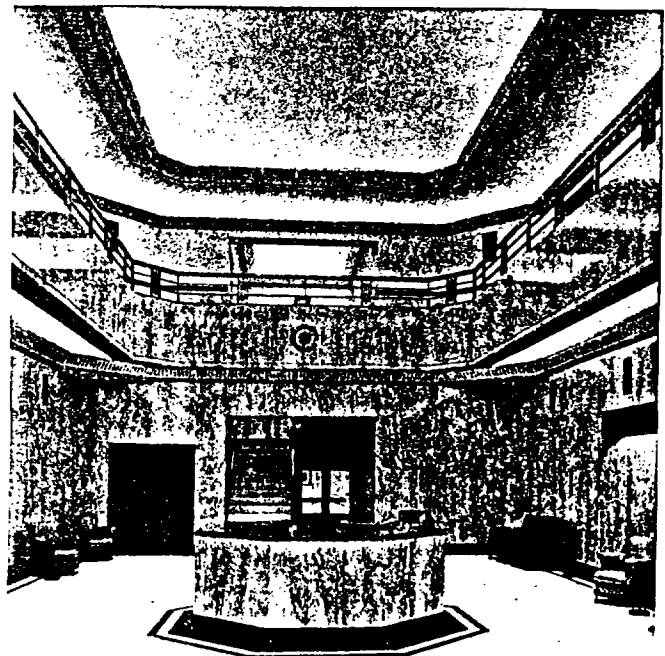
There are three varieties: Sabinite F; M; and 38, F and M are used over gypsum plaster bases; Sabinite 38, over Portland cement or Oriental Exterior Stucco bases in high humidity environments. Sabinite M, has higher noise absorption characteristics and a finer texture.

TEXTURE

Similar to heavy sand float finish.

COLOR

Ecru, ivory, cream, buff.



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

UNITED STATES GYPSUM COMPANY
300 West Adams Street
Chicago, Illinois

Sales Offices

Albany, N. Y. 1106 National Savings Bank Bldg.
Atlanta, Ga. 1726 Candler Bldg.
Baltimore, Md. Court Square Bldg.
Birmingham, Ala. 1203 Comer Bldg.
Boston, Mass. 505 Statler Bldg.
Buffalo, N. Y. 1116 Rand Bldg.
Charlotte, N. C. 1013 Liberty Life Bldg.
Cincinnati, Ohio. 3012 Carew Tower
Cleveland, Ohio. 627 Hanna Bldg.
Dallas, Tex. P. O. Box 896
Denver, Colo. 836 Continental Oil Bldg.
Detroit, Mich. 7310 Woodward Ave.
Houston, Tex. 2030 Commerce Bldg.
Indianapolis, Ind. . . . 1015 Architects' and Builders' Bldg.
Kansas City, Mo. 4638 Mill Creek Pkway
Los Angeles, Calif. . . . 807 Architects Bldg.
Milwaukee, Wis. (At Mill) 439 W. Oregon St.
Minneapolis, Minn. . . . 1310 Foshay Tower
New York, N. Y. 1230 Sixth Ave.
Omaha, Neb. 312 Woodmen of the World Bldg.
Philadelphia, Pa. 1616 Walnut St.
Pittsburgh, Pa. 1905 Commonwealth Bldg.
Portland, Ore. 302 Spalding Bldg.
St. Louis, Mo. 8032 Forsyth Blvd.
Salt Lake City, Utah. . . . 400 Dooly Bldg.
San Francisco, Calif. . . . 2501 Harrison St.
Washington, D. C. 1122 Investment Bldg.

Samson Plaster Board Company
Sales Agents for United States Gypsum Company
Crosby Building, Buffalo, N. Y.



BB018 1539