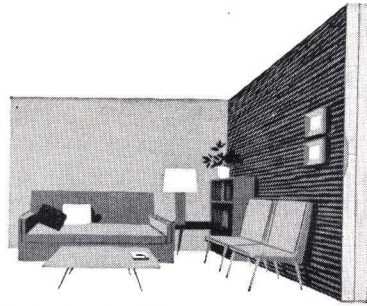


TECHNICAL INFORMATION

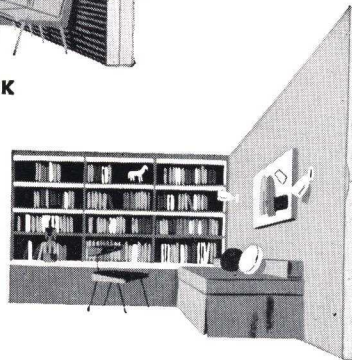
SHEETROCK

T. M. REG. U. S. PAT. OFF.

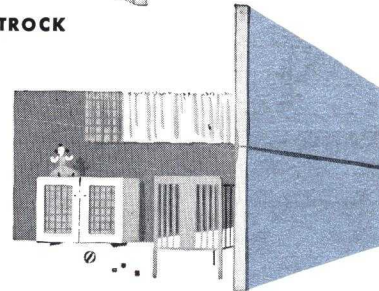
THE FIREPROOF GYPSUM WALLBOARD



LAMINATED SHEETROCK



SINGLE LAYER SHEETROCK



INSULATING SHEETROCK

1951

United States Gypsum

For Building • For Industry

Gypsum • Lime • Steel • Insulation • Roofing • Paint

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



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SHEETROCK GYPSUM WALLBOARD

DESCRIPTION

SHEETROCK* gypsum wallboard is composed essentially of a gypsum core encased in tough paper: a heavy manila finished sheet on the face side and a strong liner paper on the back side. The long edges are recessed to form a shallow channel for embedding and concealing the joint reinforcement. SHEETROCK is also manufactured with square or beveled edges, to be used where paneled effects or featured joints are desired.

PERF-A-TAPE* Joint System—consists of a strong paper tape and cement. Both products are engineered for SHEETROCK joint reinforcement and concealment. The tape is made of a special perforated strong paper with its edges chamfered. The cement is designed for maximum bond and workability.

FUNCTION AND UTILITY

Recessed Edge SHEETROCK wallboard provides the following features:

Fireproof. SHEETROCK will not support combustion. It will not transmit temperatures greatly in excess of 212° F. until completely calcined—a slow process.

Strong Flush Joint. PERF-A-TAPE provides a system for reinforcing SHEETROCK joints. The joinings between the SHEETROCK panels are concealed with a specially processed paper tape bonded to the board with a cement of unusual strength and adhesiveness. The strength of the finished PERF-A-TAPE joint is as great as that of the board itself.

Decoration. The face paper on SHEETROCK is a strong sheet with a highly calendered manila surface which is suitable for any type of decorative treatment, such as paint, texture, wallpaper, and permits repeated re-decoration during the life of the building.

Crack-Resistant. "Welded" together by the PERF-A-TAPE Joint System, SHEETROCK panels form walls

and ceilings that are exceptionally resistant to cracks caused by frame movement, vibration or minor settlement.

Non-Warping. Expansion or contraction of SHEETROCK under normal atmospheric changes is negligible, and does not cause warping or buckling.

Dry Walls. Eliminates excessive water in construction. Reduces cost of temporary heat in cold weather construction.

Speed. Mill fabricated panels of SHEETROCK are easily cut and quickly applied.

Horizontal Wall Application. (Horizontal application of SHEETROCK means applying the long length of the SHEETROCK panel at right angles to the framing members.) The strength of SHEETROCK and the PERF-A-TAPE joint system is such that panels may be erected horizontally on walls without the need of headers behind the horizontal joints. This method generally reduces the total lineal footage of joints, gives greater bracing strength and is the application method generally recommended for walls over 4' wide and under 8'3" high.

LIMITATIONS OF USE

1. Maximum Spacing of Framing Members. $\frac{1}{2}$ " SHEETROCK wallboard is designed for use on framing centers from 16" to 24". $\frac{3}{8}$ " and $\frac{1}{4}$ " SHEETROCK are designed for use on framing centers up to 16".

2. SHEETROCK is not recommended where exposure to water is extreme or continuous.

3. SHEETROCK used for tub enclosures should be adequately protected against wetting with an application of varnish size, and finished either with a high gloss paint or other water resistant finish. Where the SHEETROCK meets the tub it is recommended that a paper-bound edge of the board be used adjacent to the top of the tub.

RECESSED EDGE SHEETROCK

One-Half Inch. For the best in single layer walls and ceilings in new residential construction, we recommend $\frac{1}{2}$ " Recessed Edge SHEETROCK wallboard with the joints between the panels reinforced and concealed with the PERF-A-TAPE joint system. $\frac{1}{2}$ " SHEETROCK wallboard is the thickest and strongest of the SHEETROCK wallboard family of products. The greater thickness provides increased fire resistance and sound deadening, and the plain Ivory colored surface is suitable for any type of decoration. The recessed edge makes possible joint reinforcement which provides smooth, continuous wall and ceiling surfaces.

Three-Eighths Inch. This product is considered the standard wallboard for all remodel and alteration jobs. It differs from $\frac{1}{2}$ " Recessed Edge SHEETROCK

wallboard only in thickness and weight.

The ease of handling recommends $\frac{3}{8}$ " Recessed Edge SHEETROCK wallboard for remodel and repair work where the greater strength and rigidity of $\frac{1}{2}$ " board is not required.

SQUARE EDGE SHEETROCK

Square edge SHEETROCK is manufactured in $\frac{1}{2}$, $\frac{3}{8}$ and $\frac{1}{4}$ " thickness for use with batten strips or other decorative joint treatment. Its primary use is for temporary or industrial construction.

"SHEETROCK", "PERF-A-TAPE", TEXOLITE and TEXTONE are registered trademarks owned by United States Gypsum and used to distinguish its products. "SHEETROCK" identifies the particular gypsum wallboard. "PERF-A-TAPE" identifies the particular joint sealing tape. TEXOLITE identifies the particular water-thinned paint. TEXTONE identifies the particular plastic paint. All are manufactured by United States Gypsum.

SHEETROCK GYPSUM WALLBOARD

Quarter-Inch Sheetrock

Quarter-inch SHEETROCK is a utility gypsum wallboard, made with square edges only. It is lightweight, low in cost, flexible—adaptable for covering old walls and ceilings.

$\frac{1}{4}$ " Sheetrock wallboard can be easily and quickly erected over existing surfaces. Generally the trim need not be removed. In such cases it is merely butted against the trim. A back band or small mold is sometimes used to cover the joint.

Beveled-Edge Sheetrock

Where featured rather than concealed joints are desired, Beveled Edge SHEETROCK should be used, providing a "V" joint pattern at long edge joints.

Beveled edge SHEETROCK wallboard is made in $\frac{3}{8}$ " thickness. The edges are precision beveled at the mill, and when two panels are placed side by side, an

interesting "V" joint results. When using beveled edge SHEETROCK wallboard for paneled walls, care should be taken to see that all joints in the room form a pleasing pattern. The board should be erected according to a predetermined design. Since all joints must fall on framing members, the framing members must be placed accordingly.

Woodgrained Sheetrock

Standard in $\frac{3}{8}$ " thickness with beveled edges for Bleached Mahogany, and square edges for Knotty Pine and Planked Walnut.

A special paper printed with photographic reproductions of carefully selected knotty pine, walnut and mahogany panels is laminated to the face of regular SHEETROCK wallboard to produce a board which provides all of the SHEETROCK wallboard advantages, except reinforced joints, plus the economy of uniquely realistic woodgrained pre-decoration. All joints must fall on framing members.

TECHNICAL DATA FOR SHEETROCK

BENDING RADII

THICKNESS	LENGTHWISE	WIDTH
$\frac{1}{2}$ "	20'**	· ·
$\frac{3}{8}$ "	7 $\frac{1}{2}$ '	25'
$\frac{1}{4}$ "	5'	15'

**Bending two $\frac{1}{4}$ " pieces successively permits radii shown for $\frac{1}{4}$ " SHEETROCK.

Notes:

1. To apply board, place a stop at one end of the curve and then gently and gradually push on the other end of the board, forcing the center against the framing until the curve is complete.
2. By moistening the face and back paper thoroughly and allowing the water to soak well into the core, the board may be bent to still shorter radii. When the board dries thoroughly, it will regain its original hardness.

NORMAL STOCK SIZES AND SPECIFICATIONS






Sizes: 4' wide x 6', 7', 8', 9', 10' & 12' long. Maximum Nail Spacing: 8" on Walls; 7" on ceilings.

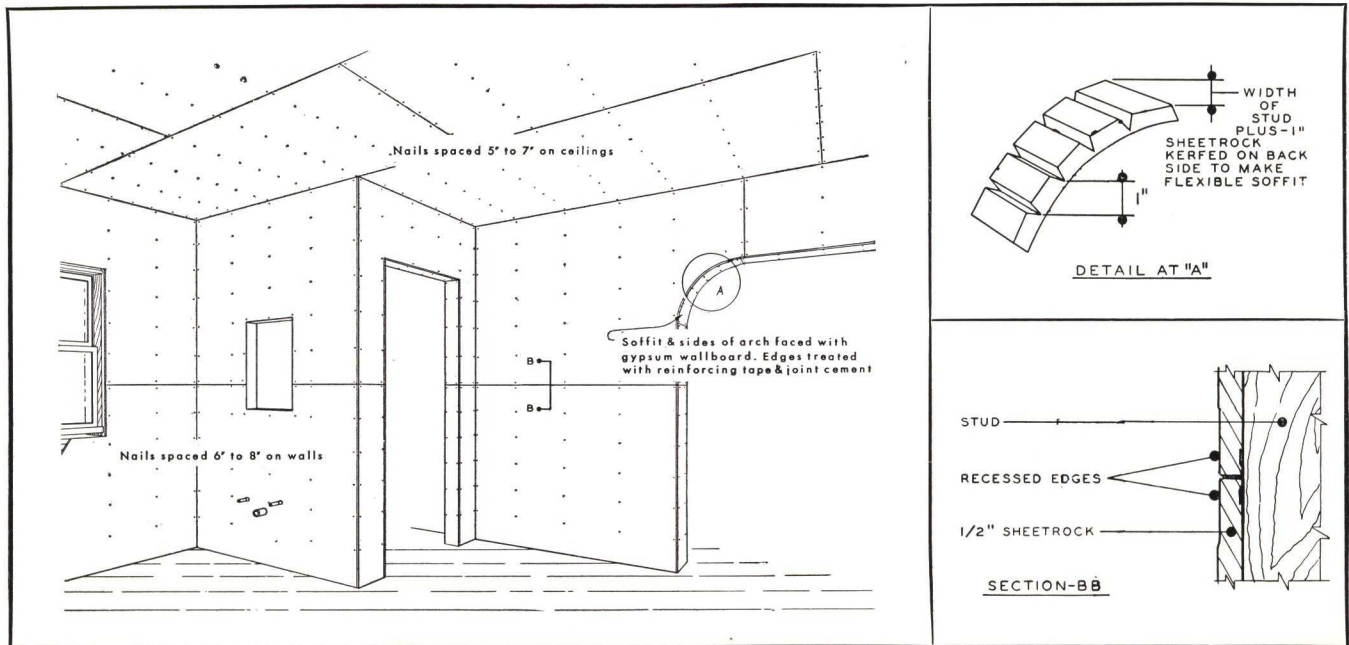
Thickness	Edge and Finish	Approx. Weight Lbs. per M Sq. Ft.	Recommended Support Spacing	Joint Treatment	Nails: Lbs. M Sq. Ft.	Decoration
$\frac{1}{2}$ "	Recessed Ivory	2100	16" or 24" o.c.	PERF-A-TAPE	6	Paint or Wallpaper
$\frac{3}{8}$ "	Recessed Ivory	1550	16" o.c.	PERF-A-TAPE	4 $\frac{1}{2}$	Paint or Wallpaper
$\frac{3}{8}$ "	Beveled Ivory	1550	16" o.c.	No treatment required	4 $\frac{1}{2}$	Paint
$\frac{1}{4}$ "	Square Ivory	1100	16" o.c.	SHEETROCK Finisher, PERF-A-TAPE or Panel Strips	4d-6 6d-7	Paint or Wallpaper

NOTE: Insulating SHEETROCK—Any of the above are available with insulating foil back in sizes given, at slight additional cost.

$\frac{3}{8}$ "	Square Knotty Pine	1650	16" o.c.	None	4 $\frac{1}{2}$	Prefinished at factory May be further treated by applying white shellac and either paste wax or varnish
$\frac{3}{8}$ "	Beveled Bleached Mahogany	1650	16" o.c.	None	4 $\frac{1}{2}$	
$\frac{3}{8}$ "	Square Planked Walnut	1650	16" o.c.	None	4 $\frac{1}{2}$	

ERECTION OF RECESSED EDGE SHEETROCK WALLBOARD

TYPE OF NAIL	DESCRIPTION	RECOMMENDED USE	Lbs. per M Ft.
4D CEMENT-COATED COOLER NAIL 	7/32" flat head 14 gauge 488 per lb.	3/8" SHEETROCK or 1/4" SHEETROCK applied direct to Framework.	4 1/2
5D CEMENT-COATED COOLER NAIL 	15/64" flat head 13 1/2 gauge 364 per lb.	1/2" SHEETROCK	6
6D CEMENT-COATED COOLER NAIL 	1/4" flat head 13 gauge 275 per lb.	1/4" SHEETROCK over existing surface.	7
4D PREDECORATED NAIL 	3 colors: Knotty Pine, Bleached Mahogany Walnut. 488 per lb. Order from U. S. Gypsum Co. or contact Independent Nail and Packing Co. Bridgewater, Mass.	Woodgrained SHEETROCK	4 1/2
PLASTIC-HEADED NAIL  <p>Nail spotting is caused by the fact that areas over nail heads are colder than other portions of the surface. Dust collects more readily on the colder areas. Plastic-headed nails on exterior walls and top floor ceilings more nearly equalize the temperature between the area over the nail and the surface of the SHEETROCK wallboard, minimizing nail spotting.</p> <p>Plastic-headed nail can be used in place of both 4D and 5D cement-coated cooler nails to minimize nail spotting on exterior walls and top floor ceilings.</p> <p>750 per box. Order from U. S. Gypsum Co.</p>			



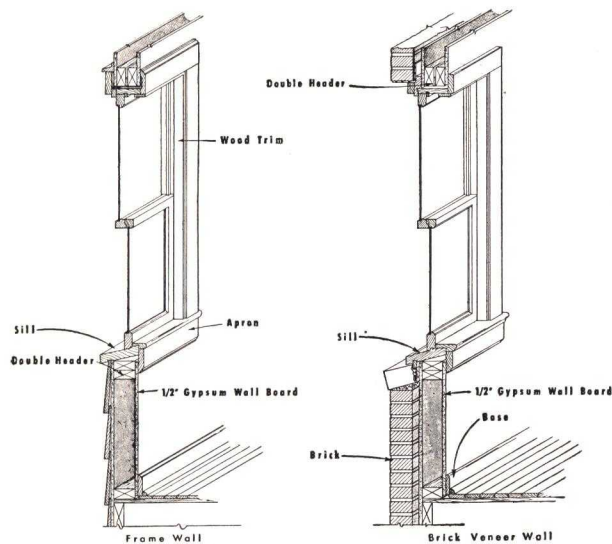
ADVANTAGES OF HORIZONTAL OVER VERTICAL APPLICATION

We recommend "horizontal application" on walls over 4' wide under 8'3" high, and on ceilings over 4' wide for the following reasons:

1. Reduces necessary joint treatment footage up to 25 per cent.
2. Strongest dimension of board runs across framing members.
3. Bridges irregularities in alignment and spacing of framing members.
4. Eliminates need for headers.
5. Better bracing continuity—each panel ties more framing members together.
6. Joints on walls are at convenient height for the finishing operation.

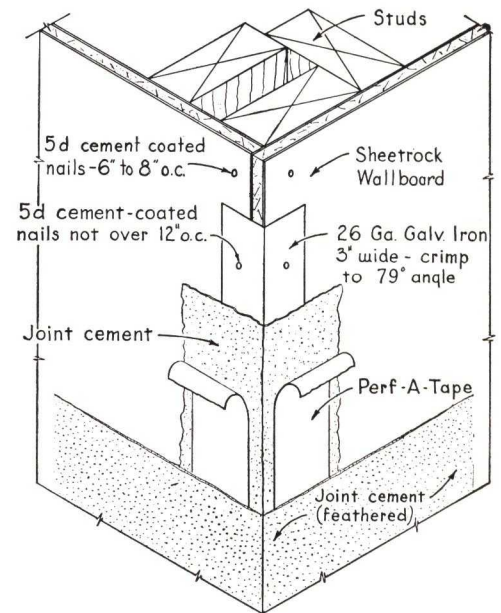
ERECTION OF RECESSED EDGE SHEETROCK WALLBOARD

WINDOW DETAILS

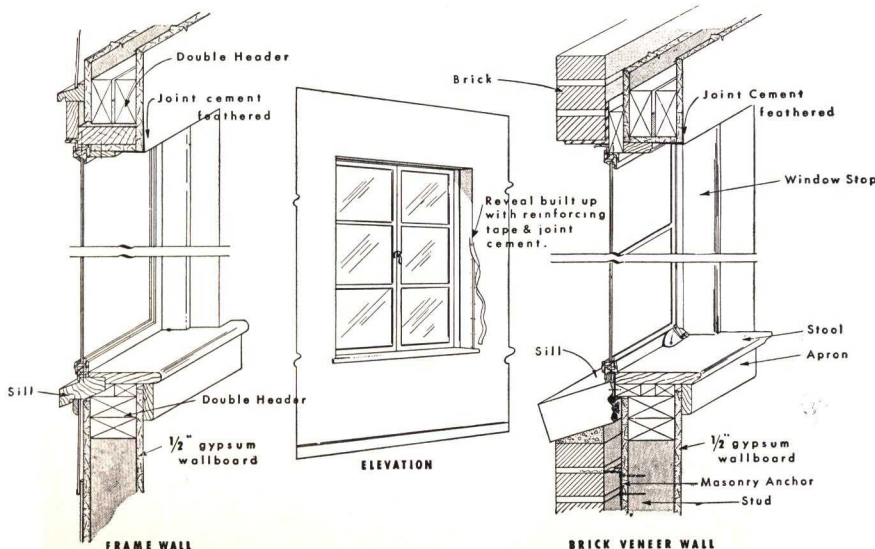


SECTION THROUGH DOUBLE-HUNG WINDOWS

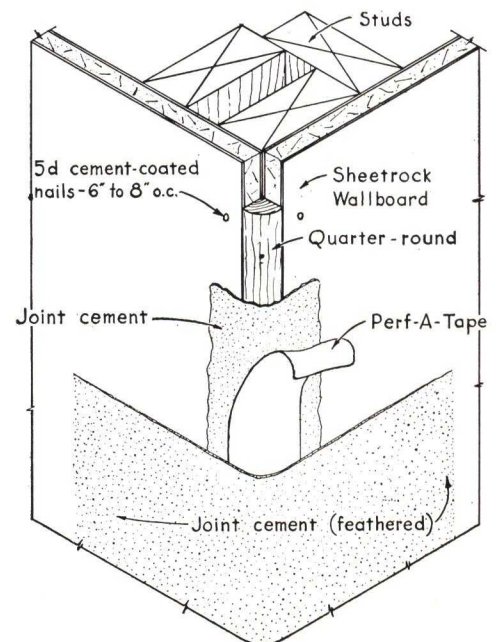
CORNER DETAILS



METAL REINFORCEMENT FOR
OUTSIDE CORNERS DRYWALL CONSTRUCTION



SECTION THROUGH METAL CASEMENT WINDOWS



QUARTER-ROUND REINFORCEMENT FOR
OUTSIDE CORNERS - DRYWALL CONSTRUCTION

INSULATING SHEETROCK GYPSUM WALLBOARD

DESCRIPTION

Insulating SHEETROCK wallboard is regular SHEETROCK which has a sheet of bright aluminum foil securely attached to its back surface.

FUNCTION AND UTILITY

Insulation. The bright metal foil has the property of reducing heat flow out of the home in the winter and into the home in the summer. The thermal insulating value of Insulating SHEETROCK properly applied in a wall is equivalent to that of $\frac{1}{2}$ " fiber insulating board. On ceilings, in summer, it is equivalent to approximately 2" thickness of fiber insulating board.

Vapor Barrier. Insulating SHEETROCK provides an efficient vapor barrier which retards the passage of moisture vapor through the interior lining of exterior walls, minimizing the possibility of condensation within the wall.

THERMAL RESISTANCE (R) OF INSULATING SHEETROCK FACING AN AIR SPACE OF $\frac{3}{4}$ " OR MORE

All figures based on 1950 Guide of the ASHVE

DIRECTION OF HEAT FLOW	Thickness of Insulating Sheetrock		
	$\frac{1}{2}$ inch	$\frac{3}{8}$ inch	$\frac{1}{4}$ inch
DOWNWARD Use these coefficients for ceilings and sloping surfaces under summer conditions	6.86	6.78	6.69
UPWARD Use these coefficients for ceilings and sloping surfaces under winter conditions	2.52	2.44	2.35
HORIZONTAL Use these coefficients for walls under both summer and winter conditions	2.52	2.44	2.35

EFFECT OF VAPOR BARRIERS ON CONDENSATION

Atmospheric air always contains moisture in the form of an invisible gas, water vapor. Like all gases, this water vapor exerts pressure, the greater quantity of it present in the air at a given temperature, the higher the pressure. Consequently, just as water at a higher level will flow to a lower point unless a barrier is interposed, so water vapor at a higher pressure will flow to an area of lower pressure unless a suitable barrier intervenes.

In the typical example shown, the high moisture content within the room exerts a higher vapor pressure than exists outside, and therefore the water vapor flows towards the outside, progressively meeting colder and colder temperatures. As the temperature decreases, the air can hold less and less water vapor without becoming saturated with it. So, at a point near the back of the sheathing in both walls, temperatures are reached where the air can no longer hold the water vapor moving into it, and the excess water vapor condenses out within the constructions. However, the rate of vapor flow toward the outside in the "Conventional Wall" is about 20 times as great as it is in the "Vapor Barrier Wall," because the vapor permeability of the SHEETROCK in the former is about 20 times that of the SHEETROCK and foil in the "Vapor Barrier Wall." As a result, the condensation in the "Conventional Wall" is about $2\frac{1}{2}$ gallons per one thousand square feet of wall per day, whereas only about 1 pint condenses out in the same area of "Vapor Barrier Wall."

When the atmospheric conditions indicated are of considerable duration, the amount of condensation in the "Conventional Wall" is sufficient to damage the interior decoration, exterior paint, or any of the other wall components. In the "Vapor Barrier Wall," however, the quantity of condensate is so minor as to be readily dissipated.

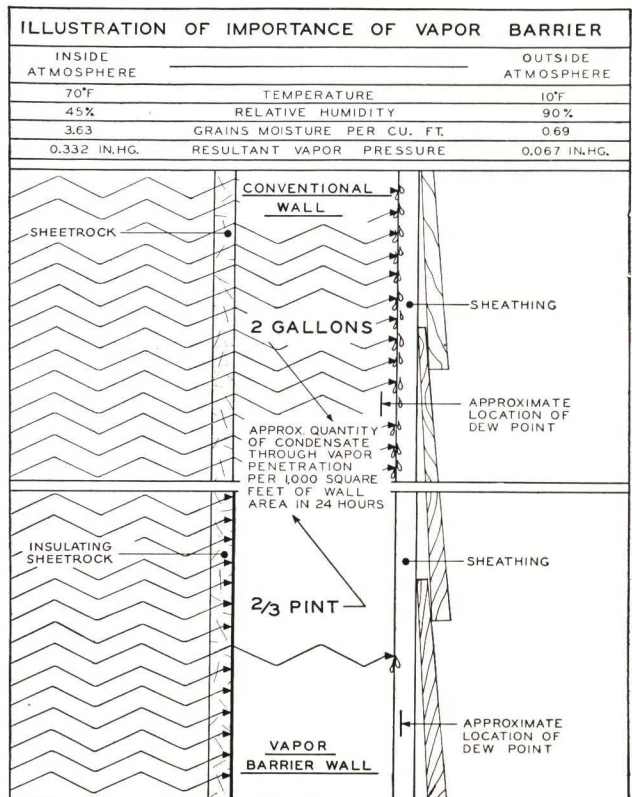
Recommendations

1. An efficient vapor barrier should be installed in all exterior walls and ceilings in locations where below freezing weather occurs for extended periods of time.
2. Vapor barrier should be on the warm side of the wall.
3. Vapor barrier should have a vapor permeability of not more than 1.00 Perm.†
4. Aluminum foil is one of the most efficient vapor barriers known and used commercially. When applied at our factory to the back of SHEETROCK gypsum wallboard, the resultant product is known as SHEETROCK insulating wallboard. Permeabilities to vapor transmission of this and other materials are:

Material

	Perms.†
SHEETROCK Insulating Wallboard	0.085 to 0.385
Duplex Papers	0.515 to 2.56
Insulation Back-up Paper	0.860 to 3.40
Fir Sheathing	2.94

†1 Perm = 1 grain per sq. ft. per hour per inch of mercury vapor pressure difference.



$\frac{1}{2}$ " Plywood	2.66 to 3.35
Paint Film	3.43
Plaster with 3 coats enamel paint	3.68 to 3.84
Pine lap siding	4.90
Slaters Felt	5.15 to 49.1
Plaster on wood fiber board or plain gypsum lath	19.7 to 20.5
Fiber board sheathing—not surface coated	25.7 to 34.2
Fiber board sheathing—surface coated type	3.03 to 4.36

For other permeability ratings see BMS-63—Bureau of Standards.

LAMINATED SHEETROCK WALLBOARD—A DOUBLE WALL SYSTEM

DESCRIPTION

Laminated SHEETROCK Wallboard is produced by laminating two thicknesses of $\frac{3}{8}$ " SHEETROCK—on the job—for ultra-fine walls and ceilings. The Double Wall System utilizes the inherent advantages of SHEETROCK and the joint reinforcement and concealment provided by the PERF-A-TAPE Joint System. The first layer is generally applied parallel to the framing members, being secured by conventional nailing. Then a face layer is attached adhesively with PERF-A-TAPE Cement at right angles to the first layer of SHEETROCK, with joints positioned between studs and joists. Joinings between panels of face layer SHEETROCK are then reinforced and concealed by the PERF-A-TAPE Joint System in the conventional manner. The result is wall and ceiling construction with many advantages over single-layer gypsum board construction.

FUNCTION AND UTILITY

Laminated SHEETROCK provides the following features:

Fireproof. Two layers of SHEETROCK with its fireproof, non-combustible core provide a high degree of fire-protection.

Reduced Sound Transmission. Quieter homes are assured by the greater mass of the Double Wall System.

Strength. Cross-lamination of two thicknesses of SHEETROCK utilizes the maximum strength of the board and provides rugged walls to withstand stress and abuse.

Crack-Resistance. Joints between SHEETROCK panels are "Welded" together by the PERF-A-TAPE Joint System to provide high resistance to cracks caused by frame movement, vibration or settlement. Elimination of nails in the surface layer of SHEETROCK greatly decreases transfer of stress to finished surfaces and minimizes possibility of nail "popping" or of nailhead area discoloration.

Additional Advantages. Laminated SHEETROCK provides the commonly-known advantages of gypsum wallboard:

- Ease of erection
- Ease of decoration and maintenance
- Speedy erection—less building time
- Uniform thickness for snug fitting of trim
- Dry walls—no excess moisture

ERECTION INFORMATION

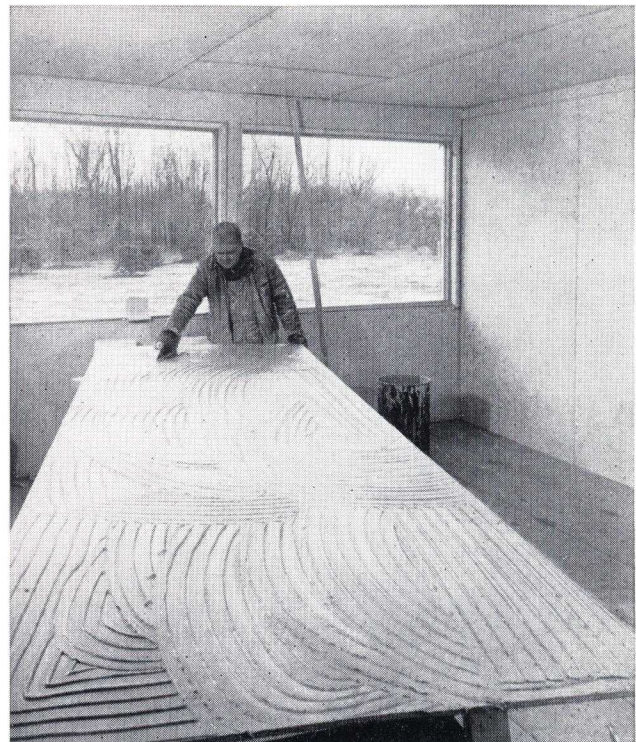
Ceilings

1. Ceilings less than 12' in either dimension. Full-length SHEETROCK wallboard is used to span ceiling from wall to wall. First layer is applied parallel to framing members, face layer is applied at right angles to first layer.

2. Ceilings longer than 12', less than 12' wide. (a) Where joist direction is parallel to long dimension of room, long-length SHEETROCK for face layer is applied at right angles to first layer, spanning room from side to side. (b) When



Temporary nailing of face layer on ceiling.



Spreading adhesive on back of face layer of SHEETROCK wallboard.

joist direction is parallel to width of room, first layer SHEETROCK is applied across joists with end joints staggered and occurring between joists. Full-length SHEETROCK wallboard for face layer is applied at right angles to first layer, spanning the room.

3. Ceilings with both dimensions greater than 12'. First layer SHEETROCK is applied perpendicular to joists, with end joints occurring between joists. Long length SHEETROCK is then applied at right angles to first layer for face layer. Where joints in face layer are parallel to those in first layer (i.e. face layer end joints parallel to first layer long edge joints), such joints must be offset at least 10".

LAMINATED SHEETROCK WALLBOARD—A DOUBLE WALL SYSTEM



Erecting face layer walls.



Counter sinking temporary nails.



Alternate method of applying face layer on ceiling.

WALLS

1. Walls not more than 8'3" in height. First layer SHEETROCK is applied vertically with joints nailed to studs. Face layer SHEETROCK is then applied horizontally (across the studs). This permits two widths of board to span the wall from floor to ceiling. Where ceiling height is between 8' and 8'3", the 1" to 3" gap is left at the floor, to be filled with scrap strips and concealed by the baseboard. Where wall lengths exceed 12', vertical end joints are staggered and occur between framing members. Twelve-foot panels are used wherever practicable to minimize end joints.

2. Walls greater than 8'3" in height. Where walls exceed 8'3" in height, it is more practical to apply first layer SHEETROCK horizontally, breaking end joints between studs where 12' boards will not span the wall length. The face layer is then applied vertically, with full-length SHEETROCK extending from floor to ceiling and eliminating end joints. Where joints in first and face layers are parallel, they must be offset at least 10".

CORNERS

Inside corners. In applying the two layers of SHEETROCK wallboard into inside corners, only the overlapping board of the first layer is nailed to the corner support. This secures both boards into corner. Face layer SHEETROCK is not nailed to corner framing member. A floating-type corner results when face layer corner is reinforced with PERF-A-TAPE.

Outside corners. First layer board is not nailed to corner framing on outside corners. Only face layer board is nailed to corner support, and these nails are countersunk after the adhesive has set. The corner is then reinforced with PERF-A-TAPE.

ALTERNATE CEILING ATTACHMENT

Temporary face nailing in the field of the face layer ceiling panels may be eliminated by using T-braces as shown here. These T-braces will hold the center of the panels until adhesive sets. Long edges and end of panels are secured by nailing as with regular application.

NAIL DATA

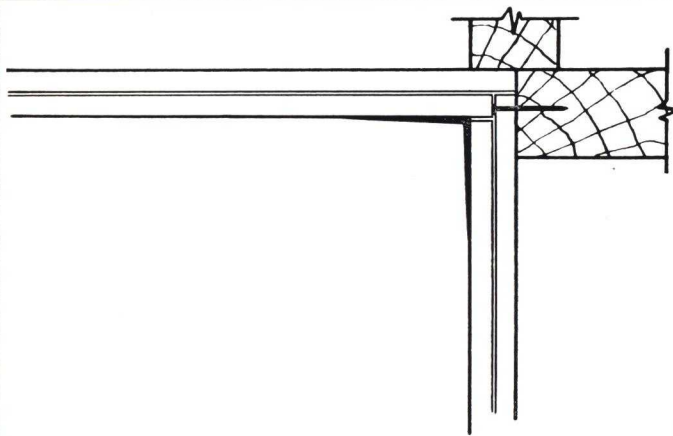
Type required 4d cement-coated cooler
Spacing—first layer ceilings 6" o.c.
Spacing—first layer sidewalls 8" o.c.
Spacing—face layer ceilings (temporary) 12" o.c.
Spacing—face layer sidewalls (temporary) 16"—24" o.c.

ADHESIVE (PERF-A-TAPE CEMENT)

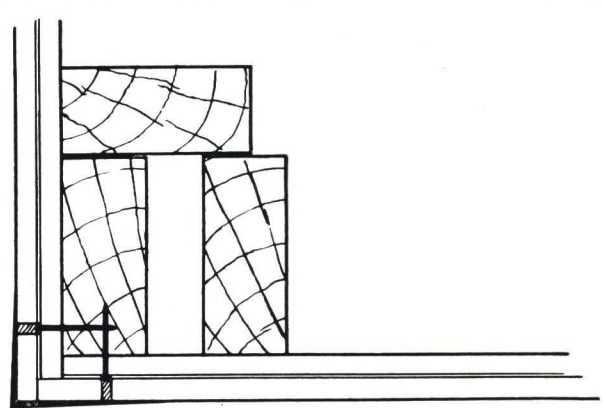
Packaging 25 lb. bags
Mixing 22 pts. water per 25 lbs. adhesive
Requirements approximately 60 lbs. (per 1,000 sq. ft. of face layer SHEETROCK)

LAMINATED SHEETROCK—A DOUBLE WALL SYSTEM

Corner detail for double wall system — Two significant differences distinguish corner attachment of Laminated SHEETROCK Wallboard from single-layer application of SHEETROCK.

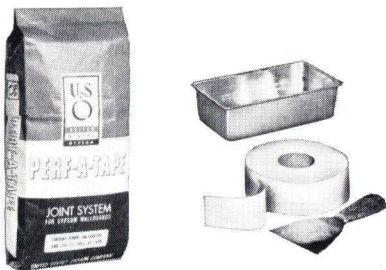


INSIDE CORNER—Only the overlapping board of *first* layer is nailed to corner support, securing both panels into corner. *Face* layer is not nailed to framing member. A “floating-type” corner results after later reinforcement by application of PERF-A-TAPE.

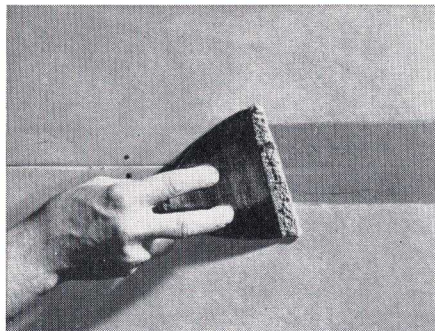


OUTSIDE CORNER—The *first* layer of SHEETROCK Wallboard is not nailed to framing members during application. The *face* layer only is nailed; and nails are countersunk after the adhesive sets.

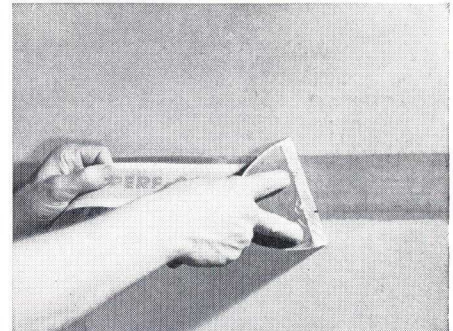
PERF-A-TAPE JOINT SYSTEM FOR SHEETROCK WALLBOARD



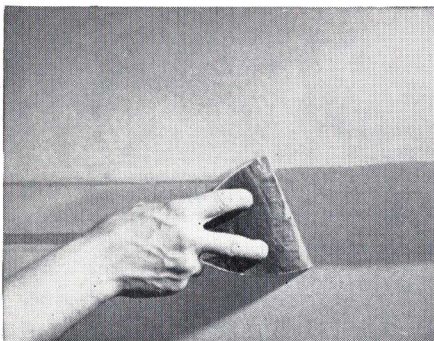
1. PERF-A-TAPE equipment



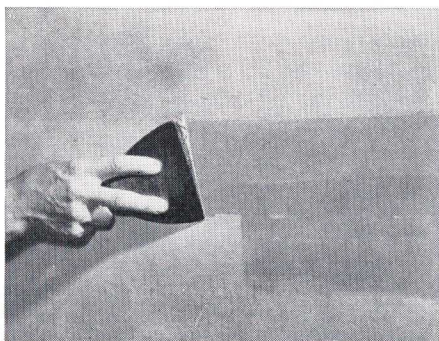
2. Butter the cement into the recessed channels



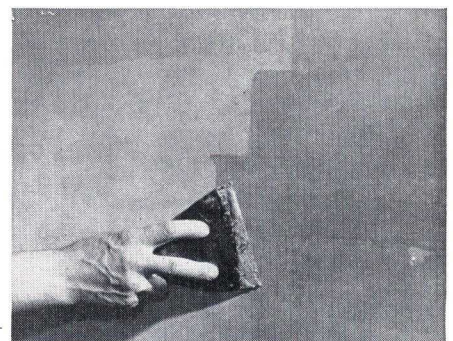
3. Force tape down into fresh cement



4. Cover imbedded tape with a thin layer of cement



5. After 1st coat is dry, cover with 2nd coat



6. A 3rd finishing coat levels off any defects

SHEETROCK GYPSUM WALLBOARD

FIRE RATINGS FOR SHEETROCK WALLBOARD PARTITION AND CEILING ASSEMBLIES

PARTITIONS—Wood studs faced both sides as indicated:

Facing	Fire Resistance Period	Reference
$\frac{3}{8}$ " SHEETROCK	25 minutes	(1)
$\frac{1}{2}$ " SHEETROCK	40 minutes	(1)
$\frac{1}{2}$ " SHEETROCK, mineral wool batts nailed to studs	1 hour	(1)
$\frac{1}{2}$ " SHEETROCK, loose mineral wool fill	1 hour (non-bearing)	(1)
2 layers $\frac{3}{8}$ " SHEETROCK	45 minutes	(2)
2 layers $\frac{1}{2}$ " SHEETROCK	1½ hours (non-bearing)	(3)
2 layers $\frac{1}{2}$ " SHEETROCK	1¼ hours (bearing)	(3)

Note: Ratings apply on both bearing and non-bearing partitions except as shown.

CEILINGS—Wood joists faced with rough and finish floor and on under side as indicated:

Facing	Fire Resistance Period	Reference
$\frac{1}{2}$ " SHEETROCK	25 minutes	(1)
(Nailed to joists with 1¼", No. 12 gauge nails, having ½" heads)		
2 layers $\frac{3}{8}$ " SHEETROCK	30 minutes	(1)
2 layers $\frac{1}{2}$ " SHEETROCK	1 hour	(4)

- (1) National Bureau of Standards Published B.M.S. 92 tables 30 and 42.
- (2) Nationally recognized Fire Testing Laboratory—name on request.
- (3) National Bureau of Standards Reference No. F. P. 2708 not published. (Construction: First layer applied vertically with 5d, 13½ ga., 1⅝" long, ⅞" diam. head cement coated nails spaced 6" to 8" o.c. Finish layer applied horizontally with 8d, 11½ ga., 2⅜" long, ¼" diam. head cement coated nails spaced 6" to 8" o.c., joints reinforced with PERF-A-TAPE Joint System.)
- (4) National Bureau of Standards Reference No. FP 2926, not published. (Construction: Two layers applied horizontal method, separated by 20 gauge 1" hexagonal mesh wire fabric, joints on finish layer reinforced with PERF-A-TAPE Joint System. Nails: first layer—5d, 15 ga., 1⅝" long, ⅞" diam. head cement coated nails spaced 18" o.c., fabric and finish layer of gypsum wallboard—8d, 12½ ga., 2⅜" long, ¼" diam. head cement coated nails spaced 5" to 7" o.c.)

PREPARING SHEETROCK SURFACE FOR FINISHING

General:

SHEETROCK walls, like any others, must have proper preparation prior to decorating. Whether paint, texture, wallpaper or wall fabrics are used . . . whatever the joint treatment may be, PERF-A-TAPE, SHEETROCK Finisher, mouldings, or untreated beveled or square edge . . . the following specifications are recommended for SHEETROCK surface preparation.

The use of joint treatments on SHEETROCK Wallboard presents a decoration problem which must be recognized. Both surface texture of the board and paint absorbing characteristics (suction) differ from that of surfaces treated with PERF-A-TAPE Cement, SHEETROCK Finisher and similar joint treatments. When proper sizing or priming of such wall surfaces is not done, the smoother surfaces of the joint treatment will show up highlight spots or "shadow" appearances under most paint finishes. Because of this, sizing or priming directions must be carefully observed for each type of finish.

Flat Oil Paint

For spirit-thinned flat finishes, surface should be prepared with (A) SHEETROCK Sealer or any other good grade resin emulsion type sealer or (B) TEXOLITE* Sealer or any other good quality pigmented oil primer sealer, used according to manufacturer's directions. For flat finish where strong tint and extremely deep tones are desired, one coat of SHEETROCK Sealer should be applied and followed with one coat of TEXOLITE Sealer, or any other good quality pigmented oil primer sealer. (For TEXOLITE finishes specifications refer to USG folder, AIA File Number 25-B.)

Semi-Gloss Paints

The wall surface should first be prepared with one coat of SHEETROCK Sealer and then finished with one or two coats of semi-gloss paint.

*T. M. Reg. U. S. Pat. Off.

SHEETROCK GYPSUM WALLBOARD

PREPARING SHEETROCK SURFACE FOR FINISHING—*Continued*

Enamel

Where a high gloss finish is desired, SHEETROCK Sealer should be applied, followed by one coat of enamel undercoater. Finish coat of gloss enamel follows.

Texture Finishes

To texture wall or ceiling surfaces, use TEXTONE* or any other good quality texture paint. For a texture surface where a flat finish is desired through the use of integrally tinted texture material, SHEETROCK Sealer or TEXOLITE Primer should be applied, followed by tinted TEXTONE or other colored texture paint. When strong tints or extremely deep tones of flat, semi-gloss, or gloss finishes are desired over textured surfaces, TEXTONE or other texture should be applied and followed with a coat of TEXOLITE Sealer, or other good pigmented oil primer-sealer, used according to manufacturer's directions. Then apply strong tint or deep tone finish.

Wallpaper and Wall Fabric Finishes

Before papering, the SHEETROCK wallboard surface must first receive a good grade of wall size. Apply one coat of SHEETROCK Sealer, or one coat of TEXOLITE High Gloss Varnish cut 25% with turpentine. Before re-papering, it is customary to soak or steam old wallpaper from the walls and ceiling. When this is done, an undue softening of the SHEETROCK wallboard face paper may result unless a suitable size as recommended was applied prior to papering.

Ceramic or Other Tile—(Adhesive application)

If the SHEETROCK Wallboard is adequately protected from water by the tile and adhesives, there should be no difficulty. As a general rule, the following precautions will help prevent failures:

1. The tile should be installed by a reputable contractor using first class material.
2. The tile should be carried at least 6" above the shower head.
3. Open edges of SHEETROCK should not be used at the intersection of the wall and tub. Paper-bound edges should come at this point. For best results, two coats of varnish should be applied to the bottom edge of the SHEETROCK, and should be carried up about 4".
4. If the use of varnish does not conflict with the tile application specifications, the entire face of the board to be tiled should be given two coats of varnish. This is particularly necessary in shower stall areas and for 6" to 12" above joint of tile with tub or receptor.

5. The space between the SHEETROCK Wallboard and tub or receptor should be filled with a non-setting type of caulking prior to the tile application. To facilitate this it is better to set the bottom edge of SHEETROCK about $\frac{1}{4}$ " above the lip of the tub or receptor. Upon completion of the tile installation the space between the tub or receptor and tile should be grouted similar to the balance of the installation.

6. Two coats of varnish should be applied to the SHEETROCK core and paper at cut-out for shower head, pipe and valve adjustments.

7. Ceramic tiles should not be applied over $\frac{3}{8}$ " SHEETROCK Wallboard attached only to studs 16" o.c. If $\frac{3}{8}$ " SHEETROCK is being used on studs 16" o.c., it should be further supported by being attached to headers placed between studs a few inches above tub or receptor line and at dado cap or mid-ceiling height. The use of $\frac{1}{2}$ " SHEETROCK on 16" o.c. framing does not require such added support. Use standard nails and nailing.

An application of other water-proofing agents can be substituted for varnish provided the water-proofing agent is compatible with the mastic used to secure the tile and with the SHEETROCK. Water-proofing mastics can be similarly employed.

During the past few years tiles of various types have been adhesively applied over SHEETROCK and other gypsum wallboards in thousands of homes. In general, the results to date have been good. What happens over a long period of time will depend to a great extent upon the care the owner exercises and on the life of the tile and adhesives. Assuming a good adhesive has been used and applied according to the manufacturer's directions, the care of the installation by the owner is of great importance. Loose tiles must be removed, replaced and grouted promptly. Cracks in corners and in field joints must be grouted without delay even if it necessitates the removal of tiles. The joint between the tub and the wall must be kept water-tight at all times. Water must not be allowed to get behind the tile and into the SHEETROCK at the top or bottom of the tile, around window trim, pipes or valve adjustments.

The purpose of the tile installation is to prevent the passage of water to the supporting material and to provide a durable, pleasing surface. If the tile installation performs its function and if the above precautions are observed, a SHEETROCK backing can be expected to give a similarly satisfactory result.

*T. M. Reg. U. S. Pat. Off.

SPECIFICATIONS

SPECIFICATIONS: 1/2" RECESSED EDGE SHEETROCK WALLBOARD

Scope—Unless otherwise shown on plans, all interior walls and ceilings shall be finished with gypsum wallboard.

Materials—Gypsum Wallboard shall be 1/2" Recessed Edge SHEETROCK, manufactured by the United States Gypsum Company.

Nails shall be 5d, 13 1/2 gauge, cement-coated, flathead.

Erection—Framing shall be in accordance with plans and specifications and/or shall pass minimum F.H.A. requirements. Headers shall be provided for solid support for fixture attachment wherever necessary.

SHEETROCK panels in lengths as long as possible shall be applied to ceilings first and then walls. All panels shall be applied

with the long edges at right angles to the framing members, except on areas less than 4' wide, or walls over 8'3" high. All ends shall be supported on framing members and joints shall be staggered. Joints on opposite sides of partitions shall not fall on the same stud.

Recessed edges shall be butted loosely together. Cut edges and mill ends shall be sanded down to provide a smooth joining.

SHEETROCK wallboard shall be securely nailed to supports, using 5d, 13 1/2 gauge, cement-coated, flathead nails, 1 5/8" long. Nails shall be spaced not less than 3/8" from edges and ends of board and shall be spaced 5" to 7" apart on ceilings and 6" to 8" apart on walls. Nails shall be driven "home," with heads dimpled slightly below the surface. Do not use a nail set.

SPECIFICATIONS: SHEETROCK LAMINATED WALLBOARD

Scope—All interior wall and ceiling areas shall be finished with two layers of 3/8" SHEETROCK Wallboard. The SHEETROCK Wallboard shall be laminated on the job in accordance with the following information. NOTE: Double layer is optional in closets; not considered necessary except on closet walls dividing occupancies.

Materials Required

1. 3/8" Recessed Edge SHEETROCK Wallboard
2. Adhesive (PERF-A-TAPE Cement)
3. PERF-A-TAPE Joint System
4. 4d Cement coated cooler nails

Framing—Framing members shall be straight and in alignment (check alignment before proceeding with first layer).

Stud and joist spacing may be 16", 20" or 24" depending on structural requirements. NOTE: 24" spacing is not recommended for ceilings carrying insulation fill.

Erection

1. First Layer—The first layer shall be 3/8" recessed edge (or square edge) SHEETROCK Wallboard. As far as practical, the panels shall be in lengths corresponding to ceiling heights and room widths or lengths. All joints shall be loosely butted. Joints

in first and face layers (other than corners and at ceiling) shall not underlie each other, but shall be offset at least 10". First layer panels shall be nailed with 4d cement coated cooler nails spaced 8" o.c. on walls, 6" o.c. on ceilings.

2. Face Layer—The face layer shall be 3/8" recessed edge SHEETROCK Wallboard of sufficient length, up to 12', to span wall and ceiling areas from corner to corner. All joints shall be loosely butted.

Where joints occur in both the first and face layers parallel to framing members, joints in one layer or the other must fall between supports.

After cutting the face layer to size, PERF-A-TAPE Joint System Cement shall be spread over the back surface of the SHEETROCK with a USG Spreader Blade. The spreader shall be used in a manner to produce an irregular pattern with adhesive.

The face layer shall then be placed in position on wall or ceiling and temporarily held in place with sufficient nails, applied in the field and on edges of the board to insure bond between the layers. After 24 hours, nails used in the face layer shall be countersunk at least 3/8" with a 5/32" diameter nail set.

3. Joint and Nail Finishing—Fill all nail holes and deep gouges in the face layer, as well as any wide spaces that may occur between face layer panels, with PERF-A-TAPE Cement. All joints, corners and filled areas shall then be finished with PERF-A-TAPE Joint System applied according to manufacturer's directions.

SPECIFICATIONS: PERF-A-TAPE JOINT SYSTEM

Materials—Joint treatment shall be PERF-A-TAPE joint reinforcing tape and cement, manufactured by United States Gypsum Company.

Application—Cement included in PERF-A-TAPE Joint System shall be mixed according to the manufacturer's directions.

All joints, including internal and external corners and angles, shall be reinforced with PERF-A-TAPE Joint System and finished in the following manner:

The recess between two SHEETROCK panels shall be filled with a sufficient thickness of cement to completely hide the board at all points. The tape shall be centered on the joint and, with a USG knife or suitable tool, pressed tightly to the two panels.

The excess cement, squeezed from between the tape and panels, shall be laid smoothly on top of the tape.

When the first coat is thoroughly dry, a second application of cement shall be spread evenly over the entire joint to beyond the shoulder of the recess.

When the second coat is thoroughly dry, the third and finish coat shall be applied so as to even up all surfaces of the joint.

All nail depressions shall receive at least two coats of cement, leaving them filled even and flush with the surface of the board.

Between applications of cement, rough spots or areas shall be sanded smooth wherever necessary. When thoroughly dry, the finish coat shall be sanded wherever necessary to leave all joints and nail spots flush and smooth and ready for decoration.

SPECIFICATIONS: WOODGRAINED SHEETROCK WALLBOARD

Scope—Where indicated on plans, interior walls shall be finished with pre-decorated gypsum wallboard.

Materials—Pre-decorated gypsum wallboard—shall be 3/8" Woodgrained SHEETROCK, manufactured by United States Gypsum Company. Type of grain shall be as shown in plans.

Nails—shall be of matching color.

As an alternate, Woodgrained SHEETROCK can be securely nailed with 5d finish nails driven at 45° angle, countersunk and puttied with Spackling Putty or plastic wood, colored to match

finish on SHEETROCK.

Erection—Supports such as studs, joists, or furring strips shall be spaced 16" on center and shall be level and plumb. All joints or edges shall be supported by framework or headers. Butt edges together, placing joints to get balanced panel effect, or as shown in plans. Space colored nails 6" to 8" o.c. Use padded or plastic head hammer to drive colored nails.

Wax or varnish finish. The Woodgrained SHEETROCK shall be given a coat of white shellac, then a coat of (wax) (varnish). Specify brand.

TECHNICAL INFORMATION

TEXOLITE

T. M. Reg. U. S. Pat. Off.

PAINT PRODUCTS



1950



United States Gypsum

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TEXOLITE PAINT PRODUCTS

INTERIOR FINISHES FOR WALLS AND CEILINGS

PRODUCT	DISTINGUISHING CHARACTERISTICS	FORM	PRIMING	USES AND LIMITATIONS
TEXOLITE <i>Seven Star Imperial</i> —White and tints. Provides finish with lovely, soft sheen and excellent washability.	Ready to use. Will dry to the touch in one hour. No objectionable painty odor. Cuts painting time and costs. No fire hazard during application. Recoatable.	Ready to use.	See general specifications	Over old and new interior walls and ceilings in homes, apartments, offices, stores, shops, schools, hospitals, factories and warehouses. Can be used on sealed wood trim.
TEXOLITE <i>Imperial</i> —White and tints. A washable, water-thinned oil resin flat paint for interior walls and ceilings. Affords beautiful flat surface with good washability at minimum cost.	Thinned with water. Dries in one hour. No prime or size coat required for most paint jobs. Use large brush for fast application. No objectionable painty odor. No fire hazard during application. Recoatable. Cuts painting time and costs	Paste	See general specifications	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 damp conditions, or where it will be subjected to excessive abrasion.
TEXOLITE <i>Standard</i> —White and tints. Cleanable water-thinned casein flat paint for interior wall and ceiling decoration. Provides brighter, more colorful interior decoration that is long-lived and inexpensive.	Dries in one hour. High light reflection and excellent hiding power due to high quality pigment. Easy to apply. No objectionable painty odor. No fire hazard. No thinner cost. Recoatable. Cuts maintenance costs.	Paste	See general specifications	Over new and old plaster surfaces—over painted surfaces on walls and ceilings—in homes, offices, stores, shops, hospitals, and factories. Not recommended for use over wood trim, or where there is a damp condition or where it will be subject to excessive abrasion.
TEXOLITE <i>Accent Colors</i> —Full range of deep colors. An oil resin paint for use by itself or for tinting other TEXOLITE products.	Offers unlimited color possibilities because of the wide selection of true, brilliant colors and their intermixes to produce blends. Clarity of vehicle allows color pigments their full brilliance. No fire hazard during application. Recoatable.	Paste	See general specifications	Used as a deep brilliant paint, or for tinting and blending TEXOLITE <i>Seven Star Imperial</i> , TEXOLITE <i>Imperial</i> and TEXOLITE <i>Standard</i> . Can be intermixed for tinting casein paints, resin emulsion paints, washable calcimine, and ordinary calcimine. TEXOLITE <i>Accent Colors</i> can be intermixed themselves in any proportion. Ideal for display backgrounds, show cards, scenic studios, interior decoration.
TEXOLITE <i>Stipple Finish</i> —Provides soft attractive stipple. Available in white only.	Ready to use as it comes in the can. Dries overnight to a soft sheen. Easy to apply—use roller, brush or sponge for stippling. Highly washable. May be tinted with colors in oil or Japan colors only.	Ready to use.	See general specifications	Over old and new interior walls and ceilings in homes, hotels, apartments, hospitals, factories and warehouses. Can be used on any sealed surface.
TEXOLITE <i>Semi-Gloss</i> —White and tints. A durable semi-gloss enamel for interior walls and ceilings. For use in kitchens, bathrooms and other rooms where a semi-gloss finish is desired.	Thinned with water. Dries to touch in two hours. Large brush can be used for fast application. No objectionable painty odor. Recoatable. Cuts painting time and costs. Excellent washability. No fire hazard during application.	Semi-paste	See general specifications	Over old or new interior walls in homes, apartments, offices, stores, shops, schools, hospitals and other buildings. Can be used over wood trim if wood is sealed.

INTERIOR TEXTURE FINISHES AND VARNISH

TEXTONE—A plastic paint meeting the demand for a dependable, economical, easily applied texture medium capable of satisfying every requirement of modern decoration.	TEXTONE properly applied forms a texture surface of superior hardness. Furnished in white only. Can be integrally tinted with TEXOLITE resin emulsion or casein paints.	Powder	See general specifications	For producing light, soft, modern textures as well as the heavier period designs over any dry, solid, clean interior surface. For decorating work over new plaster, gypsum wallboards, and insulating wallboards. Especially useful in refinishing cracked plaster surfaces; for producing stone effects, antique effects and stencil work.
USG <i>Texture Paint</i> —A popular plastic paint that is easy to use. It provides a wide range of texturing possibilities and is lower in price than TEXTONE paint.	A good working plastic paint for uses similar to those secured with TEXTONE. Somewhat less coverage per pound. Provides excellent textures in both modern and period styles.	Powder	See general specifications	For interesting textures over dry, clean, solid surfaces such as new plaster, gypsum wallboards, insulating wallboards, etc. Also on old cracked plaster surfaces.
TEXOLITE <i>Spar Varnish</i> —A high quality general purpose varnish for interior and exterior use. Available in high gloss or satin finish.	Dries to the touch in four hours. Protects and beautifies all wood finishes with a tough, durable film. Highly resistant to alkali, alcohol, scuffing and abrasion. Easy to apply.	Ready to use.	See general specifications	For floors, woodwork, furniture, porches, doors, decks, spars, etc.

The following trademarks are owned and/or registered in the United States Patent Office by United States Gypsum Company and are used by it to distinguish its paint and painters' supply products. U. S. G., TEXOLITE, TEXTONE, CEMENTICO, RED TOP, PERF-A-TAPE, SEVEN STAR, and SHEETROCK.

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TEXOLITE PAINT PRODUCTS

EXTERIOR PAINTS

PRODUCT	DISTINGUISHING CHARACTERISTICS	FORM	PRIMING	USES AND LIMITATIONS
TEXOLITE Exterior—White and tints. An exterior paste paint thinned with water. Gives a beautiful, durable, exterior finish to masonry surfaces. May be brushed or sprayed.	Dries quickly. Affords true color beauty with a durable finish. Does not require spraying with water to bring about set after application.	Paste	See general specifications	For use on painted or unpainted masonry surfaces, also on unglazed brick and tile and on unglazed weathered asbestos cement siding. Do not use on magnesite stucco surfaces, glazed brick, or tile, asbestos siding, polished stone, nor as a floor paint.
TEXOLITE CEMENTICO—White and tints. 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 lime-proof colors are used. Durable. Water resistant. Bonds to porous masonry surfaces.	Powder	See general specifications	Use only over porous masonry surfaces such as unpainted brick, clay tile, portland cement stucco, concrete, unpolished building stone and similar surfaces. Not recommended on magnesite stucco, wood, painted or greasy surfaces, smooth plaster, terra cotta, glazed brick and tile, vibrated or very dense concrete areas, floors, asbestos-cement shingles and similar non-porous or non-masonry materials.

SURFACE PREPARATION PRODUCTS

TEXOLITE Sealer—A general purpose pigmented oil primer sealer.	Ready to use. Just stir and apply. Highly recommended for porous surfaces, particularly under deep tones. May be tinted with colors in oil or Japan colors only. Easy application. Unexcelled sealing qualities.	Ready to use	See general specifications	For use over plaster, concrete, brick, wallboard, wood, metal and other wall and ceiling surfaces.
SHEETROCK Sealer—A resin emulsion sealer designed specifically for application over gypsum wallboard.	Ready to use. Ease of application. May be tinted with resin emulsion or casein tinting colors.	Ready to use	See general specifications	For use over gypsum wallboard to conceal PERF-A-TAPE Joints, lay the nap of the paper, and prepare the surface to receive enamels, other interior wall paints and as a size under wallpaper.
TEXOLITE Primer—A priming material which "locks in" lime or alkali and makes possible more durable paint jobs. Equalizes "suction." Provides "tooth" to which paint clings tightly.	Assures longer life for decorative materials. Produces a hard, lime locking prime coat over which may be applied oil paints, casein and resin emulsion water-thinned paints, enamels, calcimine.	Powder	See general specifications	For preparing interior surfaces for painting, painted and patched walls and ceilings, new plaster, interior concrete surfaces, new or old unpainted concrete floors, gypsum and insulating wallboards. Not recommended for old painted concrete floors or for surfaces which are damp.
TEXOLITE Spackling Putty—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. Adaptable to knife or brush application. Can be sanded. Adheres to any properly cleaned, solid surface. Hardens in a few hours, forming a tough, durable surface.	Powder	See general specifications	Filling small cracks, scars, slight imperfections in plaster, nicks, cracks, knotholes, or nail holes in wood trim. Spotting nail holes, cracks or joints in wallboards. To fill voids or imperfections in concrete, cracks in tile or mosaic, for treating canvas and wall fabrics. For household repairs on moulding, furniture, toys, etc. For making Swedish Putty.
RED TOP Patching Plaster—A plaster scientifically compounded for patching cracks in walls and ceilings easily and efficiently at minor expense.	Very white. Contains no lime. Sets in 1 to 1½ hours. Uniform set and quality.	Powder	See general specifications	For patching cracks and larger breaks in plaster walls. Can be decorated with any decorating material.
RED TOP Painters' Plaster—Plaster of Paris for general painters' use. Made from specially selected white gypsum.	Mixes readily, works easily. Provides hard, dense and strong surfaces. Setting time approximately 30 minutes.	Powder	See general specifications	Recommended for patching cracks and breaks in plaster and wherever a fast setting patching material is required.
PERF-A-TAPE Joint System—Designed to conceal and reinforce gypsum wallboard joints and to reinforce large plaster cracks.	Provides complete concealment and adequate reinforcement.	Combination package of powder and tape	See general specifications	Used in both new and old construction. Developed for treating joints in wallboard. Used to reinforce cracks in all kinds of wall surfacings especially in corners or at angles before redecorating.

TEXOLITE PAINT PRODUCTS

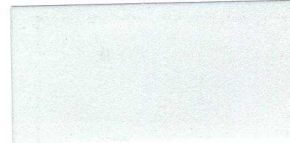
TEXOLITE *Seven Star Imperial*, TEXOLITE *Imperial*, and TEXOLITE *Standard*



Russet Beige



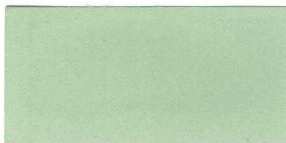
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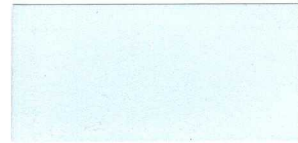
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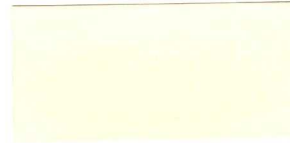
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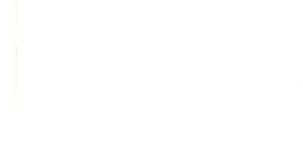
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Pottery Blue



Colonial Cream



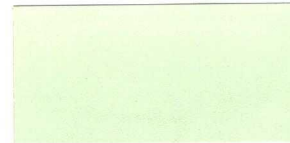
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Coral Rose



Sunlight Yellow

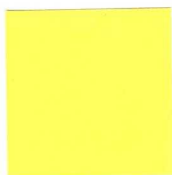


April Green

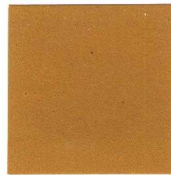


Wedgwood Blue

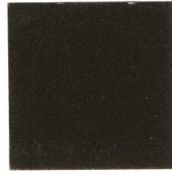
TEXOLITE *Accent Colors*



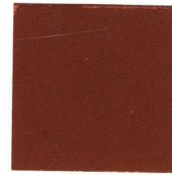
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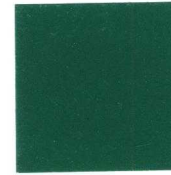
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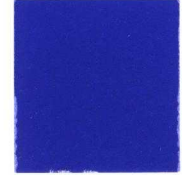
Raw Umber



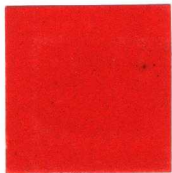
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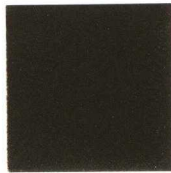
New Deep Green



Deep Blue



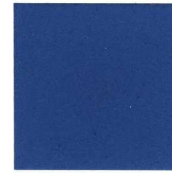
New Bright Red



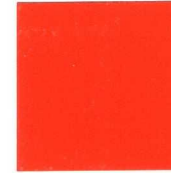
Burnt Umber



Magenta



Turquoise



Red Orange

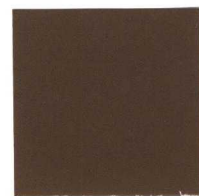


Medium Yellow

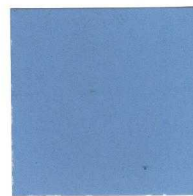
TEXOLITE *Custom Colors*



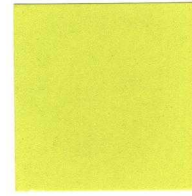
Normandy Rose



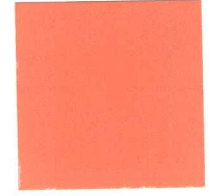
Congo Brown



Pilgrim Blue



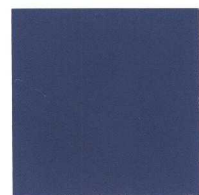
Chartreuse



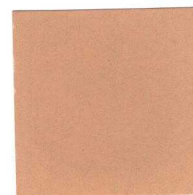
Mission Coral



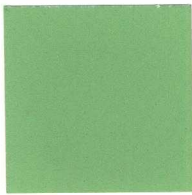
Pinehurst Green



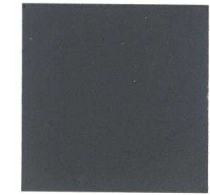
Canterbury Blue



Sandalwood



Elfyn Green



Gray Indigo

TEXOLITE PAINT PRODUCTS

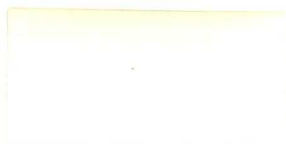
TEXOLITE Semi-Gloss



Yellow Glow



Cascade Green



Bone White



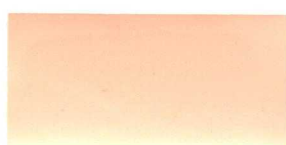
Tawny Buff



Harbor Blue



Georgian Cream



Lenox Rose



Twilight Gray

TEXOLITE CEMENTICO



Georgian Ivory



Harbor Blue



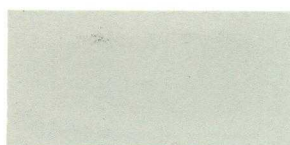
Cascade Green



Coppertone



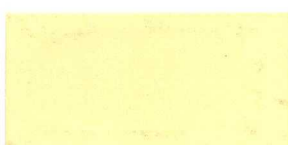
Granada Buff



Pewter Gray



Island Green



Cuban Cream

(Also in White)

TEXOLITE Exterior



Bone White (Also in white)



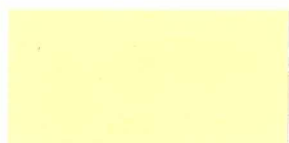
Cadet Blue



Citron Yellow



Shale Gray



Sierra Buff



Mission Cream



Sandalwood



Spruce Green

LIGHT REFLECTION

In commercial, institutional and industrial uses, the high light reflection of TEXOLITE *Seven Star Imperial*, *Imperial* and *Standard* produces lighting economies and improved working conditions.

Tests have shown light reflection of standard colors and the popular custom colors to be as shown at right:

Standard Colors

Gardenia White	86.6%	Pottery Blue	56.8%
Ivory White	83.0%	Sheffield Gray	54.2%
Sunlight Yellow	80.0%	Sea Island Peach	45.3%
Colonial Cream	77.6%	Palm Green	43.5%
April Green	60.8%	Wedgwood Blue	37.7%
Coral Rose	58.0%	Russet Beige	35.9%

Custom Colors

Chartreuse	43.4%	Sandalwood	25.3%
Pilgrim Blue	37.0%	Gray Indigo	15.4%
Normandy Rose	36.8%	Pinehurst Green	15.0%
Elfin Green	34.9%	Canterbury Blue	11.8%
Mission Coral	32.4%	Congo Brown	11.4%

TEXOLITE PAINT PRODUCTS

GENERAL SPECIFICATIONS

I GENERAL CONDITIONS

The painting contractor shall read and be governed by the general conditions at the head of the complete specifications for this project.

II MATERIALS

1. Deliver in original containers.
2. Store in protected place to protect from damage by elements and tampering.
3. Use all materials in strict accordance with manufacturer's directions.

III SURFACE PREPARATION

A. INTERIOR SURFACES

1. All surfaces must be dry, sound, firm, clean, and free of dust, dirt, grease or oil.
2. Fill all nicks, gouges, cracks and other surface imperfections with *TEXOLITE Spackling Putty*. Use *RED TOP Patching Plaster* to repair large holes and cracks in plaster. Repaired surfaces shall be sanded smooth and dust removed and sealed with *TEXOLITE Sealer* before decoration.
3. **Wood surface**—except floors. New wood (not previously painted), sand smooth, touch up knots, sap streaks, pitch spots with shellac. Apply one coat of *TEXOLITE Sealer*. Previously painted wood—apply one coat *TEXOLITE Sealer*.
4. **Metal surfaces.** Remove grease, oil and plaster splatterings. Apply one coat rust inhibitive primer.

5. Plaster

New Plaster

- (a) Do not paint until dry.
- (b) Apply one coat of tinted *TEXOLITE Primer* to all new plaster surfaces.

(NOTE to architect: Use of TEXOLITE Primer assures that no free lime is available to saponify the oil in paint film, permits earlier painting of new plaster.)

- (c) Surfaces to be finished with Semi-Gloss or Stipple Finish, apply one coat *TEXOLITE Sealer* tinted.
- (d) If pastel colors are to be used, apply directly to *TEXOLITE Primer*.
- (e) If deep tones (custom colors) or pure accent colors are to be used, apply coat of tinted *TEXOLITE Sealer* over *TEXOLITE Primer*.

- (f) If wallpaper is to be applied, apply 1 coat *TEXOLITE Sealer* before applying wallpaper.

Cover Coat

- (a) Do not paint until dry.
- (b) Apply one coat tinted *TEXOLITE Sealer*.
(NOTE: Unprotected steel in surface of concrete may result in rust spots on Cover Coat requiring subsequent decoration. See USG AIA folder 21-A-2.)

Old Plaster Previously Painted

- (a) Remove all loose or scaling paint and repair as detailed in (2) above.
- (b) Surfaces to be finished with Semi-Gloss, apply 1 coat *TEXOLITE Semi-Gloss*.
- (c) For other finishes—ready mixed colors, 1 coat *TEXOLITE Sealer* tinted.
- (d) For deep tones—seal with *TEXOLITE Sealer* tinted as required.

6. Gypsum Wallboard

Prepare joints and nailheads in accordance with manufacturer's directions.

Flat Finish

- (a) Pastels—1 coat *SHEETROCK Sealer*.
- (b) Deep tones or Custom Colors—1 coat *SHEETROCK Sealer* and 1 coat *TEXOLITE Sealer*, tinted.

Semi-Gloss Finish

Apply one coat *TEXOLITE Semi-Gloss*. (This to be followed by one or more coats *TEXOLITE Semi-Gloss* as desired to finish.)

Textured Surface

Apply *TEXTONE* of consistency to provide desired texture.

Stippled Surface

- (a) Flat—1 coat *SHEETROCK Sealer*, tinted.
- (b) Gloss finish—Apply 1 coat *TEXOLITE Semi-Gloss*.

Wallpaper Finish

- (a) Apply 1 coat of either of the following:
 - (1) *SHEETROCK Sealer*.
 - (2) *TEXOLITE Sealer*.
 - (3) *TEXOLITE Spar Varnish* (High Gloss) cut 25% with turpentine.

TEXOLITE PAINT PRODUCTS

GENERAL SPECIFICATIONS, Continued

7. Cement Block or Lightweight Aggregate Block

- (a) (If a smooth surface is desired)—Brush on 1 coat of TEXTONE texture paint and strike off with trowel or broad knife before final set. When thoroughly dry apply one (or two) coat(s) of tinted TEXOLITE *Primer*.
- (b) (If texture of block is to be retained)—Apply 1 coat tinted TEXOLITE *Primer*.
- (c) If TEXOLITE *Exterior* is used no surface preparation necessary.

8. Concrete Surfaces (except floors)

- (a) Apply 1 coat TEXOLITE *Primer* to all concrete surfaces.
- (b) If Pastel Colors are to be used apply direct to TEXOLITE *Primer*.
- (c) (If smooth surface is required on unpainted concrete.)
 - (1) Fill in all voids with TEXOLITE *Spackling Putty*.
 - (2) Finish with Cover Coat and then paint as directed for Cover Coat. (**Cover Coat application to be covered under Plastering Specifications.**) (See Section 12b-Un.)

9. Floors

For all woodwork areas to be varnished, seal with TEXOLITE *Spar Varnish*—High Gloss finish, thinned with 10% turpentine.

B. EXTERIOR FINISHES

- (1) Masonry surfaces to receive TEXOLITE CEMENTICO must be porous, free from oil, grease, not previously painted with other type paints. (Surfaces previously painted with TEXOLITE CEMENTICO may be repainted with TEXOLITE CEMENTICO or other exterior masonry paint.) Patch cracks or openings with one part TEXOLITE CEMENTICO mixed two parts clean, sharp sand, remove rust stains.
- (2) For non-porous masonry surfaces no special preparation required except as A-1 above.

IV FINISH COATS

A. INTERIOR WALLS AND CEILINGS

1. Flat Finish

- (a) Apply one (2) coat(s) of TEXOLITE *Seven Star Imperial* on all surfaces except where otherwise designated, or

(b) Apply one (2) coat(s) of TEXOLITE *Imperial* or *Standard* except where otherwise designated, or

- (c) Apply one coat TEXOLITE *Stipple Finish*.

2. Enamel Finish

- (a) Apply one (2) coat(s) of TEXOLITE *Semi-Gloss* on all areas designated for enamel finish.
- (b) For Stippled Gloss Finish—Apply TEXOLITE *Semi-Gloss* as received in container without thinning. Stipple with roller stippler.

B. WOODWORK (EXCEPT FLOORS)

- 1. Apply one (2) coat(s) TEXOLITE *Spar Varnish*—High Gloss finish.
- 2. Apply one coat TEXOLITE *Spar Varnish*—High Gloss finish followed by one coat of Satin finish, lightly sand between coats.
- 3. Apply two coats TEXOLITE *Semi-Gloss*.
- 4. Apply one (2) coat(s) TEXOLITE *Seven Star Imperial*.
- 5. For Stippled Gloss Finish—Apply TEXOLITE *Semi-Gloss* as received in container without thinning. Stipple with roller stippler.

C. METAL TRIM

Same as for (B) woodwork above.

D. FLOORS

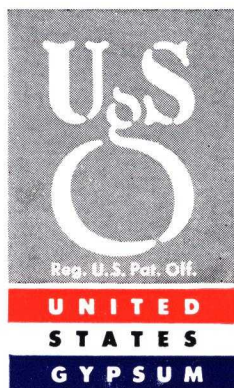
Finish wood floors with two coats of TEXOLITE *Spar Varnish*—High Gloss finish.

E EXTERIOR SURFACES

A. TEXOLITE *Exterior*—Apply one or two coats.

Do not apply TEXOLITE *Exterior* when temperature of weather or surface is below 40°F. or if surface is damp. Do not paint if rain is forecast within 24 hours after application.

B. TEXOLITE CEMENTICO. Wet surface immediately prior to painting until it no longer absorbs water. Use brush with short stiff bristles. Stir frequently to prevent settling. Two coats recommended—finish coat may be lightly sprayed with fog nozzle if conditions require to provide sufficient moisture for TEXOLITE CEMENTICO to attain proper hardness. Do not apply in direct sunlight or freezing weather. Allow 24 hours drying time between coats.

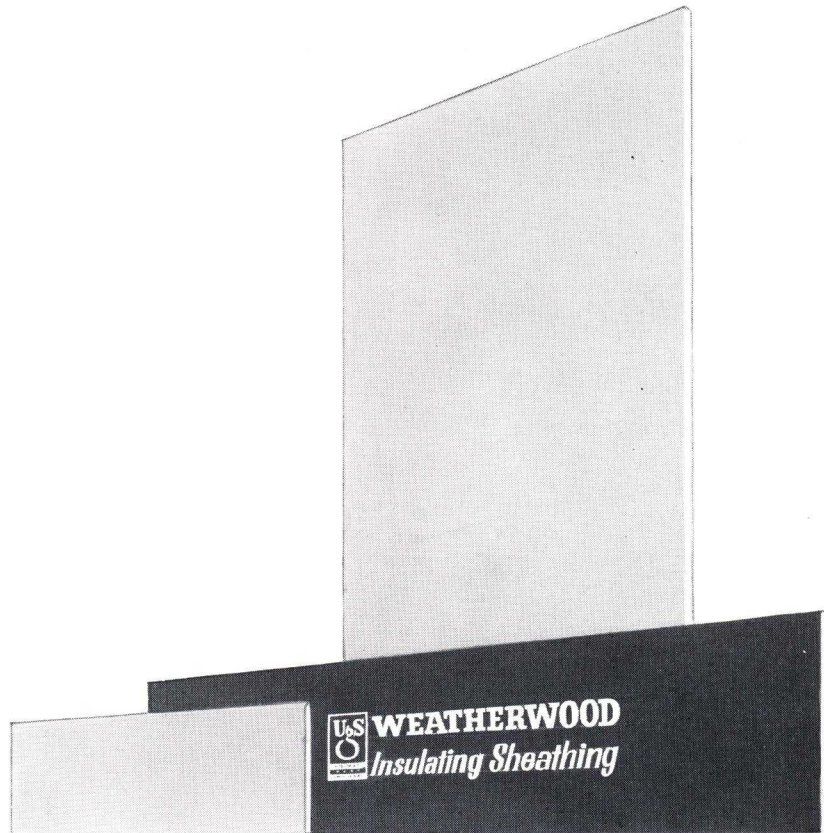


TECHNICAL INFORMATION

WEATHERWOOD

REG. U. S. PAT. OFF

STRUCTURAL INSULATION



AUGUST, 1951

United States Gypsum

For Building • For Industry

Gypsum • Lime • Steel • Insulation • Roofing • Paint

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



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CHARLOTTE, N. C.

CHICAGO, ILL.
CINCINNATI, O.
CLEVELAND, O.
DALLAS, TEX.
DENVER, COLO.
DETROIT, MICH.
GRAND RAPIDS, MICH.

HARRISBURG, PA.
HOUSTON, TEX.
INDIANAPOLIS, IND.
JACKSONVILLE, FLA.
KANSAS CITY, MO.
LOS ANGELES, CALIF.
MILWAUKEE, WIS.

MINNEAPOLIS, MINN.
NEWARK, N. J.
NEW HAVEN, CONN.
NEW YORK, N. Y.
OAKLAND, CALIF.
OKLAHOMA CITY, OKLA.
OMAHA, NEBR.

PHILADELPHIA, PA.
PHOENIX, ARIZ.
PITTSBURGH, PA.
PORTLAND, ORE.
PROVIDENCE, R. I.
RICHMOND, VA.
ST. LOUIS, MO.

SACRAMENTO, CALIF.
SALT LAKE CITY, UTAH
SAN FRANCISCO, CALIF.
SEATTLE, WASH.
SYRACUSE, N. Y.
WASHINGTON, D. C.

WEATHERWOOD STRUCTURAL INSULATION

DESCRIPTION

WEATHERWOOD Structural Insulation is a rigid wood fiber insulating board made into sheathing, plaster base and building boards. The products are fabricated from homogeneous mats manufactured of wood fiber produced from new timber.

FUNCTION AND UTILITY

Structural Strength. Tensile strength and bracing strength are greatly in excess of the strength required for the designed purpose.

Insulating Value. The "k" value of WEATHERWOOD Insulation is 0.33 and its resistivity compares with approximately

38" of stone concrete. See the Heat Transmission Coefficient Table on opposite page.

Light Weight. The 25/32" thickness weighs approximately 1200 pounds per M square feet. The 1/2" thickness weighs approximately 725 pounds per M square feet. WEATHERWOOD insulation is easily handled by one man.

Tensile Strength. WEATHERWOOD Structural Insulating products conform in tensile strength, transverse strength, and modulus of rupture with Federal Specification LLL-F-321b. This specification requires a minimum tensile strength of 175 pounds per square inch for building board, sheathing and lath.

WEATHERWOOD ASPHALT-COATED SHEATHING

An insulating exterior wall sheathing surface coated on all sides, edges and ends with asphalt. In addition the mat is integrally treated to make it weather resistant. The 2' x 8' size is 25/32" thick with long edges tongued and grooved. Other sizes, 4' wide by 8', 9', 10' or 12' long, have square edges and are either 25/32" thick or 1/2" thick.

Strength. A wall sheathed with 25/32" WEATHERWOOD asphalt-coated sheathing possesses greater bracing and stiffening strength than a wall sheathed horizontally with conventional narrow sheathing units. Tests conducted at the Forest Products Laboratory, Madison, Wisconsin, indicate that a wall sheathed with 25/32" structural insulating board sheathing, has a rigidity factor of 3.0 compared to a factor of 1.0 for horizontal wood sheathing. WEATHERWOOD 25/32" sheathing meets the structural requirements established in F.H.A. Technical Circular No. 12, covering the use of 4 foot wide insulating sheathing without diagonal bracing.

Wind-Tight. WEATHERWOOD Sheathing, 25/32" x 2' x 8', is provided with a fitted tongue and groove joint on longitudinal edges and ends are joined over supports, thus making



wind-tight joints. The use of building paper is unnecessary and not recommended.

Vapor Permeability. The asphalt coating on WEATHERWOOD sheathing is water repellent and has a water vapor permeability of 44.0 perms.

COSTS

The material cost is low, and waste from these large units is negligible. Approximately 1200 square feet is erected per man per day.

WEATHERWOOD PLASTER BASE

An interior insulating lath for plaster in sheets 18" x 48" and 1/2" thick. Long edges have "V" joints. Ends are square. All face edges beveled.

Plaster Bond. Gypsum plaster adheres to WEATHERWOOD lath with a factor of safety of 55.

Sound Insulation. Tests made by a nationally known and recognized testing laboratory indicate that a standard wood stud partition with fiber board insulating lath and 1/2" of plaster both sides, has a sound transmission loss of 40.9 decibels. This is approximately equal to a 4" hollow clay tile partition, plaster both sides.



WEATHERWOOD BUILDING BOARD

An all-purpose insulating board made in two thicknesses: 1/2" and 1". Sheet sizes are 4' wide by 6', 7', 8', 9', 10' and 12' long.

WEATHERWOOD Building Board is furnished with a 70 to 80 per cent light reflective ivory colored surface coating which makes further decoration unnecessary.

LIMITATIONS OF USE

1. Supports should not exceed a centering of 16".
2. WEATHERWOOD plaster base is designed to receive gypsum plaster and should not be used as a base for other plaster.
3. Where exterior wood siding is applied over WEATHERWOOD sheathing, such siding must be nailed through the

sheathing and into the framing members.

4. Resin emulsion and casein paints, such as TEXOLITE*, may be applied to WEATHERWOOD Building Board without sizing. For lead and oil coatings, the surface should be sized to conserve paint.

"WEATHERWOOD" and "TEXOLITE" are registered trademarks owned by United States Gypsum, used by it to distinguish its products. "WEATHERWOOD" identifies the particular fiber insulation boards and "TEXOLITE" identifies the particular paints manufactured only by United States Gypsum. The Colored Stripes are Reg. U. S. Pat. Off.

WEATHERWOOD STRUCTURAL INSULATION

TECHNICAL DATA

CONDUCTIVITIES (k) AND CONDUCTANCES (C) FOR USE IN CALCULATING HEAT TRANSMISSION COEFFICIENTS

MATERIAL	DESCRIPTION	Conductivity* or Conductance		Resistance* Per Inch Thickness For Thickness Listed	
		(k)	(C)	$\frac{1}{k}$	$\frac{1}{C}$
25/32" WEATHERWOOD Asphalt-Coated Sheathing		.33	.42	3.03	2.37
1/2" WEATHERWOOD Asphalt-Coated Sheathing		.33	.66	3.03	1.51
1/2" WEATHERWOOD Plaster Base		.33	.66	3.03	1.51
3/4" WEATHERWOOD Plaster Base		.33	.42	3.03	2.37
1/2" WEATHERWOOD Building Board		.33	.66	3.03	1.51
1" WEATHERWOOD Building Board		.33	.33	3.03	3.03
AIR SPACES (Bounded by ordinary materials)	Vertical 3/4" or more in width		1.10		0.91
EXTERIOR FINISHES (Frame Walls) Brick Veneer Wood Shingles Yellow Pine Lap Siding	4" thick (nominal)		2.27 1.28 1.28		0.44 0.78 0.78
INTERIOR FINISHES Gypsum Plaster Gypsum Board—1/2" Gypsum Lath & Plaster Insulating Board Plaster Base, 1/2" Thick Metal Lath and Plaster Wood Lath and Plaster	Plain or Decorated Plaster Thickness 1/2" Plaster Thickness—1/2" Plaster Thickness—3/4"	3.30 0.33	2.82 2.40 0.60 4.40 2.50	0.30 3.03	0.35 0.42 1.67 0.23 0.40
MASONRY MATERIALS Brick Brick 3" Clay Tile (Hollow) 4" Clay Tile (Hollow) 6" Clay Tile (Hollow) 8" Clay Tile (Hollow) 10" Clay Tile (Hollow) 12" Clay Tile (Hollow) Concrete Concrete 3" Concrete Blocks 4" Concrete Blocks 8" Concrete Blocks 12" Concrete Blocks 8" Concrete Blocks 12" Concrete Blocks 3" Gypsum Tile 4" Gypsum Tile	Common Face 1 Air Cell Direction Heat Flow 1 Air Cell Direction Heat Flow 2 Air Cell Direction Heat Flow 2 Air Cell Direction Heat Flow 2 Air Cell Direction Heat Flow 3 Air Cell Direction Heat Flow Light Weight Aggregate Sand and Gravel Aggregate Hollow—Cinder Aggregate Hollow—Cinder Aggregate Hollow—Gravel Aggregate Hollow—Gravel Aggregate Hollow—Cinder Aggregate Hollow—Cinder Aggregate Hollow Hollow	2.50 12.00	1.25 2.30 1.28 1.00 0.64 0.60 0.58 0.40 1.28 1.00 1.00 0.80 0.60 0.53 0.61 0.46	0.40 0.08	0.80 0.43 0.78 1.00 1.57 1.67 1.72 2.50 0.78 1.00 1.00 1.25 1.66 1.88 1.64 2.18
ROOFING MATERIALS Asphalt Shingles Built-up Roofing Heavy Roll Roofing Wood Shingles	Assumed Thickness—3/8"		6.50 3.53 6.50 1.28		0.15 0.28 0.15 0.78
SHEATHING Gypsum—1/2" Insulating Board—25/32" Fir & Yellow Pine (1")	Actual Thickness—25/32"		2.82 0.42 1.02		0.35 2.37 0.98
SURFACES Still Air 15 MPH Wind Velocity	Ordinary Non-Reflective Materials Ordinary Non-Reflective (Vertical) Mat'ls.		1.65 6.00		0.61 0.17
WOODS Maple or Oak Yellow Pine or Fir Fir Sheathing—Building Paper and Yellow Pine Lap Siding		1.15 0.80	0.50	0.87 1.25	2.00

*Expressed in BTU per sq. ft. per hr. per deg. F. temperature difference. Conductivities (k) are per inch thickness and conductances (C) are for thickness or construction stated, not per inch of thickness.

WEATHERWOOD Structural Insulation products comply with the requirements of Federal Specification LLL-F-321b.

WEATHERWOOD STRUCTURAL INSULATION

SPECIFICATIONS

WEATHERWOOD ASPHALT-COATED SHEATHING

SCOPE

Unless otherwise shown on plans, all exterior walls shall be sheathed according to these specifications.

MATERIALS

Sheathing shall be WEATHERWOOD Asphalt-Coated Sheathing, manufactured by United States Gypsum Company.

Nails shall be galvanized, $\frac{7}{16}$ " head diameter, $1\frac{3}{4}$ " long roof-nails for 25/32" sheathing, and $1\frac{1}{2}$ " long for $\frac{1}{2}$ " sheathing.

APPLICATION

Apply WEATHERWOOD 25/32"—2' x 8' Asphalt-Coated Sheathing with the long dimension across the supports and with the groove edge down, interlocking the tongue and groove edges. Ends of sheets shall abut over centers of supports, and all end joints shall be staggered.

Apply 25/32" or $\frac{1}{2}$ " by 4 ft. wide sheathing with long dimension parallel with the supports. Sides and ends shall abut the vertical framing members, top and bottom plates or headers. Fit snugly around all window and door openings.

Secure sheathing to studs with nails spaced approximately 3" on outside framing members (6" apart on intermediate framing) except where exterior finish is secured to the frame with nails driven through the sheathing and into the studs, in which case nails shall be spaced approximately 8" on centers.

Nail to intermediate studs first. Nails shall be not less than $\frac{3}{8}$ " from edges or ends of sheathing.

OPTIONAL INCLUSION

1. Use of wood siding over WEATHERWOOD Asphalt-Coated Sheathing. Apply siding directly over sheathing, securing it with nails driven through sheathing and into studs. Nails shall have a minimum penetration of $1\frac{1}{4}$ " into the studs. End joints of siding shall be over centers of studs.

2. Use of masonry veneer over WEATHERWOOD Asphalt-Coated Sheathing. Masonry ties shall be attached with nails driven through the sheathing into the studs, approximately 12" on centers, vertically, using nails of sufficient length to penetrate $1\frac{1}{4}$ " into the studs. (At least 6d common nails.)

3. Use of wood, asbestos cement or slate shingles over WEATHERWOOD Asphalt-Coated Sheathing. (1) Apply 1"x2" wood furring strips horizontally over the sheathing spaced to correspond to the shingle exposure. Secure strips with nails driven through sheathing, using nails of sufficient length to provide at least $1\frac{1}{4}$ " penetration into studs (at least 8d common). Use at least one nail at each intersection of stud and furring. (2) Refer to Sweet's catalog 12b/Un for method of attaching straight edge asbestos shingles by means of U.S.G. SHADOW-LOCK Attachment System.

Note to Architect: For use of stucco over WEATHERWOOD Asphalt-Coated Sheathing see A.I.A. File 20-B-1.

WEATHERWOOD PLASTER BASE

SCOPE

Where shown on plans, walls, partitions and ceilings shall be lathed with insulating board lath.

MATERIALS

Insulating board lath shall be WEATHERWOOD Plaster Base ($\frac{1}{2}$ ") ($\frac{3}{4}$ ") thick by 18" x 48", manufactured by United States Gypsum Company.

Accessories, including Cornerite and Cornerbead, shall be manufactured by United States Gypsum Company. Nails shall be ($1\frac{1}{8}$ ") ($1\frac{3}{4}$ ") 13 gauge blued $\frac{5}{16}$ " flathead, lath nails. (Note: Specify $1\frac{1}{8}$ " nails for $\frac{1}{2}$ " lath, $1\frac{3}{4}$ " nails for $\frac{3}{4}$ " lath.)

APPLICATION

WEATHERWOOD Plaster Base shall be applied with the long dimension at right angles to the framing members, butted with staggered vertical joints. Also, joints between walls and ceilings shall be staggered so that vertical joints on walls will not meet ceiling joints. Space nails approximately 4" apart, using 5 nails per lath per support. Ends shall join on supports. Cut accurately and fit lath neatly around all electric outlet boxes, etc. All re-entrant angles shall be reinforced with Cornerite. Cornerite shall be nailed to the framing through the lath. Cornerbead shall be applied to all exterior angles nailed through to framing.

WEATHERWOOD BUILDING BOARD

SCOPE

Where shown on plans, interior walls and ceilings shall be finished with insulating board.

MATERIALS

Insulating board shall be ($\frac{1}{2}$ ") (1") WEATHERWOOD Building Board, manufactured by United States Gypsum Company.

For half-inch board, nails shall be 4d $1\frac{1}{2}$ " common nails where covered by moulding or batten strips. Where exposed, nails shall be $1\frac{1}{2}$ ", 17 gauge, $\frac{3}{32}$ " head fibre board nails. For one-inch board, nails shall be $\frac{1}{2}$ " longer.

ERECTION

Framing shall be in accordance with plans and carpentry specifications. Headers shall be provided for solid support for fixture attachment wherever necessary. Weatherwood Building Board panels in lengths as long as possible shall be applied to ceilings first and then to walls. All panels shall be applied with the long edges parallel to the framing members. All edges shall be supported on framing members and joints shall be staggered.

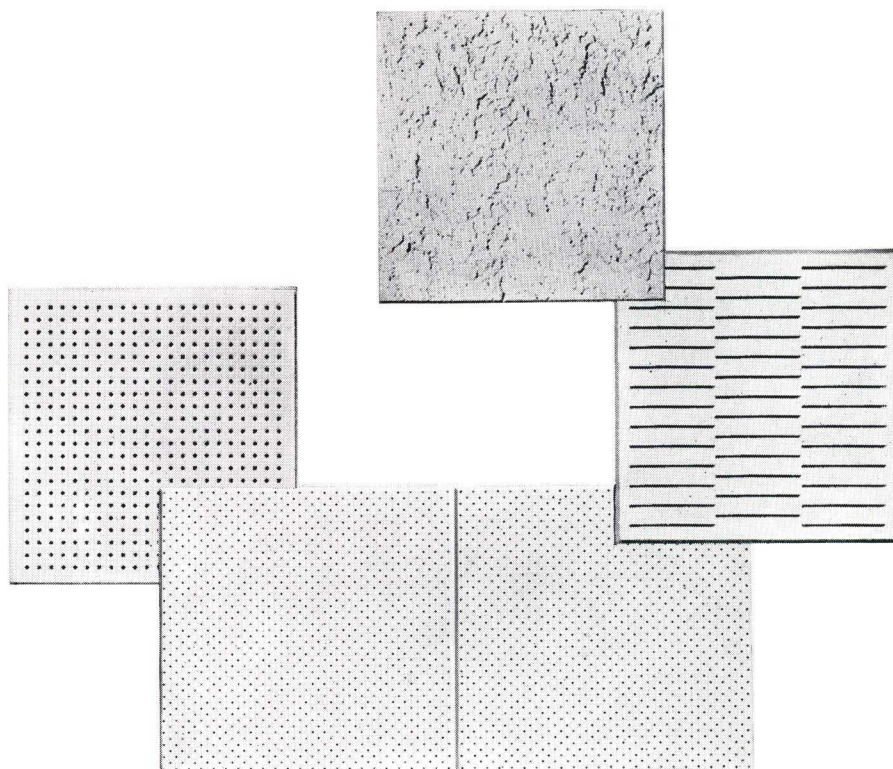
WEATHERWOOD Building Board shall be securely nailed to all supports. Nails shall be spaced not more than 3" apart, and placed not more than $\frac{3}{8}$ " from edges and ends of board. Nails shall be driven "home," with heads slightly below the surface.

TECHNICAL INFORMATION

USG

SOUND-CONTROL

PRODUCTS



JULY, 1951



United States Gypsum

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CONTENTS

ACOUSTONE "F", Acoustical Tile		<i>Page</i>
Description and Appearance		3-4
Function & Utility		3
Limitations of Use		3
Design Data		4-5
Technical Data		5
Installation Methods		6-7
Specifications		7
Details		8-11
MOTIF'D ACOUSTONE, Acoustical Tile		
Description and Appearance		11
Function & Utility		11
Specifications		11
Designs		12-16
AUDITONE, Acoustical Tile		
Description and Appearance, slotted AUDITONE 18		
Description and Appearance, Perforated		
AUDITONE		17
Function & Utility		17-18
Technical Data		17-18
Designs		19
Installation Methods		20
Specifications		20
Details		21
PERFATONE, Acoustical Units		
Details		22
Description		23
Function and Utility		23
Specifications		23
AUTHORIZED CONTRACTORS		24

"ACOUSTONE", "AUDITONE", "MOTIF'D", "TEXOLITE", "USG", "RED TOP", "ROCKLATH", "SHEETROCK", and "PERFATONE" mentioned in this publication are registered trademarks owned by United States Gypsum, and are used by it to distinguish its products.

"ACOUSTONE" as used herein identifies the particular mineral acoustical tile;

"AUDITONE" as used herein identifies the particular wood fiber acoustical tile;

"MOTIF'D" as used herein identifies the particular mineral acoustical tile with decorated surface;

"TEXOLITE" as used herein identifies the particular paint;

"USG" as used herein identifies the particular sheathing and sound insulation;

"RED TOP" as used herein identifies the particular plaster;

"SHEETROCK" as used herein identifies the particular gypsum wallboard;

"ROCKLATH" as used herein identifies the particular gypsum lath or plaster base;

"PERFATONE" as used herein identifies the particular perforated metal acoustical tile;

all manufactured only by United States Gypsum.

The Colored Stripes are Reg. U. S. Pat. Off.

ACOUSTONE* "F" ACOUSTICAL TILE

DESCRIPTION

ACOUSTONE "F" mineral acoustical tile is manufactured by binding mineral fibers into a light-weight, highly sound-absorbent tile form. The fissured surface closely resembles that of Travertine marble. No two tiles are identical in texture; the pattern is as natural as the veining of fine marble or the grain of wood. Each tile is finish-painted at the factory and is available with accurately formed bevel or square edges. For sizes, etc., see Technical Data Page 5.

FUNCTION AND UTILITY

ACOUSTONE "F" combines high sound absorption with incombustibility in a product of decorative versatility that fits into the architectural scheme as an inconspicuous surface or as the dominant note in the decoration.

High Sound Absorption

Made in two thicknesses, ACOUSTONE "F" provides Noise Reduction Coefficients of .65 and .70. For auditorium use, the absorption at 512 cycles per second is .77 and .85. In both thicknesses the absorption for the higher pitched sounds, which are considered most annoying, is maintained at a high level to produce more effectiveness. (See Technical Data Page 5.)

Fire Resistance

ACOUSTONE "F" serves to retard the spread of fire. It is rated as *incombustible* by the National Bureau of Standards.

Splined for Good Alignment

All square edge ACOUSTONE "F" (no bevel) is kerfed for splines and "back-cut" on all edges to provide tight, inconspicuous joints (see page 4). The surfaces of adjacent tile are held level by the splines and accurate kerfing. The "back-cut" assures closed joints on wavy ceilings. Butted conventional square edge joints that are 1-32" to 1-16" out of level cause conspicuous shadows which are exaggerated when lighting fixtures are close to the ceiling line. Concealed splines and "back-cut" minimize this "out-of-level" appearance.

Colors

ACOUSTONE "F" is painted at the factory with a full finish coat of a high grade resin emulsion paint (IMPERIAL TEXOLITE*) on the face and exposed bevels in white or ivory; other standard colors shown on the current USG TEXOLITE color selector are obtainable on special order.

Texture

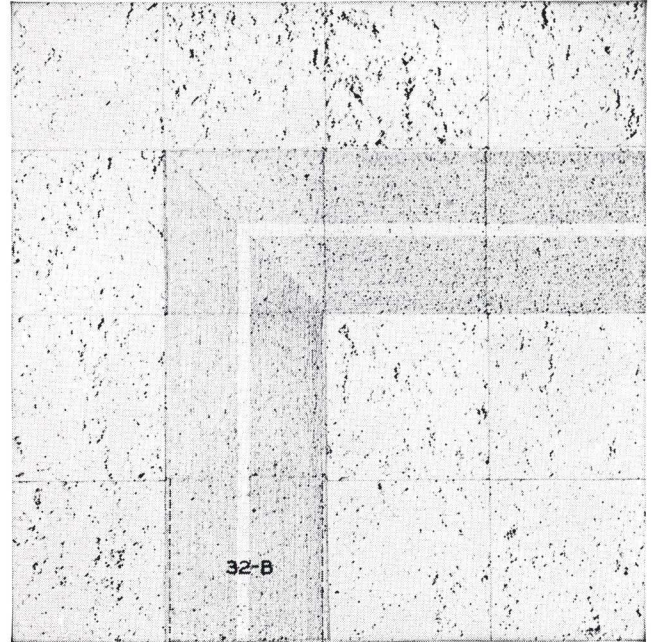
ACOUSTONE "F" is furnished in one texture range only. (See page 12, for special texture on MOTIF'D* ACOUSTONE "F".)

Weight

From years of experience we recommend that acoustical tile cemented on ceilings should weigh no more than 1.75 lbs. per square foot. ACOUSTONE "F" weights do not exceed this. (See Technical Data Page 5.)

Washability

Factory-painted ACOUSTONE "F" may be washed with water and a sponge or cleaned with putty or paste type wall-paper cleaner. Accidental spotting or soiling can usually be removed by this method before over-all redecoration is necessary.



Standard Square Edge ACOUSTONE "F" with Motif'd Border

Resistance to Soiling and "Breathing"

The smooth, hard, painted finish of ACOUSTONE "F" resists soiling and minimizes objectionable air travel through the tile proper.

Paintability

Authoritative tests show that ACOUSTONE "F" may be brush or spray painted many times without loss of sound absorption at **512 cycles** per second or in the **Noise Reduction Coefficient**. The effect of repeated coats of paint on ACOUSTONE "F" and other materials may be found in Research Paper RP-1298 "Effect of Paint on Sound Absorption of Acoustical Materials," which is obtainable from National Bureau of Standards, U. S. Department of Commerce, Washington, D. C. Oil, casein, resin emulsion or calcimine types of paint may be used according to normal paint procedures for interior pre-decorated surfaces.

High Light Reflection

ACOUSTONE "F" in standard white finish has a light reflection of 84%; standard ivory, 72%.

Rodent and Vermin Resistance

ACOUSTONE "F", essentially of mineral composition, is highly resistant to rodents and vermin.

Heat Conductivity

The low thermal conductivity of ACOUSTONE ("k" factor = .35) adds heat insulation to top floor ceilings and exterior walls.

LIMITATIONS OF USE

ACOUSTONE "F" mineral acoustical tile is designed for normal moisture conditions. It is not recommended in dish-washing rooms or where it will be exposed to steam or constant high humidity.

It should not be used below wainscot height or where it will be subjected to severe impact or abrasion.

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

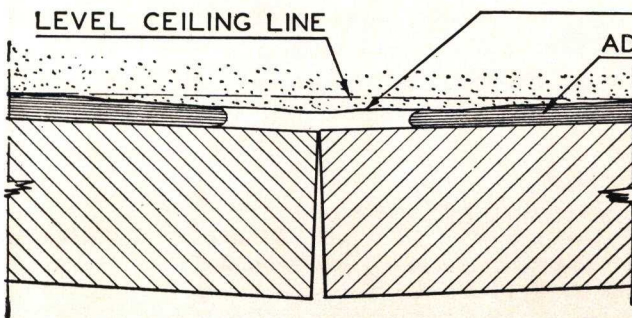
ACOUSTONE "F"



Bevel ACOUSTONE "F"—Conventional joints

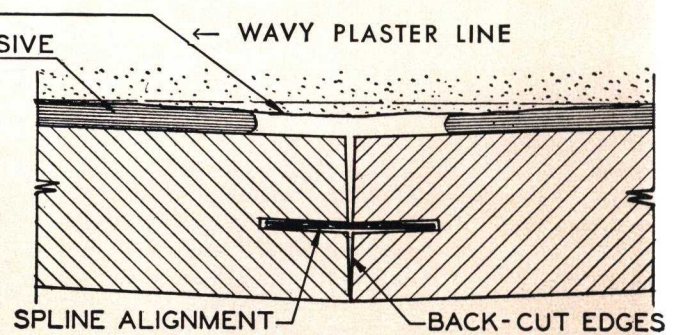


Square Edge ACOUSTONE "F"—Inconspicuous joints



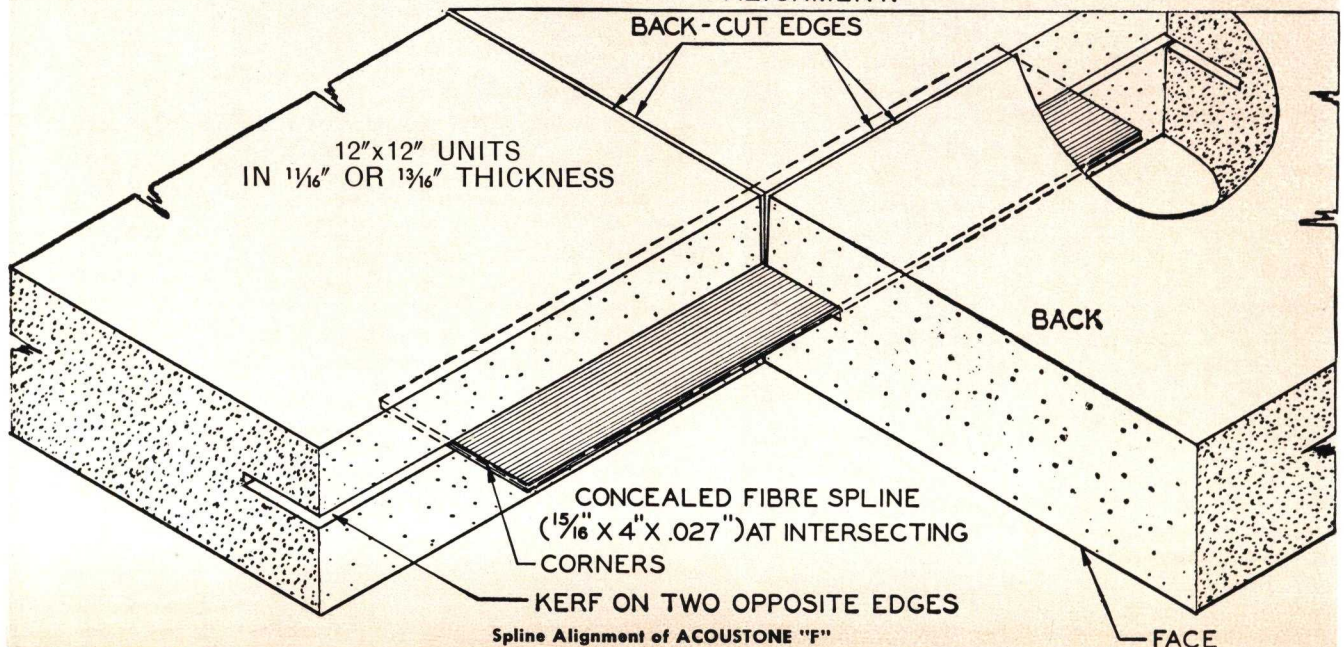
OLD TYPE SQUARE EDGE

PRODUCES OPEN AND OFFSET JOINTS OVER A WAVY CEILING.



NEW TYPE SQUARE EDGE

PRODUCES TIGHTER JOINTS IN CLOSER ALIGNMENT.



ACOUSTONE "F"

TECHNICAL DATA

SOUND ABSORPTION COEFFICIENTS																						
Acoustical Materials Association										Bureau of Standards (LC-870, August, 1947) Federal Specifications Are Based on Bureau of Standards Tests												
Mount- ing	Thickness	Coefficients						Noise Red. Coef.	Wt. (lbs.) per Sq. Ft.	Mount- ing	Thickness	Coefficients						Noise Red. Coef.	Wt. (lbs.) per Sq. Ft.	(SS-A-118a) Feb. 12, 1948		
		128 cps	256 cps	512 cps	1024 cps	2048 cps	4096 cps					128	256	512	1024	2048	4096			512 Cycles	N. R.	Type
1	11/16"	.09	.20	.77	.88	.73	.71	.65	1.30	1	11/16"	.07	.22	.75	.92	.82	.81	.70	1.13	104	5	III
1	13/16"	.08	.24	.85	.87	.74	.75	.70	1.56	1	13/16"	.14	.31	.86	.87	.78	.77	.70	1.33	102	5	III
2	13/16"	.10	.39	.79	.80	.78	.75	.70	1.56	7†	7/8"	.47	.68	.67	.67	.72	.77	.70	1.68		5	III
7	7/8"	.16	.56	.83	.81	.82	.83	.75	1.42													
Tile tested were painted with a full finish coat of paint.										Tile tested were painted with a full finish coat of paint.												
Mounting No. 1—Cemented to plasterboard—considered equivalent to cementing to plaster or concrete ceilings. Mounting No. 2—Nailed to 1" x 3" wood strips 12" O. C. Mounting No. 7—attached to metal supports on metal Suspension system.																						
Light Reflection: ACOUSTONE "F" White (1) 84% ACOUSTONE "F" Ivory (1) 72% MOTIF'D* ACOUSTONE White 78% (1) Tests by Official A.M.A. Laboratory.											Heat Conductivity —k=.35 Fire Resistance —Incombustible. Authority: Bureau of Standards (LC-870, August, 1947). †Separate tests, not listed in LC-870, August, 1947.											

DESIGN DATA

THICKNESS	SIZES	EDGE	INSTALLATION, KERFING, BACK-CUT, AND CENTERSCORING
11/16"	6"x12" 12"x12" 12"x24"	Bevel or Square	Installation: <i>Adhesive only recommended.</i> Square edge units in 6" x 12", 12" x 12", and 12" x 24" kerfed (for .027" thick, 1 5/16" wide by 4" long splines) and back-cut. No kerfing or back-cut on bevelled units. No kerfing for mechanical erection. No centerscoring.
13/16"	6"x12" 12"x12" 12"x24"	Bevel or Square	Installation: <i>Adhesive or nailed direct to wood strips.</i> 1. <i>Adhesive Application:</i> Square edge units in 6" x 12", 12" x 12" and 12" x 24" kerfed (for .027" thick, 1 5/16" wide by 4" long splines) and back-cut. No kerfing or back-cut on bevelled units. No centerscoring. 2. <i>Nailing to Wood Strips</i> (no adhesive used)—Only bevelled units (12" x 12" and 12" x 24"). Centerscoring available on 12" x 24" when specified. Units kerfed for .027" thick, 1 5/16" wide by 4" long splines.
7/8"	12"x24"	Bevel	3. <i>Mechanical Erection:</i> "Zee-Spline Method"—Bevelled or square edge units (12" x 24"). Centerscoring available when specified. Units kerfed and rabbeted.
NOTE: All units that are to be applied with adhesives can be furnished upon request with bevels on one or more edges, the remaining edges left square. This allows creation of special patterns and border effects.			

ACOUSTONE "F"

INSTALLATION METHODS

ACOUSTONE "F" mineral acoustical tile is installed by **approved USG acoustical contractors** by one of three methods:

I. Application with adhesive. (With or without nailing.)

II. Nailing directly to wood strips through concealed fiber splines. (No adhesive.)

III. Mechanical methods.

Each of these methods has individual advantages which fit it for specific types of construction.

I. ADHESIVE APPLICATION (All thicknesses)

Application with adhesive is the most widely used method and is recommended where a suitable base exists.

Adhesive

See Architectural Specifications, page 7, for description and amount of adhesive recommended.

Size of Units

Should not exceed 12" x 12" for ceilings or 12" x 24" for walls.

BASES FOR ADHESIVE APPLICATION OF ACOUSTONE

1. New Plaster. A full thickness of rodded brown coat gypsum plaster in a clean, dry, level state provides an excellent base.

2. New Lime Putty Finish. Since the presence of free lime in a new finish may cause saponification of oils and resins in the adhesive, a combination of adhesive and nailing is recommended.

3. Old Lime Putty Finish. An old lime putty finish (in place over one year) offers a good base if the finish is well bonded to the base coat of plaster. Loose areas should be scaled off and patched with RED TOP* Patching Plaster.

4. Painted Plaster. A good quality of oil paint well bonded to the plaster and in place not less than 6 months will generally give excellent results. Oil in paints will oxidize sufficiently in 6 months so that it will not be objectionably softened by the naphtha thinner in adhesives. Units can also be successfully cemented directly to resin emulsion, casein or calcimine painted surfaces if they are well bonded to the base. Calcimine over a good varnish size or paint will generally give good results.

CAUTION: *Calcimine over hard oil (sometimes called gloss oil) size is an unsatisfactory base. In this case a combination of nailing and adhesives must be used. The acoustical contractor will know by job testing when to augment the adhesive with nailing.*

5. Undecorated Concrete. The concrete slab should be dry, clean and free of any sharp vertical offsets of more than 1/8" (caused by forms out of level). Where concrete slabs have localized areas containing a surface film of loose cement dust, a

proper size (spray or brush application) should be applied before application of acoustical units.

Acoustical units should not be applied with adhesive directly to non-insulated concrete roof slabs during extremely hot weather (over 105° F.) since the adhesive will be subjected to objectionable softening during the first 3 to 5 weeks. After this time the adhesive will withstand this high temperature. In questionable cases, consideration should be given to other methods of application.

6. Painted Concrete. Nailing of units is not possible when they are cemented directly to a concrete surface. The success of the job is therefore dependent on the quality of the paint and its bond to the slab. Unless this can be predetermined, other methods of application should be considered. (See No. 4 above.)

7. USG Gypsum Board Nailed to Wood Strips. ACOUSTONE "F" can be successfully cemented to SHEETROCK* wallboard or plain ROCKLATH* plaster base (not perforated) or USG* Sheathing. Where gypsum boards are nailed directly to wood, SHEETROCK wallboard or USG Sheathing furnishes a better base than ROCKLATH for application of acoustical units with adhesive. No sizing of the SHEETROCK, USG Sheathing or ROCKLATH is required if adhesives conforming to architectural specifications, page 7, are used. The joints and openings in the SHEETROCK, USG Sheathing or ROCKLATH should be sealed with the adhesive used to erect the tile (applies only where gypsum boards are nailed to wood). ROCKLATH without a scratch and brown coat of gypsum plaster should not be used where exposed to excessive moisture or humidity. Gypsum boards less than 3/8" thick should not be used. Standard sizes of SHEETROCK, USG Sheathing and ROCKLATH are shown in the table below.

8. Metal Suspension of Gypsum Board. Where combustible wood furring is not permitted, ROCKLATH for metal suspension on the Zee Spline System is available. This is specially designed for the suspension of 3/8" ROCKLATH as a base for adhesive application of United States Gypsum acoustical tiles. See Page 9. The system is recommended where additional fire protection, combined with light weight and economy, is desired. ROCKLATH for metal suspension on the Zee Spline System gives a rigid ceiling with a minimum of objectionable air travel.

CAUTION: *The use of ROCKLATH without plaster is not recommended where job conditions, particularly moisture conditions, are unsuitable. Accordingly, ACOUSTONE shall be applied to such suspension only when the installation of the base is made under the supervision of and to the satisfaction of the USG acoustical contractor.*

TRADEMARK	STANDARD SIZES			Approx. Wt. Per Sq. Ft.	Spacing of 1" x 3" Wood Strips	Approx. Spacing of Nails
	Thickness	Width	Lengths			
SHEETROCK (Plain)	1/2"	48"	7', 8', 10', 12'	2.1 lb.	16" to 24"	7"
SHEETROCK (Plain)	3/8"	48"	7', 8', 10', 12'	1.6 lb.	16"	7"
USG SHEATHING	1/2"	24"	8' 0"	2.1 lb.	16" to 24"	8"
ROCKLATH (Plain not Perf.)	3/8"	16"	48"	1.6 lb.	16"	4"
Do not exceed spacings of supports shown in the table and do not use gypsum board less than 3/8" thick.						

ACOUSTONE "F"

INSTALLATION METHODS

9. Wood. Adhesive application of ACOUSTONE "F" directly to wood strips or plywood without nailing has not proven very successful because of green wood and the tendency of wood to warp. Tile should be securely nailed with finish nails after application with adhesives.

10. Miscellaneous Surfaces. Follow the recommendations of approved acoustical contractors for surfaces not listed.

II. NAILING DIRECTLY TO WOOD STRIPS THROUGH CONCEALED FIBER SPLINES (No Adhesives Used).

Use only $1\frac{3}{16}$ " x 12" x 24" beveled ACOUSTONE "F." Request detailed drawing which is self-explanatory.

III. MECHANICAL SUSPENSION METHOD.

Zee Spline Method (See drawing Page 9).

Use ACOUSTONE "F" $\frac{7}{8}$ " x 12" x 24" size with beveled or square edges. This method eliminates the $\frac{3}{4}$ " channels and offers an economical, simple, rigid construction. It permits the use of flush joint ACOUSTONE where lighting conditions are not too severe.

The suspension method has metal splines in kerfs along the four edges of each unit which support the tile. They also act as a continuous seal to minimize air travel through the joints. Self leveling of tile joints is assured since intersecting corners of four adjacent units are supported on the same member.

The heavily pigmented finish-paint on ACOUSTONE "F" creates high resistance to objectionable air travel through the tile.

ARCHITECTURAL SPECIFICATIONS FOR ACOUSTONE "F"

(CEMENTED OR NAILED INSTALLATIONS)

(Phrases in parentheses are explanatory)

1. Scope. (List and locate all areas to receive acoustical treatment).

2. Materials. Acoustical material shall be ACOUSTONE "F" manufactured by the United States Gypsum Company having a (Noise Reduction Coefficient of 65 or 70) (sound absorption coefficient of . . . at 512 cycles per second) as tested by A. M. A. Laboratories; shall be composed of mineral fibers manufactured into tile units with a fissured surface; shall be capable of being brush painted repeatedly with oil paints without loss of sound absorption at 512 frequency or noise reduction coefficient; shall be rated "incombustible" by National Bureau of Standards; shall be finish painted on the exposed surface and bevels (state color) with washable paint and have a light reflection coefficient averaging not less than 84% for white (or 72% for ivory), as tested by A.M.A. Laboratories.

(a) (Use when units are applied with adhesive). (Choose 1 or 2 following.)

(1) Units shall be 12" x 12" with square edges and shall have edges kerfed to permit leveling with concealed splines. Units shall weigh no more than $1\frac{3}{4}$ lbs. per square foot.

(2) Units shall be 12" x 12" with $\frac{1}{8}$ " beveled edges. Units shall weigh no more than $1\frac{3}{4}$ lbs. per square foot.

The adhesive shall be of a type manufactured expressly for the purpose; shall not be water soluble, shall not contain ingredients that react chemically with paint, or a solvent that has a stronger solvent action on an oil paint than naphtha; it shall contain no alcohol.

(b) (Use when units are nailed directly to wood furring strips without cement. $\frac{1}{16}$ " beveled units are recommended for nailing.) Units shall be 12" x 24", with beveled edges, and center-scored to simulate 12" x 12" units, and kerfed to receive fiber splines.

3. Installation. The installation shall be made by an applicator approved by the acoustical material manufacturer.

(a) (Use when units are applied with adhesive.) Acoustical

units shall be securely cemented in place to a (state base as recommended on page 6). Not less than 4 spots of adhesive averaging not less than $2\frac{1}{2}$ " diameter in direct contact with the tile and the surface to which it is applied shall be used per square foot of tile. Spots shall have a minimum diameter of 2". Tile shall be laid in a (state pattern as square or diagonal or detail design), with edges in alignment. (Use following when square edge units are specified.) Concealed splines shall be accurately fitted into the kerfs in the edges of the units so that there will be a spline at the junction of 4 abutting units and engaging the corners of all 4 units. Border units shall be scribed to neatly fit abutting surfaces.

(b) (Use when units are nailed directly to wood furring strips. Only $\frac{1}{16}$ " beveled units are recommended.) Units shall be securely attached to 1" x 3" wood furring strips spaced 12" on center, by face-nailing through the tile and concealed fiber splines placed into kerfs at edges of units with 3d or 4d finish nails countersunk slightly below the face of the tile. Necessary framing and anchorage for support of furring strips (shall, shall not) be a part of this work. Border units shall be neatly scribed to abutting surfaces.

MECHANICAL SUSPENSION, "ZEE-SPLINE METHOD"

Note: Use Paragraphs 1 and 2 above specification except material shall be only $\frac{7}{8}$ " beveled units 12" x 24" center-scored to simulate 12" x 12" units, kerfed and rabbeted to receive suspension members.

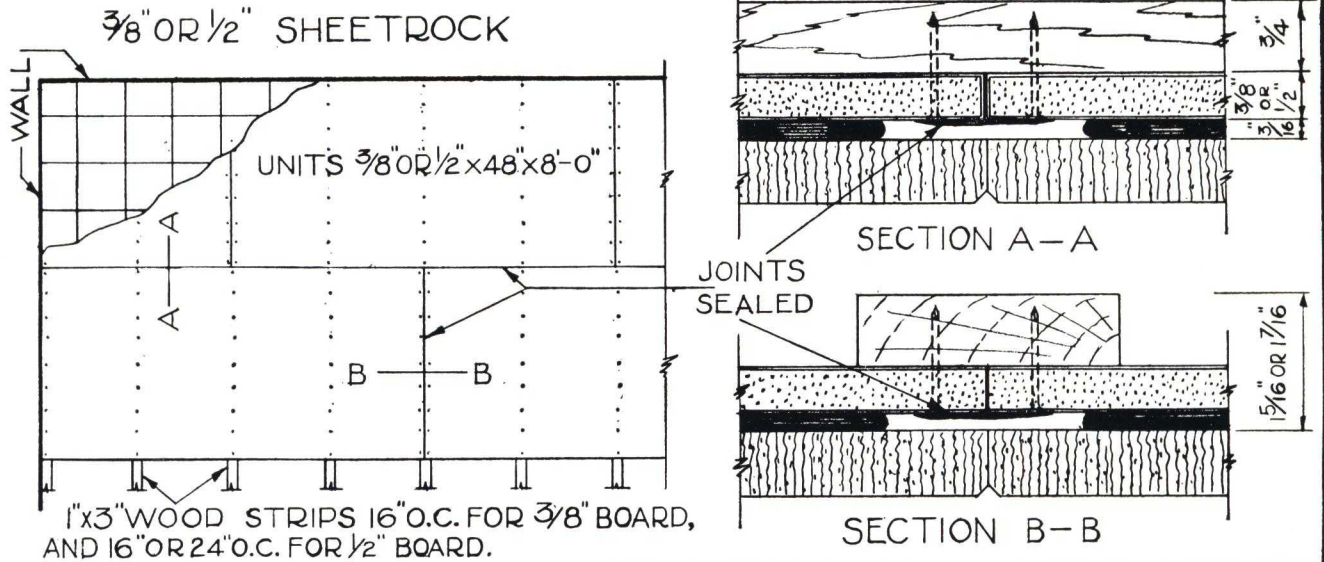
Delete paragraphs (a) and (b) under paragraph 2, Materials.

1. Installation. The installation shall be made by an applicator approved by the acoustical material manufacturer. The acoustical tile shall be installed by the **USG Zee-Spline Method** of mechanical erection. The acoustical contractor shall furnish and install necessary metal grillage and the metal finish channels (or wood mouldings) at wall intersections according to manufacturer's instructions. $1\frac{1}{2}$ " channels 4 feet on centers and supporting hangers of not less than 8 ga. wire 4 feet on centers (shall) (shall not) be installed by the acoustical applicator.

ACOUSTONE "F"

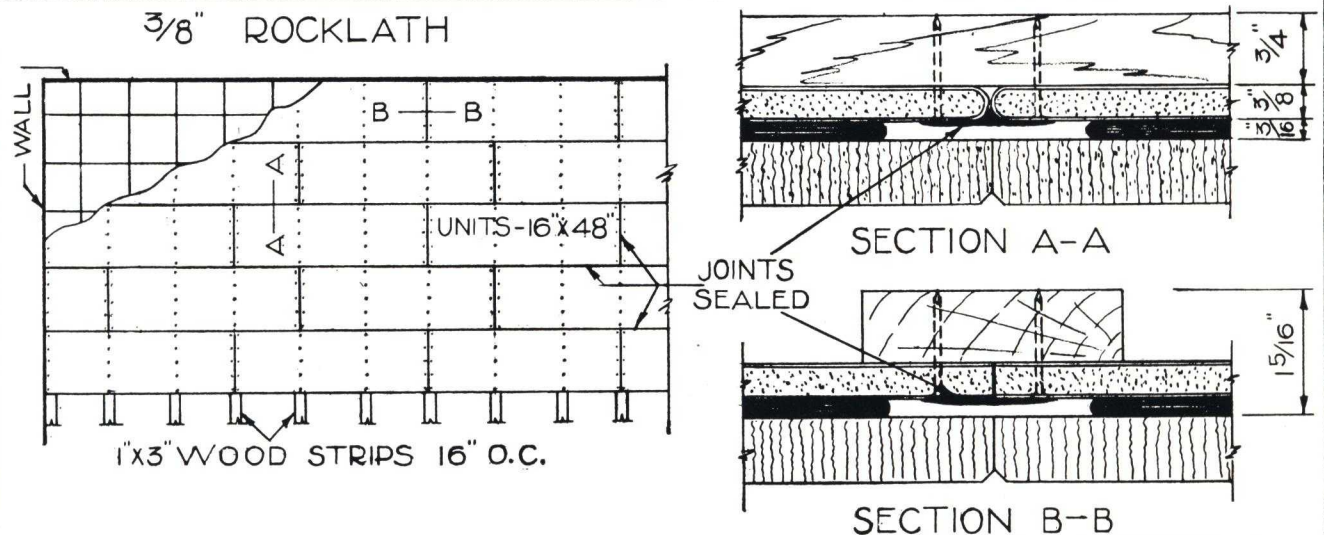
ACOUSTONE CEMENTED TO GYPSUM BOARDS ON WOOD STRIPS

SHEETROCK* WALLBOARD



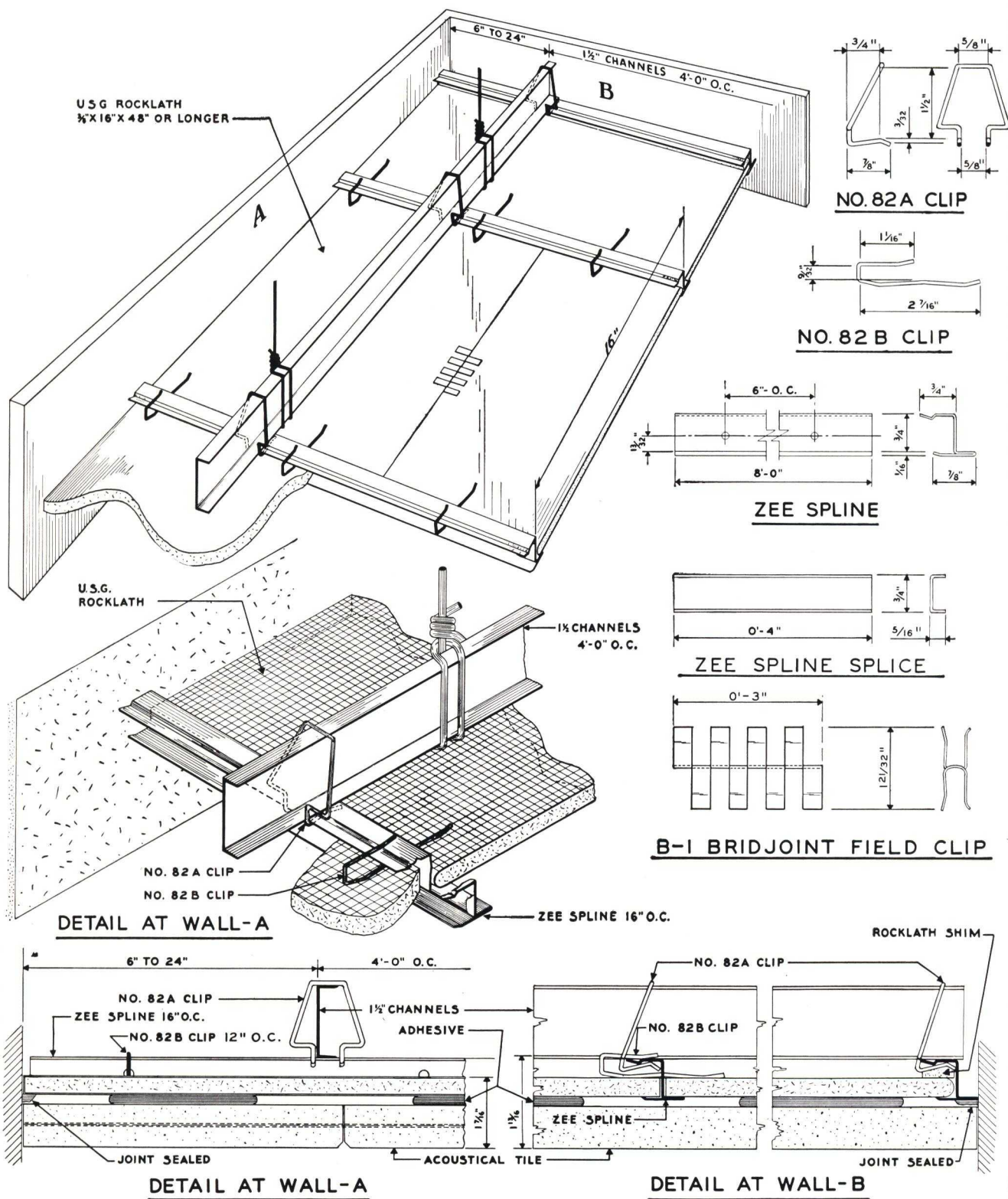
NAILS — CEMENT COATED COOLER — 5d FOR $\frac{1}{2}$ " SHEETROCK AND 4d FOR $\frac{3}{8}$ " SHEETROCK
NAIL SPACING — CEILINGS 7" WALLS — 8"

ROCKLATH* PLASTER BASE



NAILS — $\frac{1}{8}$ " 13 GAUGE BLUE D $\frac{3}{8}$ " FLAT HEAD SMOOTH DIAMOND POINT.
NAIL SPACING — APROX. 4" APART.

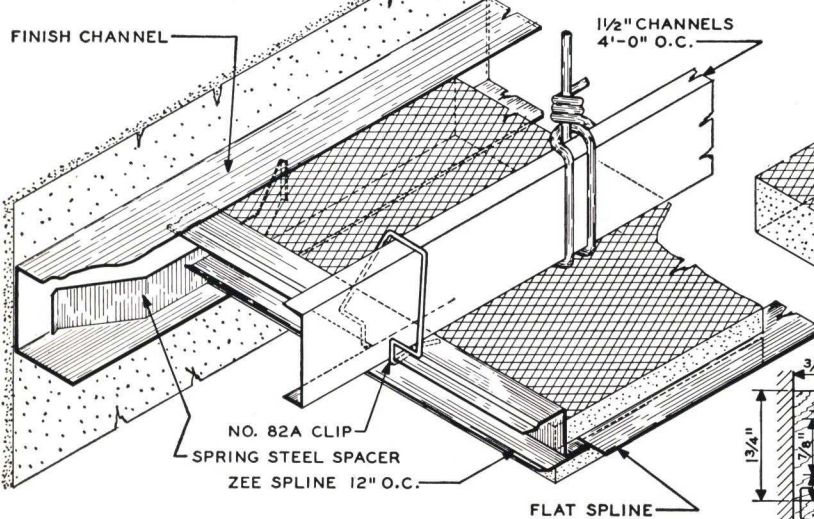
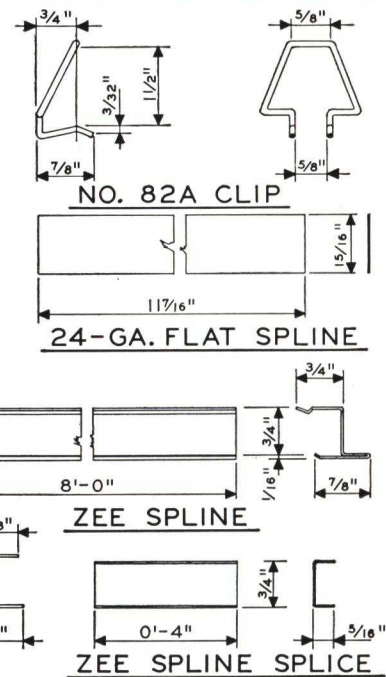
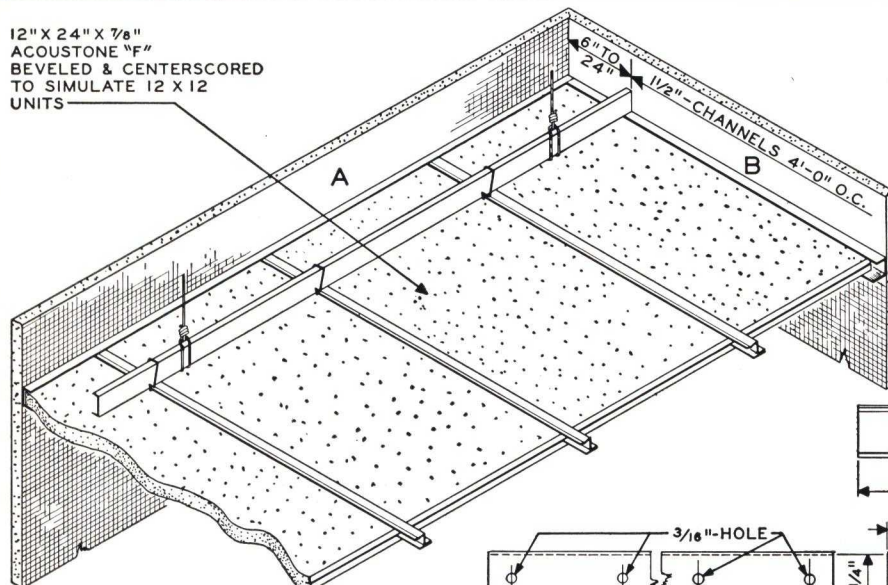
MECHANICALLY SUSPENDED ACOUSTONE "ZEE-SPLINE METHOD"



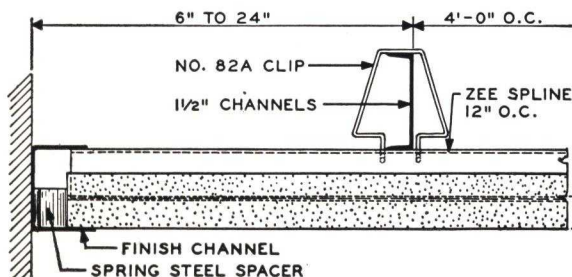
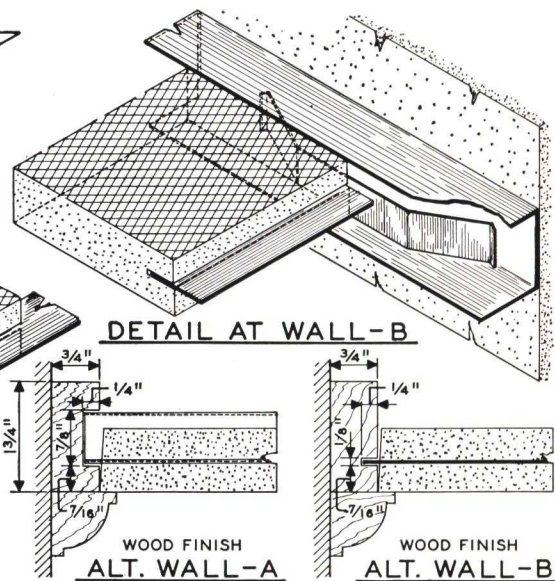
ACOUSTONE "F"

MECHANICALLY SUSPENDED ACOUSTONE "ZEE-SPLINE METHOD"

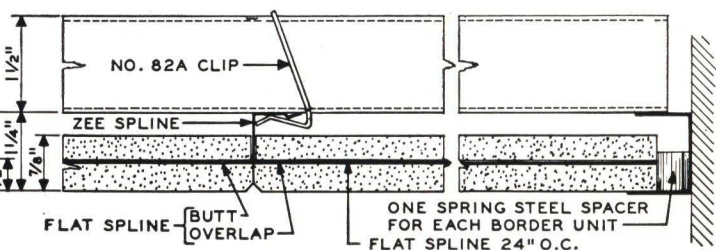
12" X 24" X 7/8"
ACOUSTONE "F"
BEVELED & CENTERSCORED
TO SIMULATE 12 X 12
UNITS



DETAIL AT WALL-A



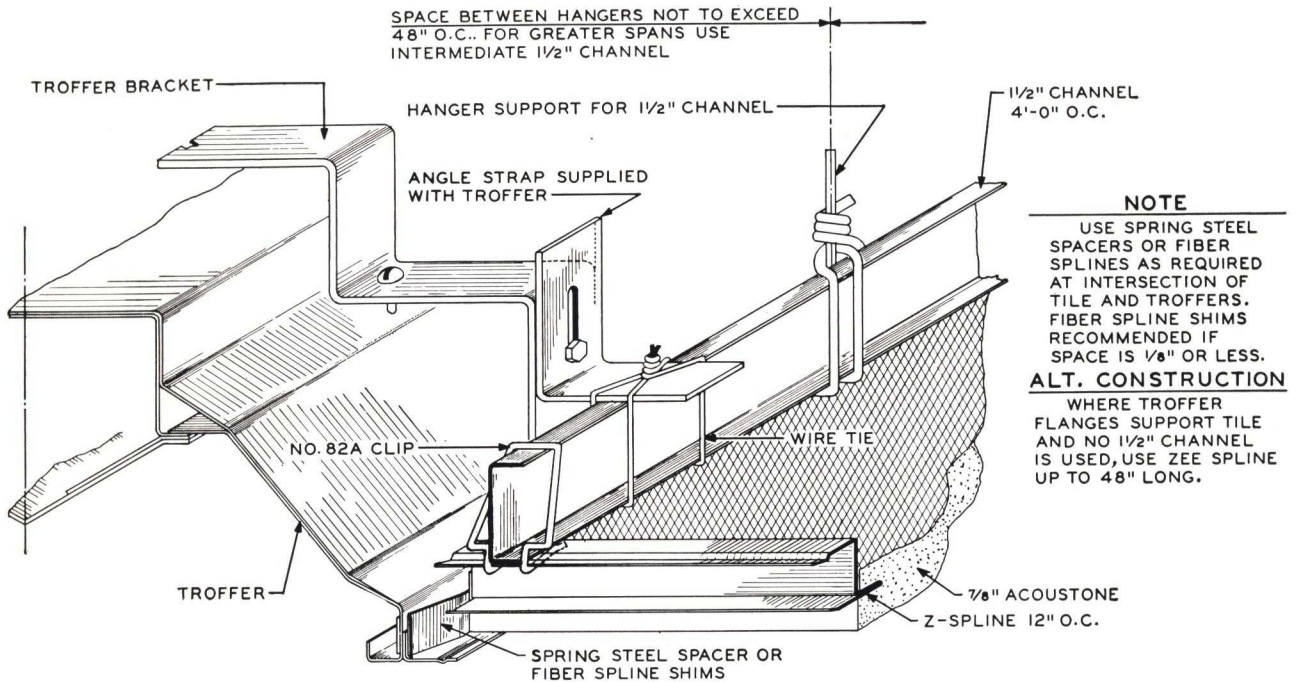
DETAIL AT WALL-A



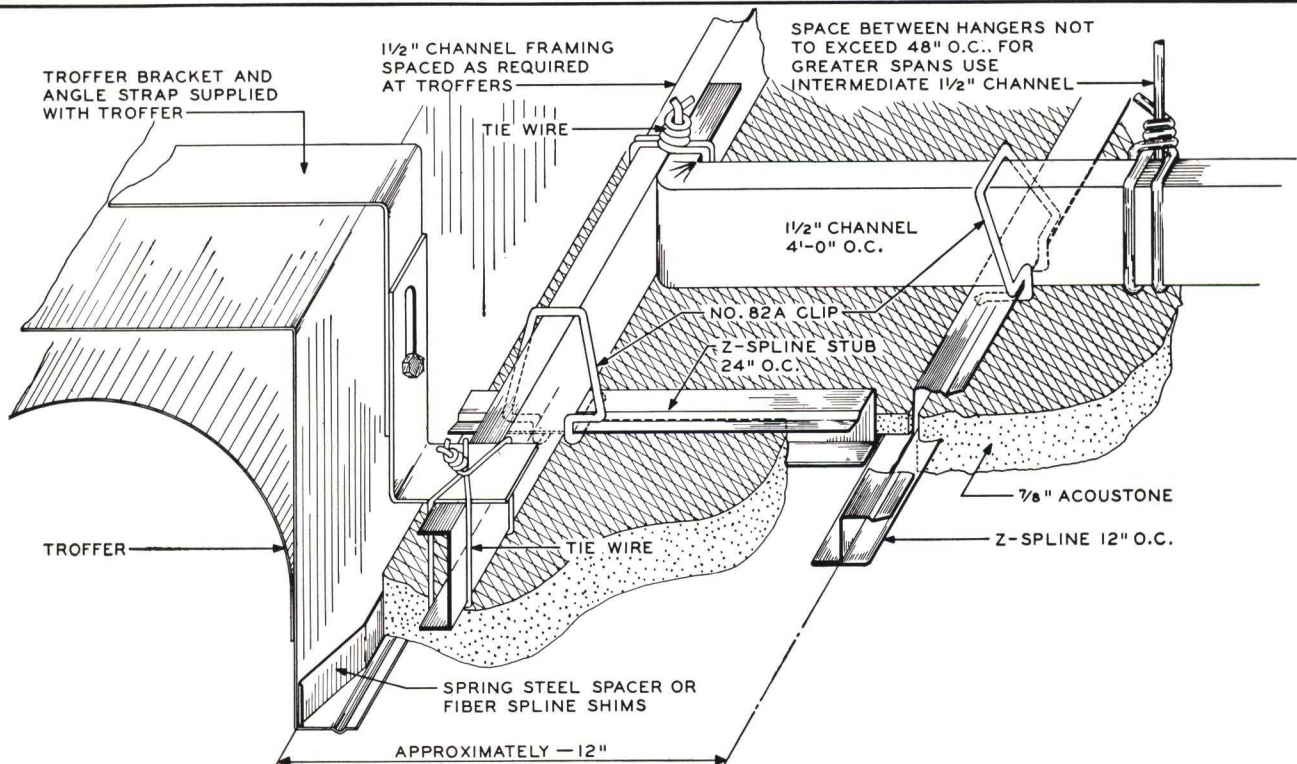
DETAIL AT WALL-B

ACOUSTONE "F"

ZEE-SPLINE METHOD OF ERECTING ACOUSTONE WITH FLUORESCENT LIGHTING



ALTERNATE METHOD—1 1/2 INCH CHANNEL PERPENDICULAR TO LIGHT TROFFER



MOTIF'D* ACOUSTONE

DESCRIPTION

MOTIF'D ACOUSTONE mineral acoustical tile is standard ACOUSTONE "F" mineral acoustical tile with a permanent integral decoration "etched" into its surface by an exclusive USG process. After the "etching" is completed, the tile is mill painted. The pattern is produced by the heavier shadow caused by the "etched" portion of the tile rather than by differences in applied color. Soft, low contrast can be maintained or the pattern can be accentuated by properly positioning the lighting source to increase the shadow effect.

SIZE

MOTIF'D ACOUSTONE is available in 12" x 12" units; $\frac{11}{16}$ " or $\frac{13}{16}$ " thick; with square edges only, kerfed for splines.

FUNCTION AND UTILITY

MOTIF'D ACOUSTONE embodies all the function and utility of ACOUSTONE "F" except for the following:

Light Reflection—The light reflection of white MOTIF'D ACOUSTONE is 78%.

Designs—Many standard tile patterns are available; or we will execute exclusive patterns of any design limited to "etching" single tile in not more than 2 directions and with a resulting pattern which can be produced within the area of four

12" x 12" units.

Cost—Costs slightly more than ACOUSTONE "F".

Installation—Application with adhesive and splines is the only method recommended using the same methods as for adhesive application of ACOUSTONE "F".

ARCHITECTURAL SPECIFICATIONS FOR MOTIF'D ACOUSTONE

(Phrases in parentheses are explanatory)

1. SCOPE. (List and locate all areas to receive acoustical material.)

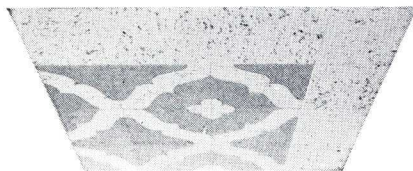
2. MATERIALS. Acoustical material shall be MOTIF'D ACOUSTONE manufactured by the United States Gypsum Company in (state color). Units shall be (state thickness) and have a (Noise Reduction Coefficient of . . .) or (512 frequency coefficient of . . .) (select from page 5). Adhesive shall be (refer to specification under ACOUSTONE "F").

3. INSTALLATION. The installation shall be made by an applicator approved by the acoustical material manufacturer. The design shall be (state standard pattern number or detail design). The units shall be securely cemented in place. (Continue according to adhesive application methods for ACOUSTONE "F".)

HOW IT WORKS

The unretouched photographs below were made from the same point of the same section of an installation of MOTIF'D ACOUSTONE under three different lighting conditions. (1) The left-hand picture shows about maximum contrast or color difference obtained under normal lighting; (2) the central illustration, the minimum contrast; (3) the reversal of pattern in the right-hand picture, when light was shifted 180° from that used in

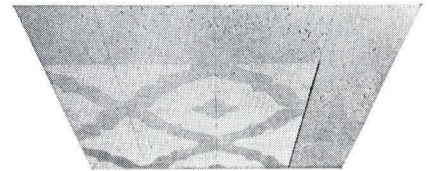
the left-hand view. Such changes in degrees of contrast are usually apparent in every MOTIF'D ACOUSTONE installation. This "mobile" effect shifts, not only with light changes, but with changes in position of the observer. The pattern never becomes monotonous. The barely measurable reduction in light reflective ability does not cause any significant changes in lighting costs.



Lighted from lower left corner



Lighted with single lights on either side of camera position



Lighted from upper right corner

DESIGNS

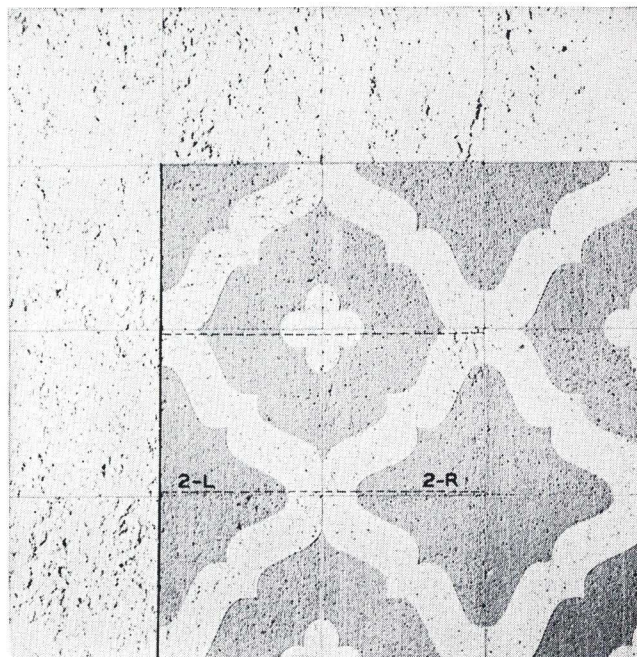


FIG. 1—MOTIF'D Design 2 R-L

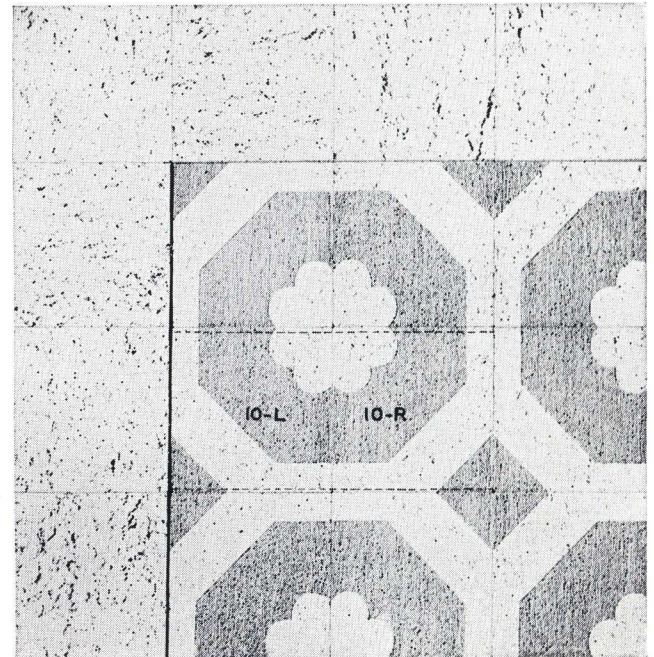


FIG. 2—MOTIF'D Design 10 R-L

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

MOTIF'D ACOUSTONE

DESIGNS — (Continued)

MOTIF'D ACOUSTONE ceiling designs are shown used alone or in combination with standard ACOUSTONE "F." The plain ACOUSTONE "F" border tile (at the designer's option) can be $\frac{1}{8}$ " thicker than the field tile with a $\frac{1}{8}$ " bevel on the field side only. The border can be more or less than 12"

wide by extending 12" border units and job cutting to balance the field design. All units furnished in 12" x 12" size, kerfed for spline alignment. Treatment on walls below wainscot height is not recommended.

Dotted Lines----- indicate direction of kerfing for fibre splines

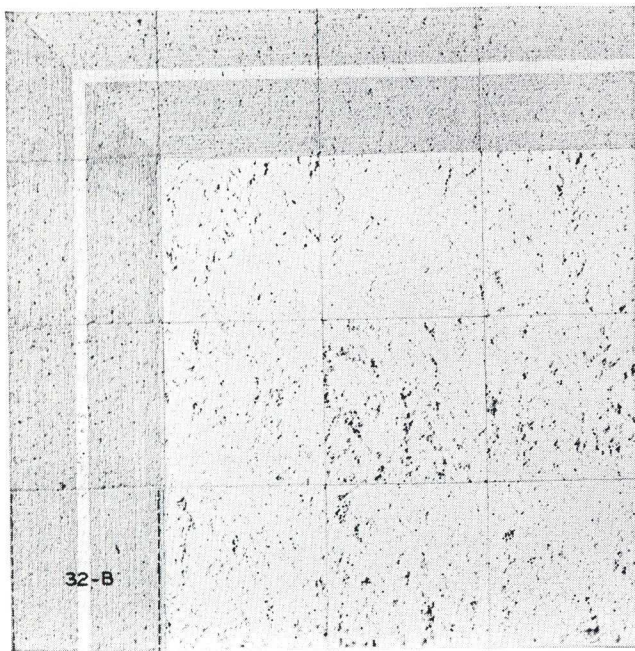


FIG. 3—MOTIF'D DESIGN 32-B with corner unit mitered on job.

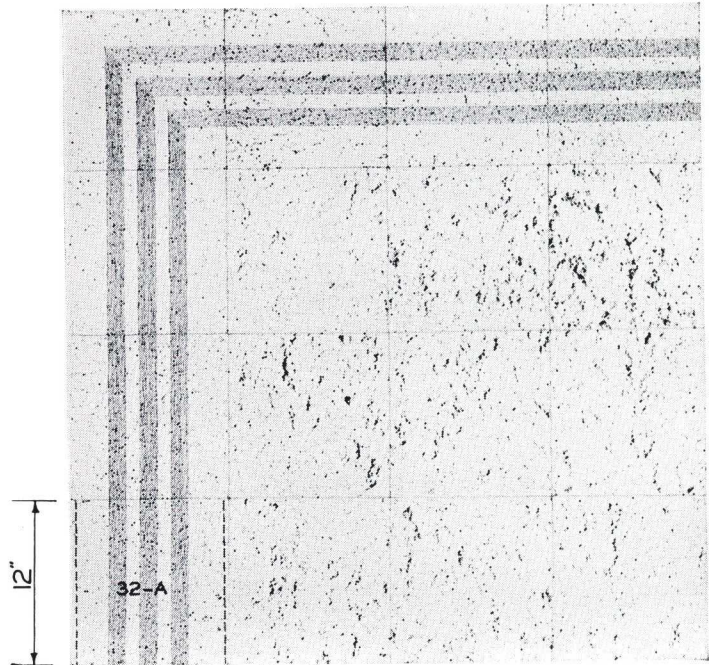


FIG. 4—MOTIF'D DESIGN 32-A with corner unit mitered on job.

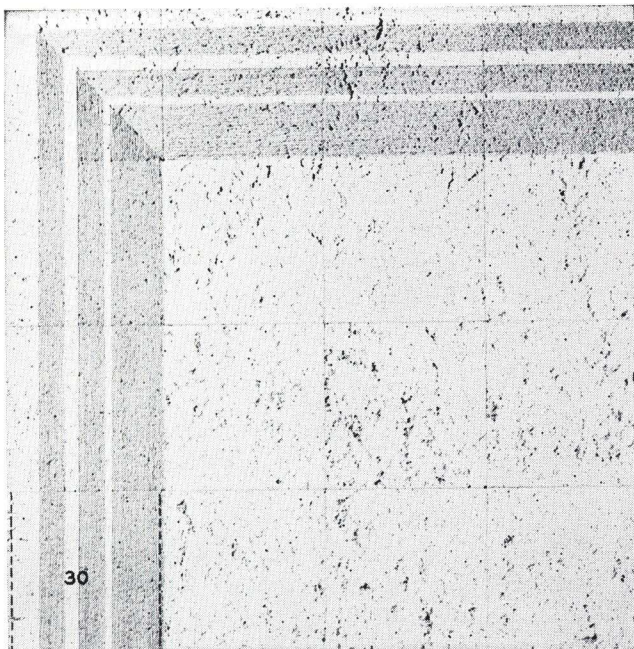


FIG. 5—MOTIF'D DESIGN 30 with corner unit mitered on job.

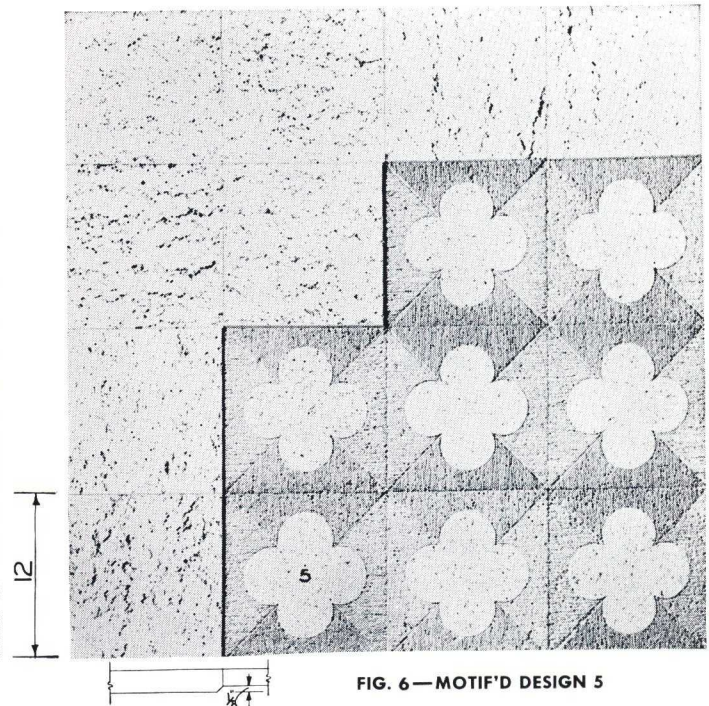


FIG. 6—MOTIF'D DESIGN 5

MOTIF'D ACOUSTONE

DESIGNS — (Continued)

MOTIF'D ACOUSTONE ceiling designs are shown used alone or in combination with standard ACOUSTONE "F." The plain ACOUSTONE "F" border tile (at the designer's option) can be $\frac{1}{8}$ " thicker than the field tile with a $\frac{1}{8}$ " bevel on the field side only. The border can be more or less than 12"

wide by extending 12" border units and job cutting to balance the field design. All units furnished in 12" x 12" size, kerfed for spline alignment. Treatment on walls below wainscot height is not recommended.

Dotted Lines ----- indicate direction of kerfing for fibre splines

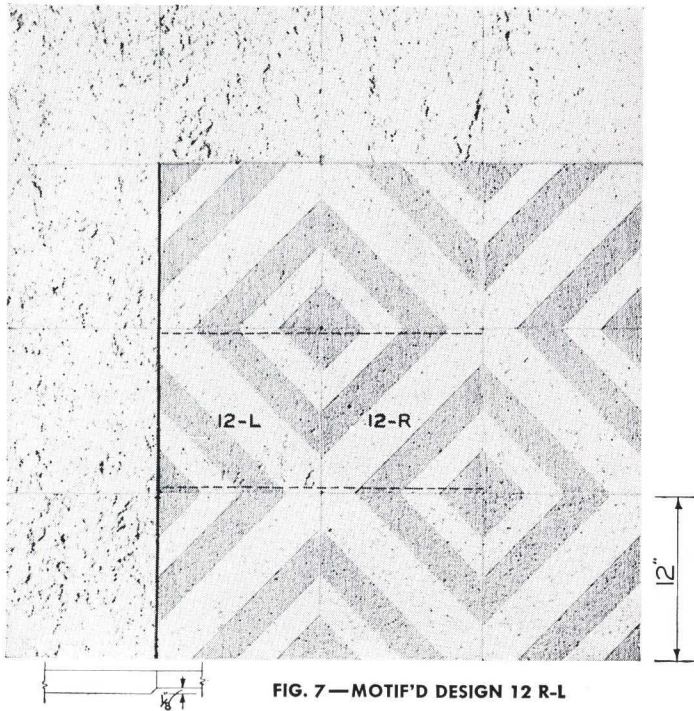


FIG. 7 — MOTIF'D DESIGN 12 R-L

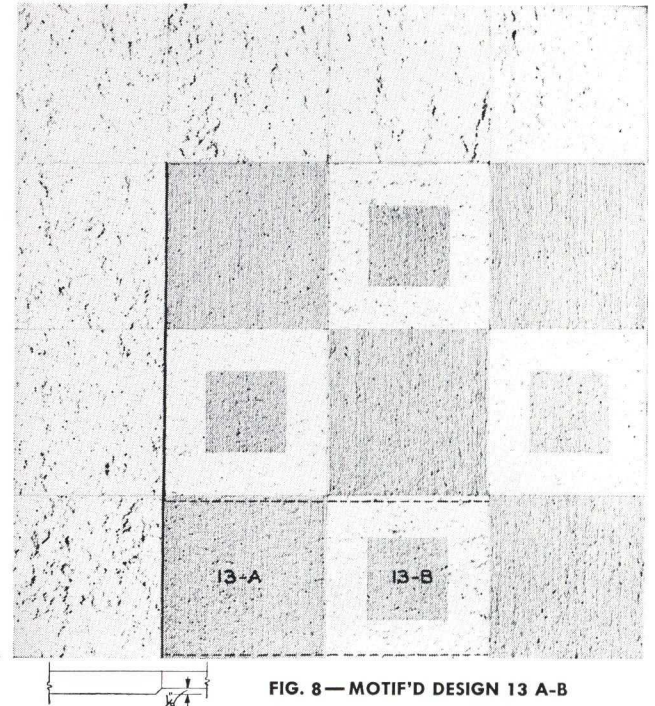


FIG. 8 — MOTIF'D DESIGN 13 A-B

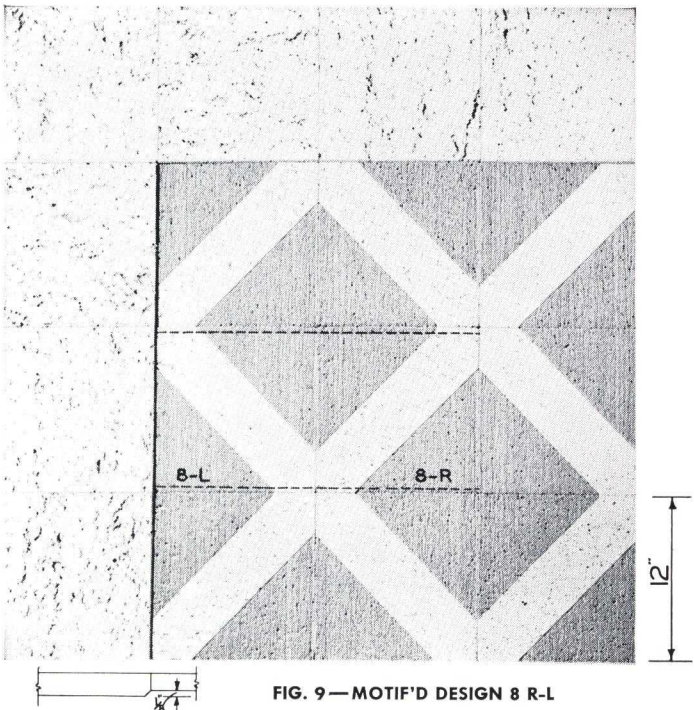


FIG. 9 — MOTIF'D DESIGN 8 R-L

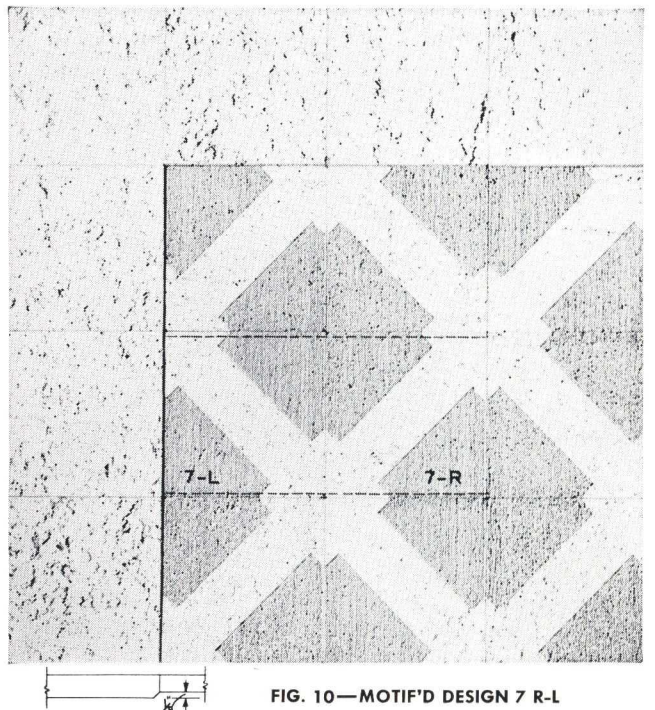


FIG. 10 — MOTIF'D DESIGN 7 R-L

MOTIF'D ACOUSTONE

DESIGNS — (Continued)

MOTIF'D ACOUSTONE ceiling designs are shown used alone or in combination with standard ACOUSTONE "F." The plain ACOUSTONE "F" border tile (at the designer's option) can be $\frac{1}{8}$ " thicker than the field tile with a $\frac{1}{8}$ " bevel on the field side only. The border can be more or less than 12"

wide by extending 12" border units and job cutting to balance the field design. All units furnished in 12" x 12" size, kerfed for spline alignment. Treatment on walls below wainscot height is not recommended.

Dotted Lines ----- indicate direction of kerfing for fibre splines

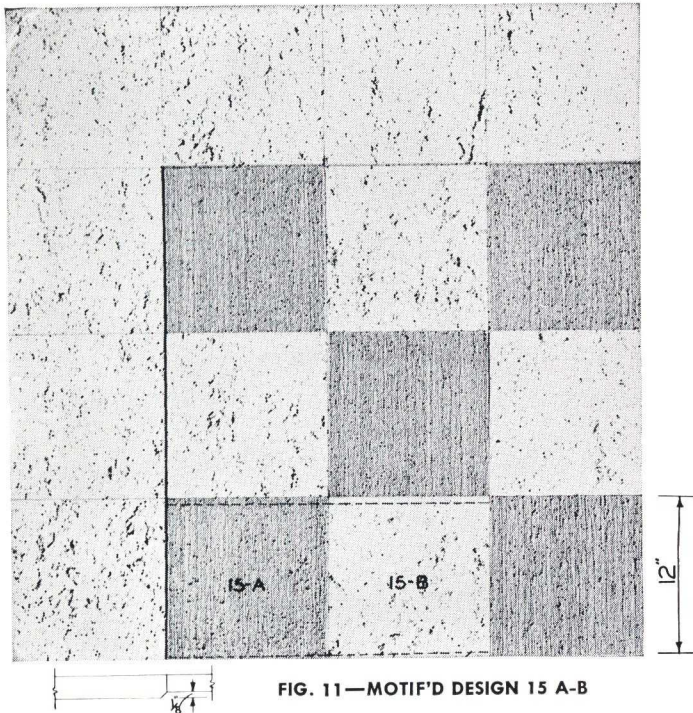


FIG. 11—MOTIF'D DESIGN 15 A-B

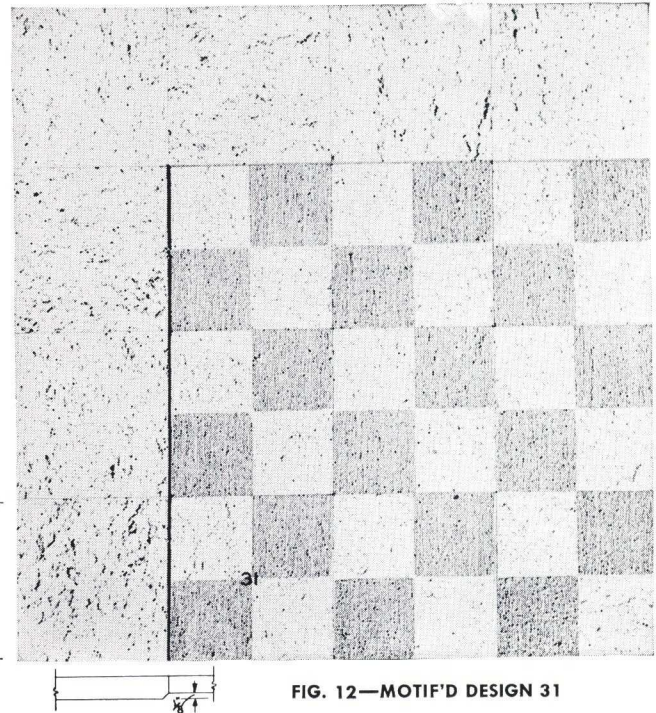


FIG. 12—MOTIF'D DESIGN 31

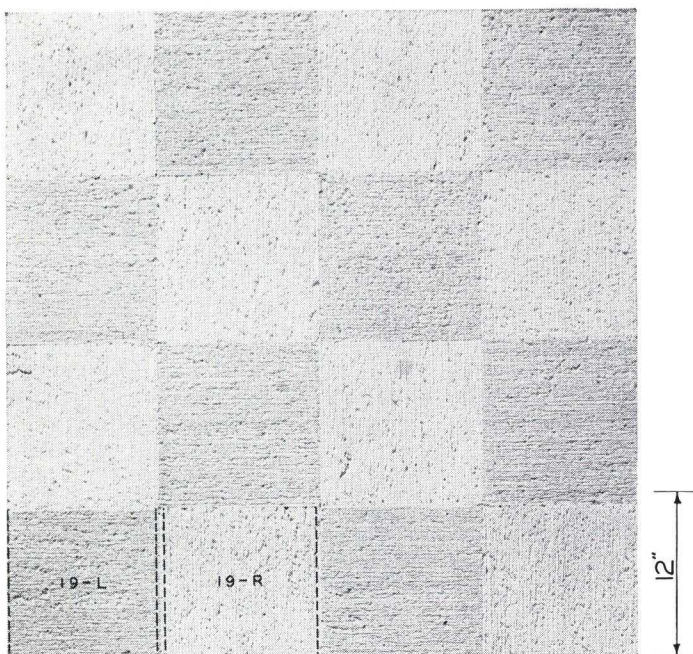


FIG. 13—MOTIF'D DESIGN 19 R-L

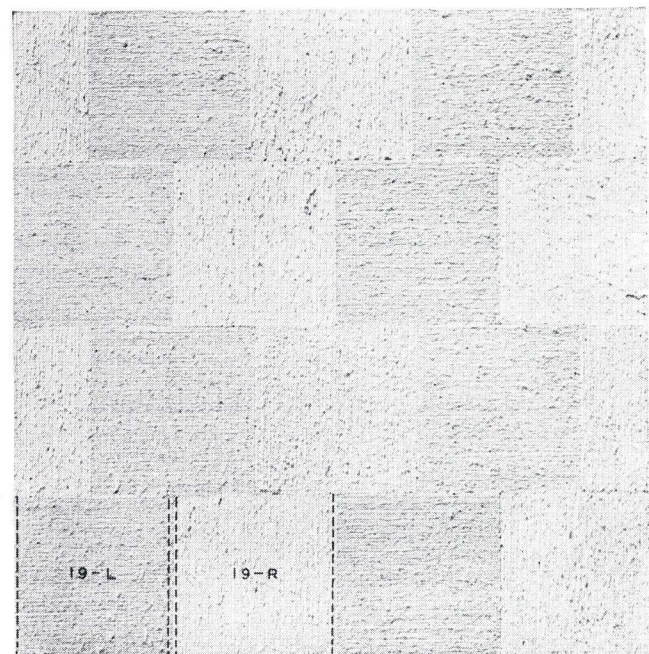


FIG. 14—MOTIF'D DESIGN 19 R-L

MOTIF'D ACOUSTONE

DESIGNS — (Continued)

MOTIF'D ACOUSTONE ceiling designs are shown used alone or in combination with standard ACOUSTONE "F." The plain ACOUSTONE "F" border tile (at the designer's option) can be $\frac{1}{8}$ " thicker than the field tile with a $\frac{1}{8}$ " bevel on the field side only. The border can be more or less than 12"

wide by extending 12" border units and job cutting to balance the field design. All units furnished in 12" x 12" size, kerfed for spline alignment. Treatment on walls below wainscot height is not recommended.

Dotted Lines ----- indicate direction of kerfing for fibre splines

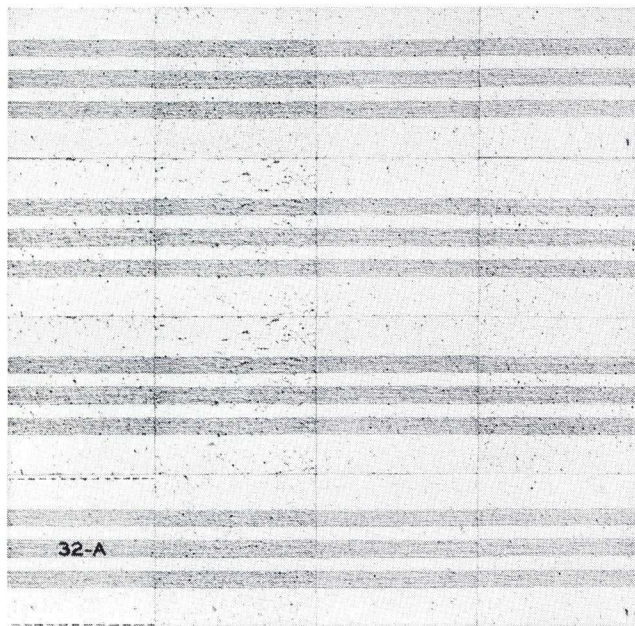


FIG. 15 — MOTIF'D DESIGN 32A

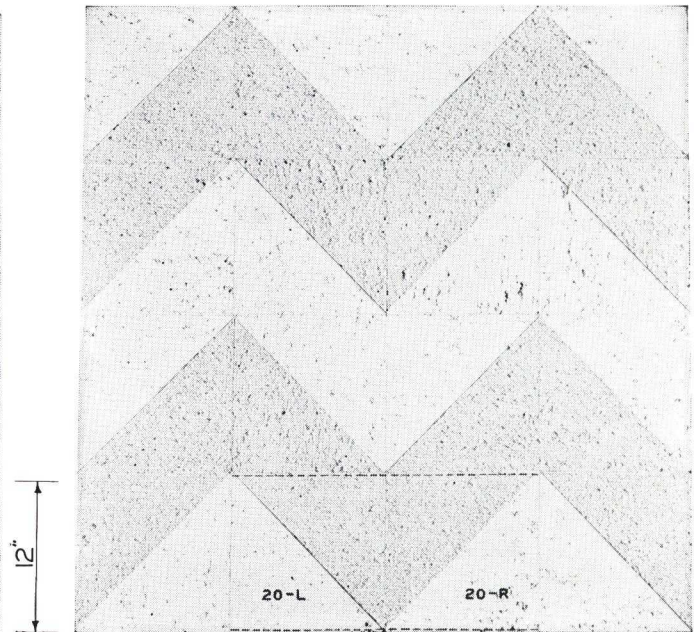


FIG. 16 — MOTIF'D DESIGN 20 R-L

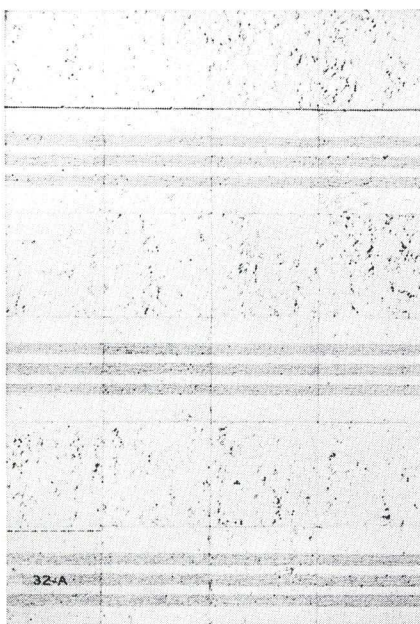


FIG. 17 — MOTIF'D DESIGN 32-A

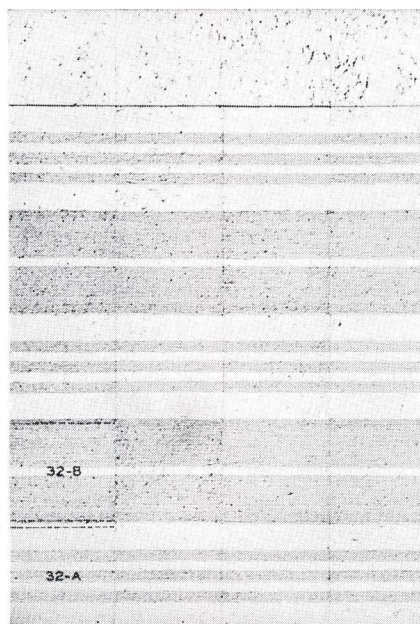


FIG. 18 — MOTIF'D DESIGN 32 A-B

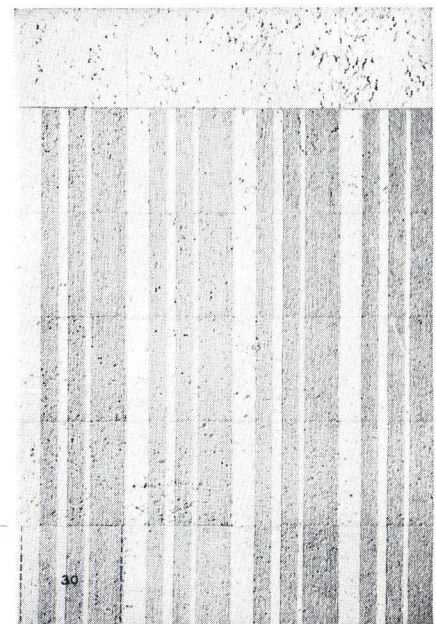


FIG. 19 — MOTIF'D DESIGN 30

PERFORATED AUDITONE* ACOUSTICAL TILE

DESCRIPTION

Perforated AUDITONE wood fiber acoustical tile is a perforated wood fiber tile designed to give maximum acoustical efficiency and strength and an unobtrusive, efficient, functional appearance. Each unit is finish-painted at the factory and is available accurately formed, with beveled or tongue and groove edges.

SIZES— $\frac{1}{2}$ ", $\frac{3}{4}$ " or 1" by 12" x 12" or 12" x 24". (See Technical Data Below.) The 12" x 24" tongue and groove units are scored and perforated to represent two 12" x 12" units.

FUNCTION AND UTILITY

Sound Absorption—Perforated AUDITONE has a noise Reduction Coefficient of .55 to .70 depending upon thickness of tile and type of mounting. (See Technical Data Below.)

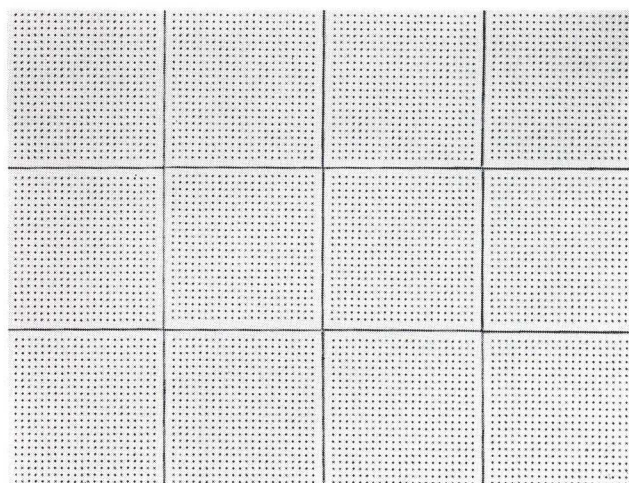
Edge Treatment—Perforated AUDITONE is made with butt bevel edges for cementing to proper bases without supplementary nailing; supplied with tongue and groove edges for blind nailing directly to joists, studs or nailing strips. The tongue and groove maintains level joints and a smooth appearance. Tongue and groove Perforated AUDITONE is not recommended for application with adhesive. (See Technical Data Below.)

Paint and Color—Finish-painted at the factory on face and bevels in high light reflecting white. (See Technical Data Below.)

Weight—Perforated AUDITONE weighs approximately .82 lb. per square foot in the $\frac{1}{2}$ " thickness, .86 lb. per square foot in the $\frac{3}{4}$ " thickness, and 1.37 lbs. per square foot in the 1" thickness. (See Technical Data Below.)

Paintability and Maintenance

Perforated AUDITONE can be repeatedly brush or spray painted following normal paint procedures with oil, resin emulsion, casein, calcimine or any of the commercial types of paint without loss of sound absorption at 512 cycles per second or in the Noise Reduction Coefficient. Perforated AUDITONE can be cleaned with putty or paste type wallpaper cleaner.



Fire Resistance

Combustible.

Heat Conductivity

Perforated AUDITONE has a low thermal conductivity ("k" factor = .38).

Resistance to Soiling and Breathing

The smooth, painted finish of Perforated AUDITONE wood fiber acoustical tile resists soiling; and the tongue and groove edge type prevents objectionable air travel through the joints when used on suspended nailing strips.

Cost

Lower in cost than ACOUSTONE.

Limitations of Use

Perforated AUDITONE should not be used below wainscot height or where it will be subjected to severe impact or abrasion. It is not recommended in dish-washing rooms, or where it will be exposed to steam or constant high humidity.

PERFORATED AUDITONE TECHNICAL DATA

SOUND ABSORPTION COEFFICIENTS

Acoustical Materials Association

Thickness	Mounting	Coefficients						Noise Red. Coef.	Wt. (lbs.) Per Sq. Ft.
		128	256	512	1024	2048	4096		
1"	1	.15	.29	.80	.87	.83	.72	.70	1.37
1"	2	.26	.64	.59	.77	.78	.72	.70	1.46
$\frac{3}{4}$ "	1	.18	.24	.74	.83	.69	.83	.65	.86
$\frac{3}{4}$ "	2	.20	.60	.54	.76	.68	.70	.65	.87
$\frac{1}{2}$ "	1	.11	.24	.55	.64	.67	.68	.55	.82
$\frac{1}{2}$ "	2	.17	.51	.52	.62	.68	.68	.60	.77

Tile tested were painted with a full finish coat of paint. Mounting No. 1—Cemented to plasterboard—considered equivalent to cementing to plaster or concrete ceilings. Mounting No. 2—Nailed to wood strips.

LIGHT REFLECTION—

Perforated AUDITONE, white, 79%. Tests by official A.M.A. Laboratory.

HEAT CONDUCTIVITY:

k = .38

FIRE RATING

Combustible

DESIGN DATA

UNITS	PERFORATED	SIZE	CENTER CROSS-SCORED
T & G	Yes	($\frac{1}{2}$ " $\frac{3}{4}$ " or 1") x 12" x 24"	Yes
Field	Yes	($\frac{1}{2}$ " $\frac{3}{4}$ " or 1") x 12" x 12"	No
Edge	No	($\frac{1}{2}$ " $\frac{3}{4}$ " or 1") x 12" x 24"	Yes
Butt-	Yes	($\frac{1}{2}$ " $\frac{3}{4}$ " or 1") x 12" x 12"	No
Bevel	No	($\frac{1}{2}$ " $\frac{3}{4}$ " or 1") x 12" x 12"	No

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

SLOTTED AUDITONE ACOUSTICAL TILE

DESCRIPTION

Slotted AUDITONE wood fiber acoustical tile is a slotted wood fiber tile designed to give maximum acoustical efficiency and strength and an unobtrusive, efficient, functional appearance. Each unit is finish-painted at the factory and is available accurately formed, with beveled or tongue and groove edges.

SIZES— $\frac{3}{4}$ " or 1" by 12" x 12" or 12" x 24". (See Technical Data Below.) The 12" x 24" tongue and groove units are scored and slotted to represent two 12" x 12" units with the slots parallel to the long edges.

FUNCTION AND UTILITY

Sound Absorption—Slotted AUDITONE is made in two thicknesses with a Noise Reduction Coefficient of .65 and .70 and absorptions at 512 cycles per second of .72 and .78 respectively. (See Technical Data below.)

Edge Treatment—Slotted AUDITONE is made with butt bevel edges for cementing to proper bases without supplementary nailing; supplied with tongue and groove edges for blind nailing directly to joists, studs or nailing strips. The tongue and groove maintains level joints and a smooth appearance. Tongue and groove Slotted AUDITONE is not recommended for application with adhesive. (See Technical Data below.)

Paint and Color—Finish-painted at the factory on face and bevels in high light reflecting white. (See Technical Data below.)

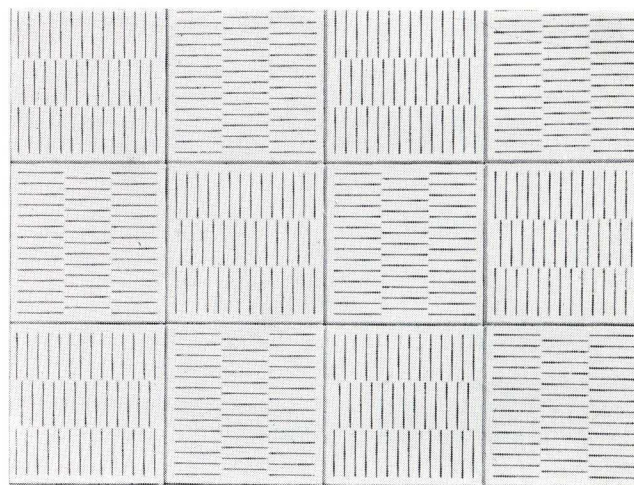
Weight—Slotted AUDITONE weighs approximately .84 lb. per square foot in the $\frac{3}{4}$ " thickness and approximately 1.19 lbs. per square foot for the 1" thickness. (See Technical Data below.)

Paintability and Maintenance

Slotted AUDITONE can be repeatedly brush or spray painted following normal paint procedures with oil, resin emulsion, casein, calcimine or any of the commercial types of paint without loss of sound absorption at 512 cycles per second or in the Noise Reduction Coefficient. Slotted AUDITONE can be cleaned with putty or paste type wallpaper cleaner.

Light Reflection

See Technical Data below.



Fire Resistance

Combustible.

Heat Conductivity

Slotted AUDITONE has a low thermal conductivity ("k" factor = .38)

Resistance to Soiling and Breathing

The smooth, painted finish of Slotted AUDITONE wood fiber acoustical tile resists soiling; and the tongue and groove edge type prevents objectionable air travel through the joints when used on suspended nailing strips.

Cost

Lower in cost than ACOUSTONE.

Limitations of Use

Slotted AUDITONE should not be used below wainscot height or where it will be subjected to severe impact or abrasion.

It is not recommended in dish-washing rooms, or where it will be exposed to steam or constant high humidity.

SLOTTED AUDITONE TECHNICAL DATA SOUND ABSORPTION COEFFICIENTS

Acoustical Materials Association										Bureau of Standards Federal Specifications are Based on Bureau of Standards Tests													
Thickness	Mounting	Coefficients						Noise Red. Coef.	Wt. (lbs.) per Sq. Ft.	Thickness	Mounting	Coefficients						Noise Red. Coef.	Wt. (lbs.) per Sq. Ft.	SS-A-118a Feb. 12, 1948			
		128	256	512	1024	2048	4096					128	256	512	1024	2048	4096			512 Cycles	N. R.	Type	Class
1"	1	.18	.33	.78	.79	.80	.71	.70	1.19	1"	1	.24	.50	.73	.82	.75	.64	.70	1.14	105	5	II	C
1"	2	.32	.53	.60	.78	.83	.74	.70	1.19	1"	2	.19	.64	.63	.72	.78	.70	.70	1.18	107	5	II	C
$\frac{3}{4}$ "	1	.11	.25	.72	.84	.80	.80	.65	.84	$\frac{3}{4}$ "	1	.08	.30	.66	.80	.86	.75	.65	.79	106	6	II	C
$\frac{3}{4}$ "	2	.15	.48	.58	.81	.82	.78	.65	.84	$\frac{3}{4}$ "	2	.16	.64	.52	.60	.72	.77	.60	.97	109	7	II	C

Tile tested were painted with a full finish coat of paint. Mounting No. 1—Cemented to plasterboard—considered equivalent to cementing to plaster or concrete ceilings. Mounting No. 2—Nailed to wood strips.

LIGHT REFLECTION:

Slotted AUDITONE White 78%
Tests by Official A.M.A. Laboratory

HEAT CONDUCTIVITY:

k = .38

FIRE RATING

Combustible

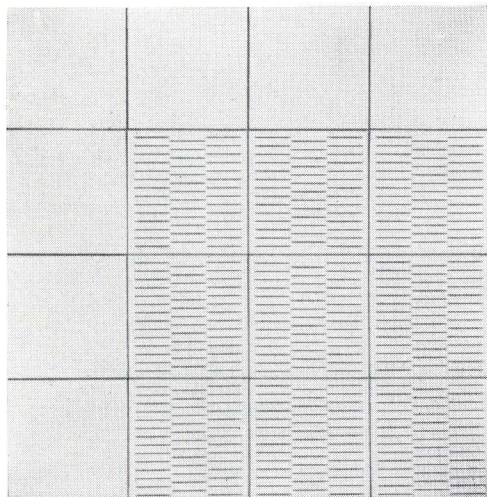
DESIGN DATA

UNITS	SLOTTED	SIZE	CENTER CROSS-SCORED
T&G Edge	Field	($\frac{3}{4}$ " or 1") x 12" x 24"	Yes
	Field Fillers	($\frac{3}{4}$ " or 1") x 12" x 12"	No
	Borders	($\frac{3}{4}$ " or 1") x 12" x 24"	Yes
Butt-Bevel	Field	($\frac{3}{4}$ " or 1") x 12" x 12"	No
	Borders	($\frac{3}{4}$ " or 1") x 12" x 12"	No

SLOTTED AUDITONE ACOUSTICAL TILE

Modern Slotted AUDITONE offers designers almost unlimited scope in ceiling appearance. Below are shown a few suggested patterns.

In addition to high sound absorption, the designs possible with Slotted Auditone can achieve widening, narrowing or directional effects.

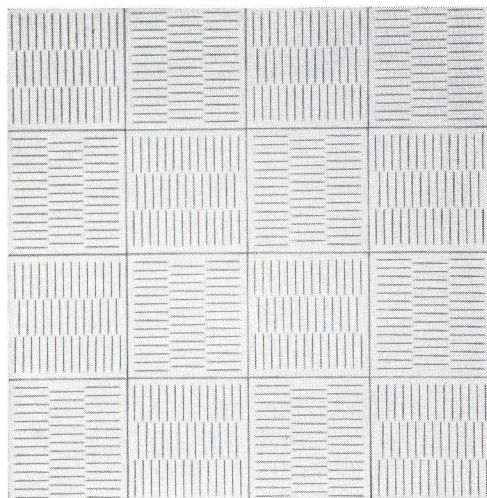


Square Design

**Using T & G
or Butt Bevel
Tile**

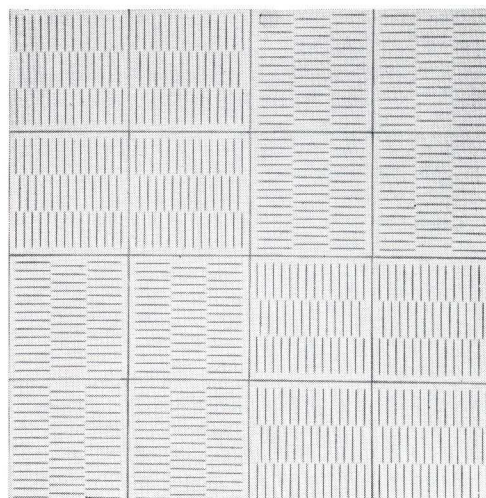


Ashlar Design

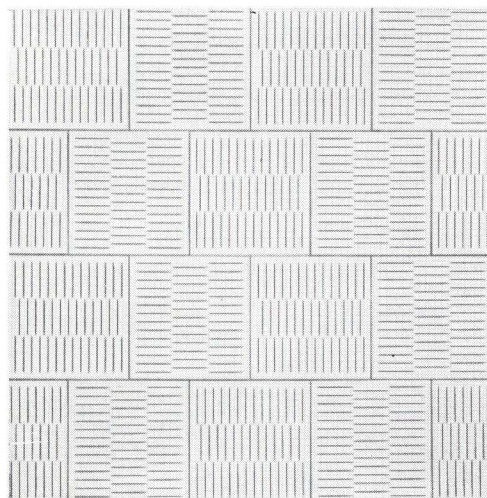


12"x12" Checkerboard Design

**Using Butt
Bevel Tile**



24"x24" Checkerboard Design



Swedish Modern Design

**Using Butt
Bevel Tile**



Diagonal Design

AUDITONE ACOUSTICAL TILE

INSTALLATION METHODS

AUDITONE is installed by approved USG acoustical contractors by one of two methods:

1. Application with adhesive (Butt Bevel Type only with or without nailing).
2. Blind nailing, screwing or stapling directly to wood strips, studs, joists, or gypsum board.

ADHESIVE APPLICATION

See architectural specifications below for amount and type of adhesive recommended.

Size and Type of Units

Should not exceed 12" x 12"; use butt bevel type only.

Bases for Adhesive Application of AUDITONE

Refer to "Bases for Adhesive Application of ACOUSTONE" page 6.

Patterns for Slotted AUDITONE

A variety of ceiling and wall patterns may be obtained by turning the tile to change the direction of slots on adjacent units or groups of units. Diagonal or square patterns with or without plain borders may be used. (Note page 19.)

APPLICATION NAILING, SCREWING OR STAPLING

Size and Type of Units

12" x 24" Tongue and Groove units only are used except for 12" x 12" field filler units adjacent to border.

Bases for Nailing, Screwing or Stapling

Tongue and Groove Slotted AUDITONE 12" x 24" may be nailed or screwed to supports spaced not to exceed 16" on center for square pattern and 12" on center for diagonal pattern. Tongue and Groove Perforated AUDITONE 12" x 24" may be either nailed or screwed to wood supports or may be stapled ($\frac{1}{2}$ " and $\frac{3}{4}$ " thickness only) to wood supports, not to exceed 16" on center for the square pattern or 12" on center for the diagonal pattern.

ARCHITECTURAL SPECIFICATIONS FOR AUDITONE

CEMENTED INSTALLATIONS

(Phrases in parentheses are explanatory.)

1. SCOPE. (List and locate all areas to receive acoustical treatment.)

2. Materials. Acoustical material shall be slotted AUDITONE ($\frac{3}{4}$ " or 1") or perforated AUDITONE ($\frac{1}{2}$ ", $\frac{3}{4}$ " or 1") manufactured by the United States Gypsum Company; and shall be finish-painted on the exposed surface and bevels; with a light reflection coefficient averaging not less than 78% as tested by A.M.A. Laboratories; capable of being brush-painted repeatedly with oil paints without loss of sound absorption at 512 frequency or Noise Reduction Coefficient. The (Noise Reduction Coefficient) (sound absorption coefficient at 512 cps) as tested by A.M.A. shall not be less than (choose value from sound absorption table on page 18).

Units shall be 12" x 12" butt bevelled.

The adhesive shall be (Refer to ACOUSTONE Specification Page 7).

3. Installation. (Refer to page 7 except eliminate any reference to splines and spline alignment.)

NAILED INSTALLATIONS

Note: Use paragraphs 1 and 2, from above specifications except materials shall be T&G AUDITONE 12" x 24".

1. Installation. The installation shall be made by an applicator approved by the acoustical material manufacturer. The

Size of nailing strips	Maximum space between supports
1" x 2"	24"
1" x 3"	36"
2" x 2"	42"

Where a suspended ceiling is required, a double grillage is recommended using as main members (2" x 2") (2" x 3") or (2" x 4") which should be cross-furred with wood nailing strips spaced as shown in the above table. Steel channels ($1\frac{1}{2}$ " or 2") may be used in lieu of the main wood members to which wood nailing strips may be wired. Nailing strips (2" x 2") or (2" x 3") will successfully span 48" if a 1" x 2" stiffener strip is nailed to them midway between and parallel to the 48" supports.

AUDITONE SCREWED TO GYPSUM BOARD:

Use only 12"x24" T & G Slotted or any type Perforated AUDITONE. (See drawing Page 21.)

Where an incombustible backing is desired, AUDITONE may be screwed to SHEETROCK or USG Sheathing which has been either mechanically suspended or nailed directly to wood furring strips.

When mechanical suspension of gypsum board is desired, the Pomeroy System listed in Sweet's File may be used with $\frac{1}{2}$ " SHEETROCK or $\frac{1}{2}$ "x2'-0"x8'-0" USG Sheathing. If it is desired to nail gypsum board to wood furring strips, $\frac{3}{8}$ " or $\frac{1}{2}$ " gypsum board can be used, if furring strips are not over 16" o.c. If furring strips are between 16" and not over 24" o.c., $\frac{1}{2}$ " gypsum board should be used.

Patterns for Slotted AUDITONE

Patterns are limited by the requirement that all slots must be parallel when installing T & G Slotted AUDITONE. Tile may be installed perpendicular to wood supports, or diagonally—see above.

units shall be installed by blind nailing, screwing or stapling (see above) through the tongue to (wood joists, studs, furring strips, or suitable nailing surface), spaced not to exceed 16" on centers as specified and furnished in place under section "Carpentry." (Wood grounds shall be installed where necessary to furnish a satisfactory nailing base for border acoustical units at their intersection with walls or other abutting surfaces.) (Reference should be made under "Carpentry" as follows: "Joists or studs or furring strips shall present a suitable level surface to receive acoustical treatment without shimming or additional furring by the acoustical contractor".) Necessary framing and anchorage for support of furring strips (shall, shall not) be a part of this work.

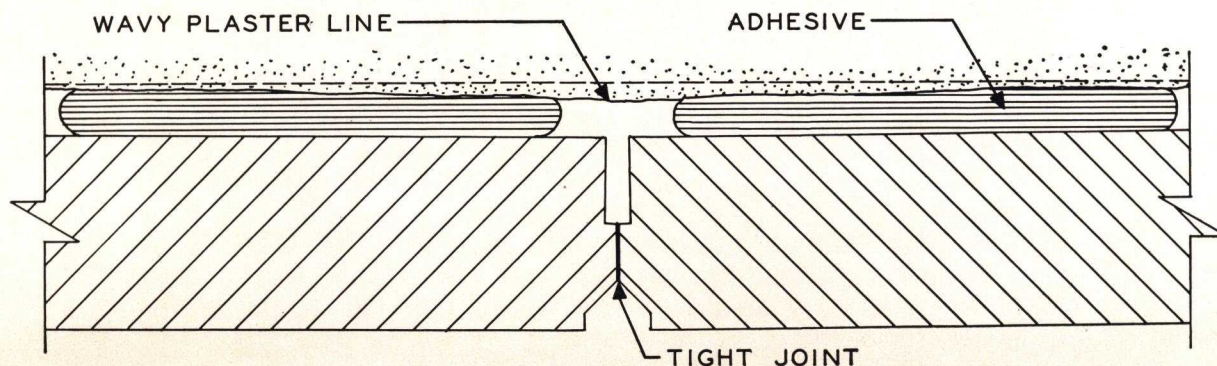
AUDITONE SCREWED TO GYPSUM BOARD:

NOTE: Use paragraphs 1 and 2, from the specifications under cemented installations except material shall be T & G Slotted AUDITONE 12"x24" or any type edge or size of Perforated AUDITONE.

1. Installation. The installation shall be made by an applicator approved by the acoustical material manufacturer. The tile shall be applied by screwing (see above) through the tongue of the Slotted AUDITONE, or the shallow holes of Perforated AUDITONE, to gypsum board (either mechanically suspended or nailed to wood furring strips). See above paragraph on mechanical systems and spacing of furring strips.

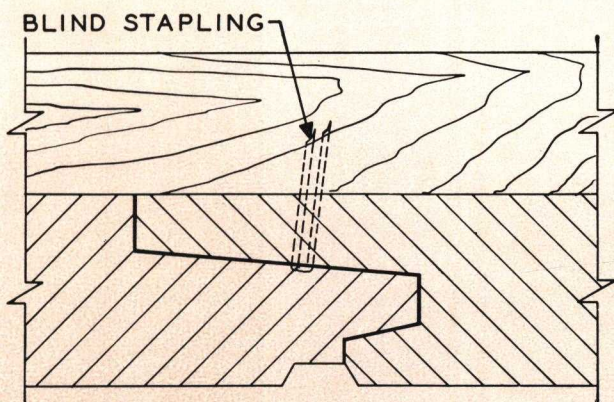
AUDITONE ACOUSTICAL TILE

INSTALLATION DETAILS

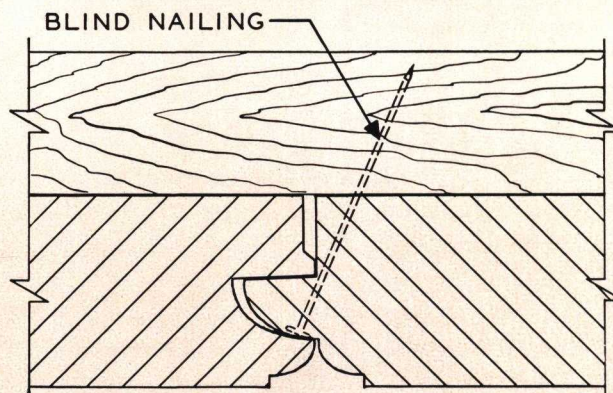


BUTT BEVEL TYPE

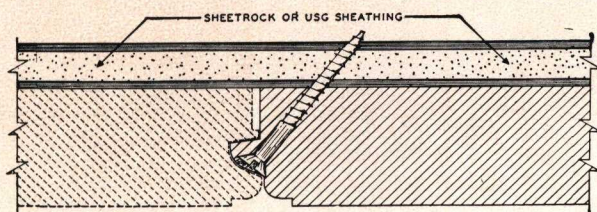
FOR ADHESIVE
APPLICATION OF SLOTTED OR PERFORATED AUDITONE



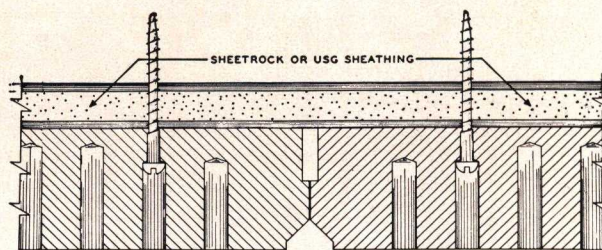
"T" & "G" TYPE
FOR NAILING OR STAPLING
APPLICATION OF PERFORATED AUDITONE



"T" & "G" TYPE
FOR NAILING
APPLICATION OF SLOTTED AUDITONE



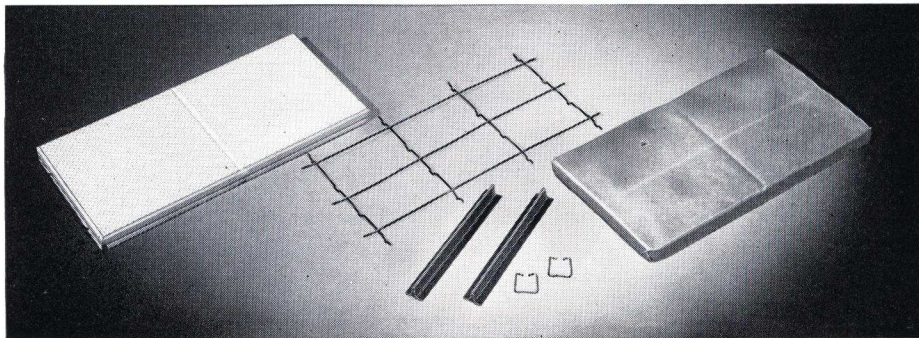
T & G SLOTTED AUDITONE
ATTACHED TO GYPSUM BOARD WITH WOOD SCREWS



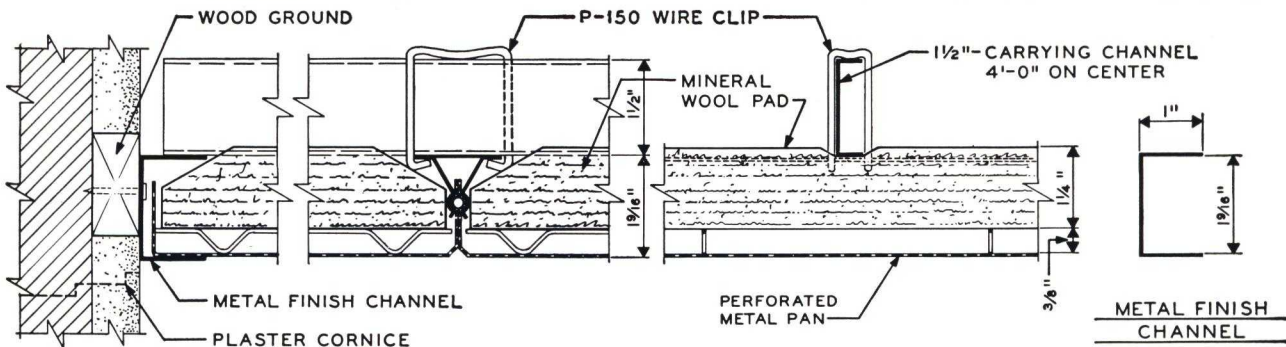
PERFORATED AUDITONE
ATTACHED TO GYPSUM BOARD WITH WOOD SCREWS

PERFATONE* ACOUSTICAL UNITS

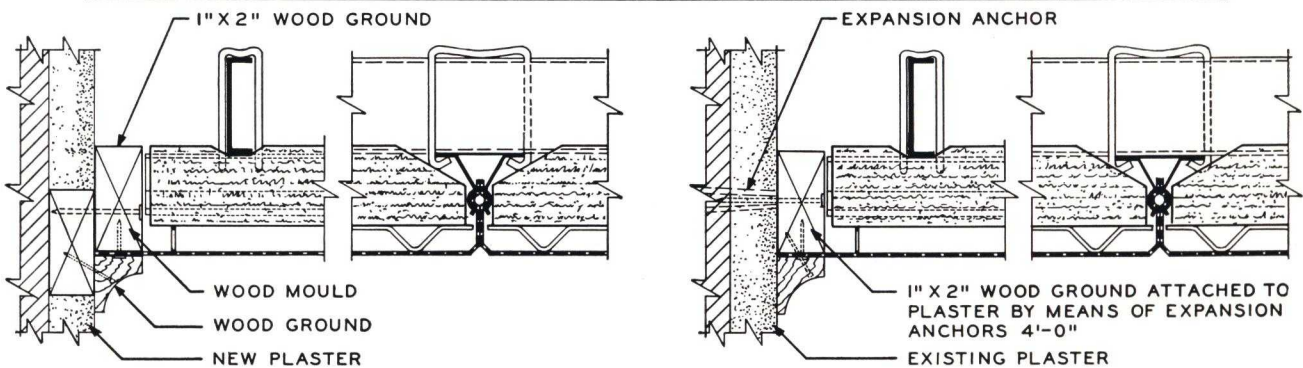
PERFATONE DETAILS



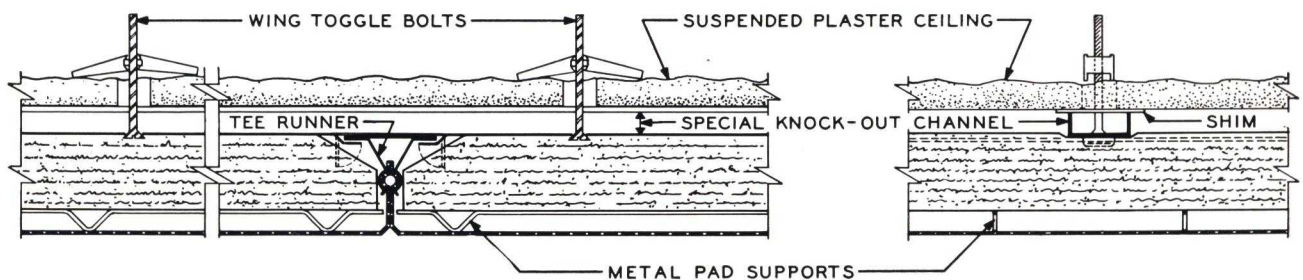
12" x 24" UNITS, CENTER-SCORED TO SIMULATE 12" x 12" UNITS; WIRE GRID SPACER TO SUPPORT MINERAL WOOL PAD; TEE RUNNERS; P-150 CLIPS.



DETAIL SHOWING METAL FINISHING CHANNEL AT WALL



DETAIL SHOWING ATTACHMENT TO NEW AND EXISTING PLASTERED WALLS



SECTIONS SHOWING DIRECT APPLICATION OF PERFATONE CONSTRUCTION USING SPECIAL KNOCK-OUT CHANNELS TO HOLD TEE RUNNERS

PERFATONE* ACOUSTICAL UNITS

DESCRIPTION—PERFATONE acoustical construction consists of perforated 26 ga. zinc-coated, enameled steel units 12"x24" centerscored to simulate 12"x12" units. Enclosed within the metal units are mineral wool sound absorbent pads supported on galvanized wire mesh pad supports which provide an air space between the metal facing and the pads.

PERFATONE units are also available unperforated to be used as border tile or for unusual decorative effects.

FUNCTION AND UTILITY—PERFATONE has high sound absorption and is incombustible, washable and paintable.

HIGH SOUND ABSORPTION—PERFATONE has high absorption and an absorption curve which is unusually flat at the significant pitches.

INCOMBUSTIBLE—The metal units and the mineral wool pads are incombustible. The pads are wrapped in flame-proofed paper.

HIGH LIGHT REFLECTION—PERFATONE has a white baked enamel finish with a light reflection of 76%.

LIMITATIONS OF USE—In areas of high humidity or where moisture might impinge against the acoustical surface, aluminum pans with galvanized fittings or a different architectural design should be considered.

SOUND ABSORPTION COEFFICIENTS									
Acoustical Materials Association									
Mounting	Thickness	Coefficients						Noise Red. Coef.	Wt.(Lbs.) Per Sq. Ft.
		128	256	512	1024	2048	4096		
3	1 1/4"	.30	.57	.98	.98	.77	.63	.85	1.24
Pads were tested in perforated enameled metal pans with pad supports.									
Mounting No. 3—Attached to metal supports applied to 1"x3" wood furring.									
Light Reflection — White 76% Fire Resistance — Incombustible									
Authority: Bureau of Standards (LC-715, January 1943)									
Tests by official A M A Laboratory.									

OTHER USG SOUND CONTROL MATERIALS

PERFORATED ASBESTOS BOARD—An incombustible acoustical construction consisting of perforated 3/16" asbestos board covering rock wool pads or blankets. The perforated facing is attached with wood screws or by other means to furring strips. This construction is commonly used in spaces subject to high humidity, impact or abrasion, and in radio studios. It is in a higher price

ARCHITECTURAL SPECIFICATIONS FOR PERFATONE

(Phrases in parentheses are explanatory)

1. Scope. (List and locate all areas to receive acoustical treatment.)

2. Materials. Acoustical material shall be USG PERFATONE, perforated 26 ga. zinc coated steel units, 12"x24", centerscored to simulate 12"x12" units, the edges of which are beveled and returned vertically to be held firmly in place on the 12" sides by special tee runners. The perforated metal units shall contain mineral wool absorbent pads held slightly away from the perforated metal surface by galvanized wire mesh pad supports. The absorbent pad shall be completely enclosed and sealed on four edges, face, and back with a flame-proofed membrane.

The perforated metal tile shall have a prime coat of baked enamel on the back side; and on the face side, a prime coat and a finish coat of baked enamel.

3. Installation. The installation shall be made by an applicator approved by USG.

A. Suspended ceiling construction. To a standard 1 1/2" channel grillage furnished by others the acoustical contractor shall fasten the special tee runners spacing them 24" on centers to hold the perforated metal units. Perforated metal units, pad supports, and absorbent pads shall be carefully assembled and pressed into position in the special tee runner. All edges shall be kept in alignment, and care must be taken to secure a level under-surface. A suitable moulding shall be furnished in place by the acoustical contractor (or by others) at the junction of the PERFATONE ceiling with the walls and columns. Care shall be taken in cutting and fitting the units around all openings.

B. Plastered ceiling construction. The same as in "A" except that the special knockout channel spaced 48" o.c. shall be attached to the present ceiling by means of suitable clips or wires and brought to a level surface.

range than ACOUSTONE "F" or AUDITONE.

USG SOUND INSULATION—For insulating rooms against extraneous noises. This special USG construction employs patented resilient floor chairs, and wall and ceiling resilient clips to support room surfaces and furnish an effective barrier against sound travel.

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

ACOUSTICAL SERVICE

Installation of acoustical tile is by United States Gypsum Company approved Acoustical Contractors. Upon request, the United States Gypsum Company, or its authorized acoustical contractors, will make analyses and recommendations, without obligation, on sound control problems. A complete line of acoustical materials is available.

USG ACOUSTICAL CONTRACTORS

- ALABAMA**, Birmingham
Shook & Fletcher Insulation Co., 2915 10th Ave. No.
- ALABAMA**, Mobile
Stokes Interiors of the Gulf Coast, 901 So. Washington St.
- ARIZONA**, Phoenix
R. E. Warren Sales Co., 1211 E. McDowell Rd.
- ARKANSAS**, Fort Smith
Harry G. Barr Co., 424 Garrison Ave.
- ARKANSAS**, Little Rock
Nevil C. Withrow Co., Pyramid Bldg.
- CALIFORNIA**, Los Angeles
R. E. Howard Co., 6025 So. Manhattan Pl.
- CALIFORNIA**, San Francisco
F. K. Pinney, Inc., 636 Clay St.
- COLORADO**, Denver
Construction Specialties Co., 2625 Walnut St.
- CONNECTICUT**, E. Hartford
The Acoustical Materials Corp., 46 Judson Ave.
- CONNECTICUT**, Norwalk
The Acoustical Materials Corp., 42 Commerce St.
- DISTRICT OF COLUMBIA**, Washington
(See Alexandria, Virginia)
- FLORIDA**, Miami
Ray-Hof Agencies, 3004 N. W. North River Drive
- FLORIDA**, Jacksonville
Ray-Hof Agencies, Inc., 1034 Hendricks
- FLORIDA**, Orlando
Ray-Hof Agencies, Inc., 1338 W. Church St.
- GEORGIA**, Atlanta
Lewis & Co., 495 Fourth St. N. W.
- ILLINOIS**, Chicago
Anning-Johnson Co., Inc., 1514 W. Van Buren St.
- ILLINOIS**, E. St. Louis
Blazier Huntley Co., 2533 Natalie St.
- ILLINOIS**, Moline
Builders Sales & Service Co., 1516 Fourth Ave.
- ILLINOIS**, Peoria
Watson Engineering Co., 507 First National Bank Bldg.
- ILLINOIS**, Rockford
Acoustical Engineering Co., 614 Shaw St.
- INDIANA**, Indianapolis
Brown-Anning-Johnson Co., 1720 Alvord St.
- IOWA**, Cedar Rapids
O. W. Latimer Co., Security Bldg.
- IOWA**, Davenport
(See Moline, Illinois)
- IOWA**, Des Moines
Anning-Johnson Co., Inc., 914 W. Grand Ave.
- KENTUCKY**, Louisville
Pochel-Chowing Co., Inc., 1404 W. Market St.
- LOUISIANA**, Baton Rouge
Pioneer Contract & Supply Co., 2510 Government St.
- LOUISIANA**, New Orleans
B & D Floor Co., 1402 S. Jefferson Davis Parkway
- MASSACHUSETTS**, Auburndale
Port Products, Inc., 253 Auburn St.
- MASSACHUSETTS**, Boston
See Auburndale, Massachusetts
- MASSACHUSETTS**, Cambridge
W. T. Roberts Construction Co., Third & Rogers Sts.
- MICHIGAN**, Detroit
The Nichols Co., 510 Michigan Bldg.
- MICHIGAN**, Grand Rapids
Harold R. Sobie Co., 959 Cherry St., S. E.
- MINNESOTA**, Minneapolis
Hauenstein & Burmeister, Inc., 614 Third Ave., South
- MISSISSIPPI**, Jackson
Stokes Interiors, Inc., 126 S. Farish St.
- MISSOURI**, Kansas City
The Stokes Company, 2035 Washington St.
- MISSOURI**, St. Louis
Hamilton Co., 4239 Lindell Blvd.
- MISSOURI**, St. Louis
Atkinson-Lindberg Co., 3926 Lindell Blvd.
- NEBRASKA**, Omaha
Porter-Trustin Co., 910 S. Saddle Creek Rd.
- NEW JERSEY**, East Orange
Woolsulate Corporation, 21 S. Sixteenth St.
- NEW MEXICO**, Albuquerque
Welch-Erwin, Inc., 1010 No. First St.
- NEW YORK**, Buffalo
Davis-Fetch & Co., Inc., 236 Scajaquada St.
- NEW YORK**, New York
Waldvogel Bros., Inc., 17 E. 42nd St.
- NEW YORK**, Rochester
S. A. Spencer, 135 Spring St.
- NEW YORK**, Syracuse
A. P. Madden Co., 675 Oswego Blvd.
- NORTH CAROLINA**, Greensboro
Bonitz Insulation Co., 411 Prescott St.
- OHIO**, Cincinnati
R. E. Kramig & Co., 222 East 14th St.
- OHIO**, Cleveland
H. A. Erf Acoustical Co., 3863 Carnegie Ave.
- OKLAHOMA**, Oklahoma City
Denman Floor Co., 3023 N. Oklahoma St.
- OKLAHOMA**, Tulsa
Towner & Co., 7902 E. 11th St.
- OREGON**, Portland
Emert and Zednik Co., 3520 N. E. 57th St.
- PENNSYLVANIA**, Philadelphia
W. M. Moyer Co., 1616 Walnut St.
- PENNSYLVANIA**, Pittsburgh
Standard Floor Co., 185 41st St.
- SOUTH DAKOTA**, Sioux Falls
Builders Supply Co., 113 N. Main St.
- TENNESSEE**, Chattanooga
The Currin Co., 1208 Carter St.
- TENNESSEE**, Memphis
R. Cluck Floor Co., 825 Jefferson Ave.
- TEXAS**, Dallas
Macatee, Inc., 4703 Bengal St.
- TEXAS**, El Paso
Welch-Erwin, Inc., 215 Popular St.
- TEXAS**, Fort Worth
Builders Material Co., Inc., 2307 Montgomery St.
- TEXAS**, Fort Worth
Gunn & Briggs Co., 2111 Montgomery St.
- TEXAS**, Houston
Macatee, Inc., 2209 San Jacinto St.
- TEXAS**, San Antonio
General Supply Co., 227 S. Salado St.
- UTAH**, Salt Lake City
Elias Morris & Sons Co., 250 E. South Temple St.
- VIRGINIA**, Alexandria
Anning-Johnson Co., Inc., 2414 Oakville St.
- VIRGINIA**, Richmond
W. Morton Northen & Co., Inc.,
608 North Seventeenth St.
- WASHINGTON**, Seattle
Pioneer Sand & Gravel Co., 901 Fairview Ave., North
- WASHINGTON**, Spokane
Mansur Materials Co., E. 210 Riverside Ave.
- WEST VIRGINIA**, Huntington
Frank B. Groves, 528 W. 11th Ave.
- WISCONSIN**, Madison
Home Insulation of Madison, Inc.,
1440 E. Washington Ave.
- WISCONSIN**, Milwaukee
Insulation Service, Inc., 1109 N. 108th St.



UNITED STATES GYPSUM COMPANY



TECHNICAL INFORMATION

USG* SHEATHING



*T. M. Reg. U. S. Pat. Off.

July, 1952



United States Gypsum

For Building • For Industry

Gypsum • Lime • Steel • Insulation • Roofing • Paint

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

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PITTSBURGH, PA.
PORTLAND, ORE.
PROVIDENCE, R. I.
RICHMOND, VA.
ST. LOUIS, MO.

SACRAMENTO, CALIF.
SALT LAKE CITY, UTAH
SAN FRANCISCO, CALIF.
SEATTLE, WASH.
SYRACUSE, N. Y.
WASHINGTON, D. C.

USG* SHEATHING

DESCRIPTION

USG Sheathing is a fireproof gypsum sheathing material. It is made in large unit sheets 2'x8'x $\frac{1}{2}$ " with a new type water-resistant "asphalted" gypsum core enclosed in a specially treated, water-repellent, heavy black paper. The long edges are V-tongued and grooved.

FUNCTION AND UTILITY

Fireproof—The gypsum core is incombustible and will not communicate high temperatures until completely calcined—a slow process.

Resistance to Weather and Moisture—The gypsum in the core is thoroughly inter-mixed with asphalt type emulsion. In addition, the tough paper covering is given a special water-repellent treatment. This combination provides an amazing resistance to weather. The ability to "weather all weather" makes possible open storage on the job and exposure on the framing during construction without appreciable loss of structural value. It does not warp or buckle.

Vapor Permeability—USG Sheathing has an average permeability of 27.3 perms.†

Adds Structural Strength—Wet or dry, USG Sheathing provides unusual lateral bracing to the frame. (See technical data.)

Wind-Tight Joints—The precision formed, interlocking V-tongue and groove edges snugly fitted, minimize wind infiltration.

Economical

- Unit cost of material is low.
- Full dimension—no face loss.
- Building paper eliminated except where required by local building regulations.
- Minimum of waste—sheets fit standard 16" or 24" stud spacing.
- Up to 1000 sq. ft. can be applied by one man in eight hours.

LIMITATIONS OF USE

1. Maximum Stud Spacing

USG Sheathing is designed for use on stud centers up to 24" for exterior finishes of wood siding, brick veneer, stucco, wood shingles over wood furring strips or asbestos cement shingles applied with the USG SHADOW-LOCK attachment system.

2. Attachment of Exterior Finishes

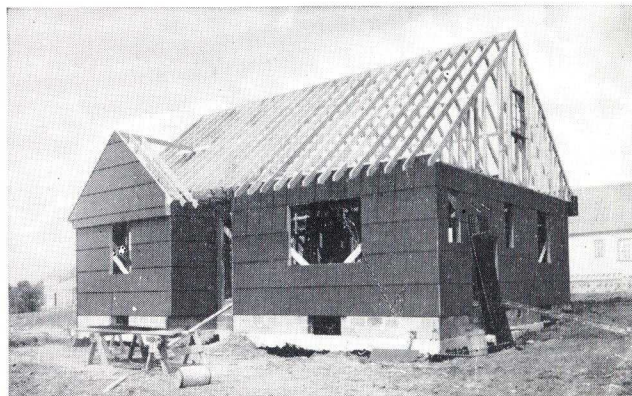
Wood siding, mesh reinforcement, nailing strips, wall ties, etc., shall be secured to the framing members by nailing through the USG Sheathing.

"USG," "GLATEX" and "ORIENTAL" are registered trademarks owned by United States Gypsum and used by it to distinguish its products. "USG" identifies the particular gypsum board sheathing, "GLATEX" identifies the particular siding shingles and "ORIENTAL" identifies the particular colored stucco finish, manufactured only by United States Gypsum.

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

†One perm equals 1 grain per sq. ft. per hour per inch of mercury vapor pressure difference.

AGS-1 United States Gypsum Company



USG Sheathing being applied to wood frame house

TECHNICAL DATA

1. STRENGTH TO RESIST LATERAL DISTORTION

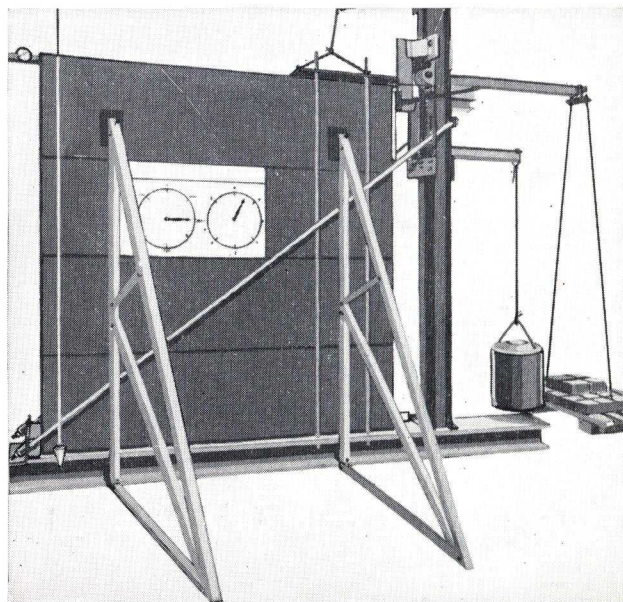
Comparative tests have been conducted in USG Research Laboratories and attested by Phil C. Huntly, Consulting Engineer. Tested dry, USG Sheathing applied to an 8'x8' panel of 2"x4" framing on 16" centers had a lateral distortion of .498 inch under a racking load of 1850 lbs.

A similar panel was subjected to the equivalent of 5½ years of average United States rainfall in a giant "weatherometer" and with the same load of 1850 lbs. the distortion was only 1.125 inches.

Under this same load a similar frame sheathed with 1"x8" dry wood sheathing resulted in a distortion of 10.312 inches.

2. INSULATION

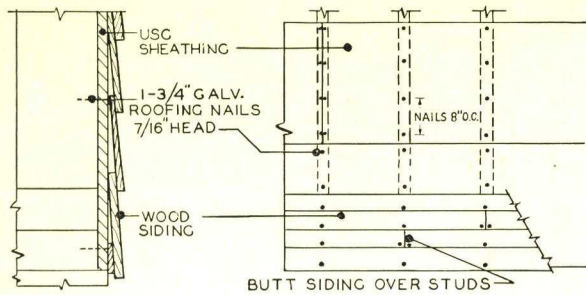
Thermal conductance is 2.86 and thermal resistance is 0.35, both for $\frac{1}{2}$ " thickness.



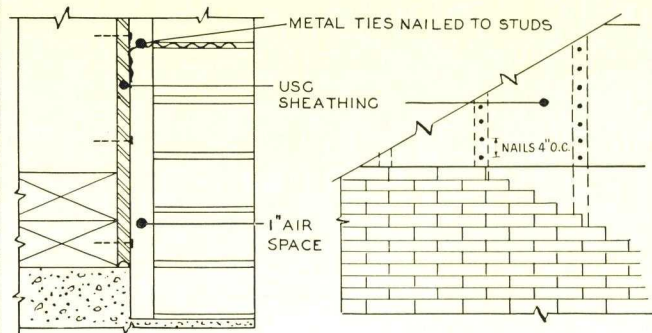
USG Sheathing Panel in Lateral Distortion Machine
Load of 1850 lbs. applied at upper right hand corner of 8'x8' Test Panel
Lateral distortion on Dry Panel—.498 inch
Lateral distortion on Wet Panel—1.125 inches

USG SHEATHING

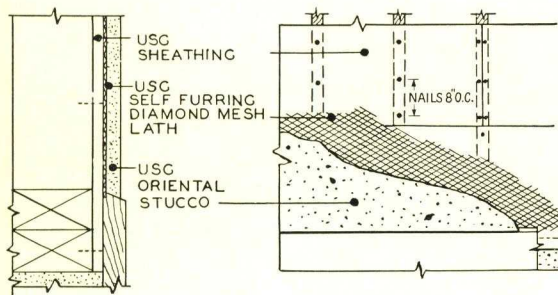
WOOD SIDING



BRICK VENEER

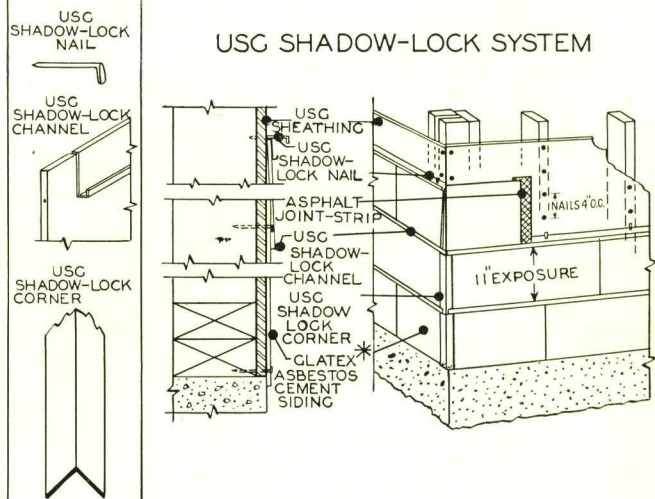


ORIENTAL * STUCCO

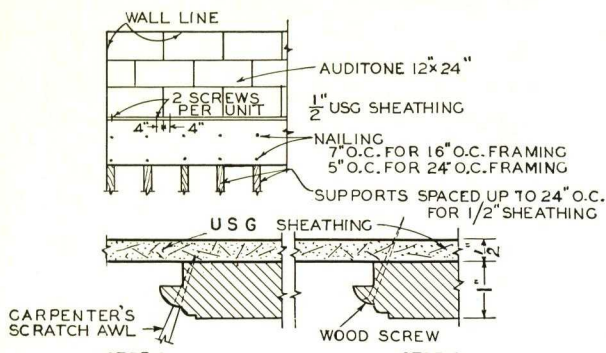


* T. M. REG. U.S. PAT. OFF.

USG SHADOW-LOCK SYSTEM



"T" AND "G" SLOTTED AUDITONE ATTACHMENT



STEP 1
PUNCH 2 HOLES PER UNIT IN TONGUE.

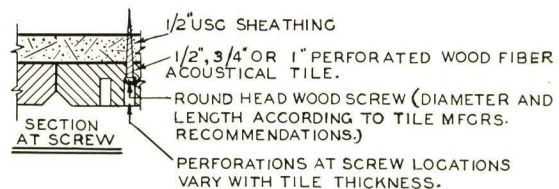
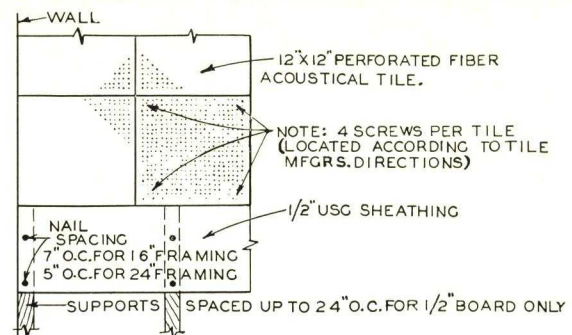
STEP 2
USE YANKEE OR POWER DRIVEN SCREW DRIVER FOR RAPID INSTALLATION.

TYPE SCREW—NO. 5 OR NO. 6 WOOD SCREW WITH PHILLIP RECESSED HEAD.

LENGTH— $\frac{1}{2}$ " FOR AUDITONE "B" ON $\frac{1}{2}$ " USG SHEATHING.
 $\frac{1}{4}$ " FOR AUDITONE "C" ON $\frac{1}{2}$ " USG SHEATHING.

NOTE: WHERE METAL SUSPENSION OF GYPSUM SHEATHING IS REQUIRED, THE POMEROY SYSTEM OR THE JACKSON SYSTEM LISTED IN SWEETS FILE MAY BE USED WITH $\frac{1}{2}$ " \times 2'-0" \times 8'-0" USG SHEATHING.

PERFORATED WOOD FIBER ACOUSTICAL TILE ATTACHMENT



NOTE: WHERE METAL SUSPENSION OF GYPSUM BOARD IS REQUIRED, THE POMEROY SYSTEM OR THE JACKSON SYSTEM LISTED IN SWEETS FILE MAY BE USED WITH $\frac{1}{2}$ " \times 2'-0" \times 8'-0" USG SHEATHING.

* TRADE MARK REG. U.S. PAT. OFF.

USG SHEATHING

SPECIFICATIONS FOR USG SHEATHING

SCOPE

Unless otherwise shown on plans, all exterior walls shall be sheathed according to these specifications.

MATERIALS

Sheathing shall be USG Sheathing as manufactured by the United States Gypsum Company, $\frac{1}{2}$ " x 24" x 8'0".

Nails shall be galvanized, $\frac{7}{8}$ " head diameter, $1\frac{3}{4}$ " long roofing nails, having No. 11 gauge barbed shanks.

APPLICATION

Apply USG Sheathing with the long dimension across the supports and with the groove edge down, interlocking the tongue and groove edges. Ends of sheets shall abut over centers of supports, and all end joints shall be staggered. Fit snugly around all window and door openings. Secure sheathing to studs with nails spaced approximately 4" on centers, 7 nails per 24" sheathing width per support except where exterior finish is secured to the frame with nails driven through the sheathing and into the studs, in which case nails shall be spaced approximately 8" on center 4 nails per 24" sheathing width per stud.

Starter nails shall be not less than $\frac{3}{8}$ " from edges or ends of sheathing.

OPTIONAL INCLUSIONS

1. Use of Wood Siding Over USG Sheathing

Apply siding directly over USG Sheathing, securing it with nails driven through sheathing and into studs. Nails shall have a minimum penetration of $1\frac{1}{4}$ " into the studs. End joints of siding shall be over centers of studs.

2. Use of Masonry Veneer Over USG Sheathing

Masonry ties shall be attached with nails driven through the sheathing and into the studs, using nails of sufficient length to penetrate $1\frac{1}{4}$ " into the studs. (At least 6d common nails.) Ties shall be spaced vertically to conform with coursing of masonry veneer.

3. Use of Stucco over USG Sheathing—Stucco may be applied over USG Sheathing by the use of self-furring 3.4 lb. USG Diamond mesh lath nailed with large headed nails of sufficient length to provide at least $1\frac{1}{4}$ " penetration into studs. See Sweet's catalog or AIA file 20-B-1.

4. Use of Asbestos-Cement Siding Over USG Sheathing

USG SHADOW-LOCK Attachment System is a new method for attaching asbestos cement siding directly over USG Sheathing with precision made aluminum channels and corner pieces. This method of attachment creates a deeper and more beautiful shadow line than obtainable with usual application.

SPECIFICATIONS FOR USG SHADOW-LOCK ATTACHMENT SYSTEM (Short Form)

SCOPE

Unless otherwise shown on plans, straight edge asbestos cement siding shingles shall be applied to all exterior walls over gypsum sheathing and held in place by means of the USG SHADOW-LOCK Attachment System.

MATERIALS

Channels shall be USG SHADOW-LOCK Channels 8' long and 1" wide as manufactured by the United States Gypsum Company.

Corners shall be USG SHADOW-LOCK Corners $11\frac{1}{2}$ " long as manufactured by the United States Gypsum Company.

Nails shall be USG SHADOW-LOCK Nails 12 gauge galvanized $1\frac{3}{4}$ " long, with a diamond point and $\frac{5}{8}$ " hook head.

APPLICATION

The channels, corners and straight edge asbestos shingles shall be applied and secured in strict accordance with the recommendations of the manufacturer of the attachment system.

5. Use of Wood Fiber Acoustical Tiles Over USG Sheathing

USG Sheathing makes an excellent base to which acoustical tile may be either adhesively or mechanically attached. If the tile is to be adhesively attached, the recommendations of the manufacturer of the tile and adhesive should be followed. The USG Sheathing, however, should be secured as described in the illustrations on preceding page.

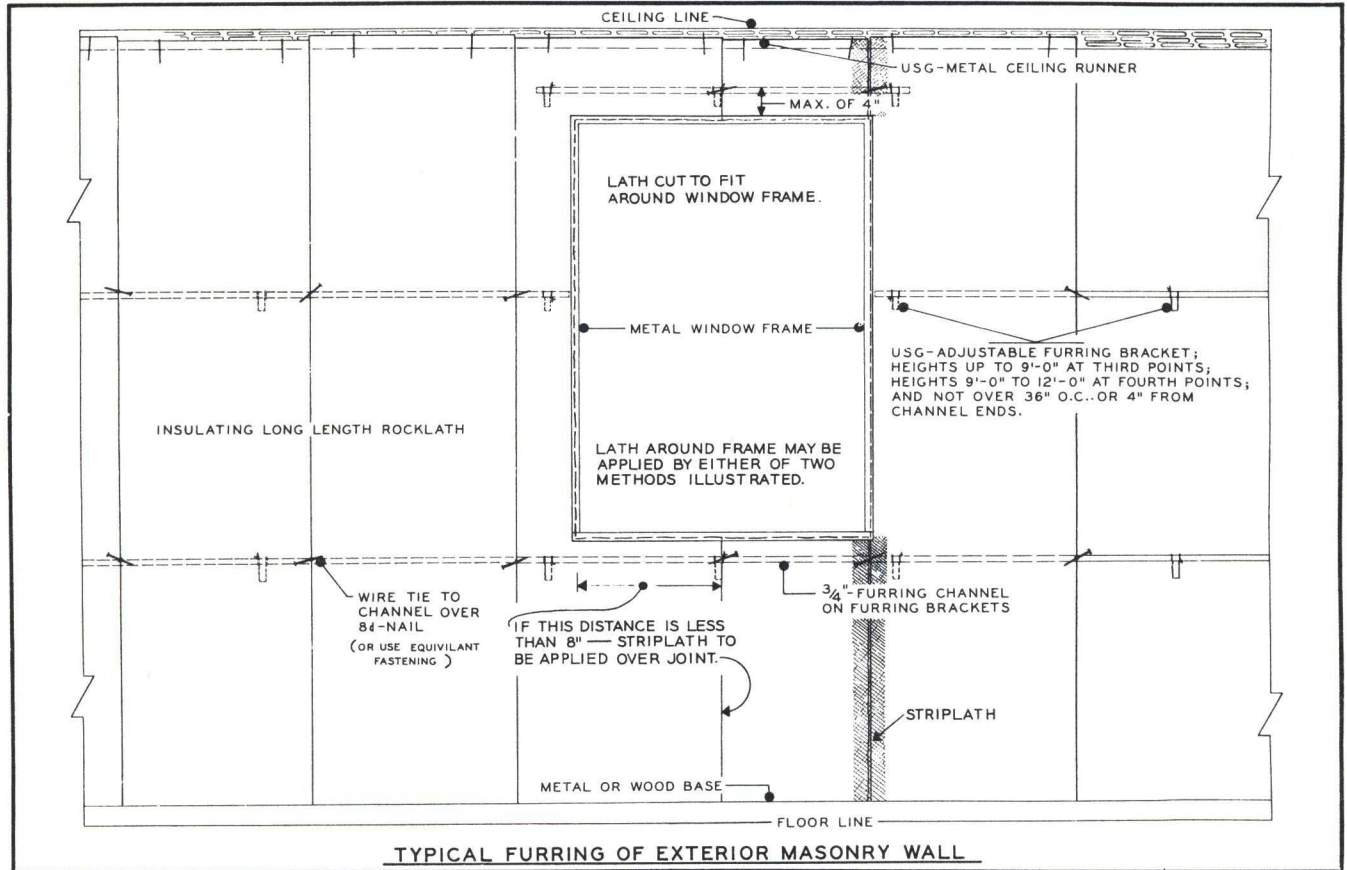
NOTE TO ARCHITECT

1. Federal and A.S.T.M. Specifications

USG Sheathing complies with Federal Specifications for Gypsum Sheathing Board, SS-S-276 and A.S.T.M. (American Society for Testing Materials) Standard Specifications, A.S.T.M. Designation: C79-50 for core-treated, water repellent gypsum sheathing.

SPECIFICATIONS FOR EXTERIOR WALL FURRING

(Using Long Length Insulating ROCKLATH*)



MATERIALS

Furring Brackets — Shall be U. S. G. Adjustable Wall Furring Brackets formed of 18 gauge galvanized steel with serrated edges.

Channels — Shall be $\frac{3}{4}$ " USG cold rolled channels.

Ceiling Runner — Shall be USG Metal Ceiling Runner, $\frac{3}{4}$ "x $2\frac{3}{8}$ ", perforated with three rows of slots for attachment clips.

Attachment Clips — Shall be USG Ceiling Runner Clips.

Floor Runner — Shall be single USG Flush Metal Base $2\frac{1}{2}$ " high (or shall be $1\frac{5}{8}$ "x2" wood runner, milled according to detail. Wood to be select stock and resistant to splitting)

Floor Clips — Shall be USG single type Floor Clips (for USG Metal Base only).

Lath — Shall be Insulating Long Length Rocklath, $\frac{3}{8}$ " thick, 24" wide, by ceiling height lengths as required, (this lath has aluminum foil applied to the back side).

Priming — Metal or wood runners to be factory or field primed before setting.

APPLICATION

Single metal base — Shall be attached to rough floor by nailing clips not over 24" on center. Snap the side plate over the clips, cutting and bending at corners as required. Fill the back of the side plate with recommended grout and form a V-groove as grout stiffens and before it sets, providing a $\frac{3}{4}$ " ground for plastering. (Alternate: Wood runner shall be attached to the rough floor by nailing with cut nails or concrete stub nails in the center groove or through alternate outside edges not over 16" on center.)

Ceiling Runner — Attach ceiling runner to the construction above as required, locating it by plumbing up from the floor runner.

(Alternate: Where ceiling runner not required: Install furring brackets not over 4" from ends and 36" on center horizontally approximately 4" below top of furred space and attach channel as specified below).

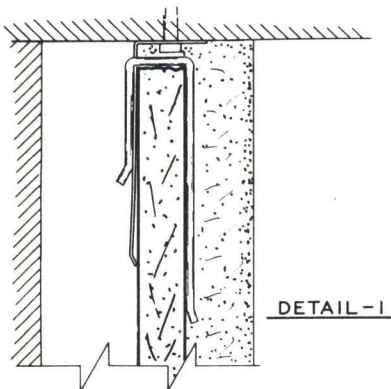
Furring — Attach furring brackets to the masonry walls not over 4" from columns or other abutting construction and not over 36" on center horizontally, and at third points vertically for furred walls up to 9'-0" high (quarter points for furred walls from 9'-0" to 12'-0" high) and as required above and below windows, using one 2" cut nail in top hole of bracket in mortar joints of brick, clay tile, or cement block or in the field of lightweight aggregate blocks, or $\frac{5}{8}$ " concrete stub nails or power driven nails or other suitable fasteners in monolithic concrete. Furring channels shall be laid horizontally on the furring brackets with the legs down, plumbed to a line with the ceiling runner and base, and wire tied to the bracket with a double strand of 18 gauge tie wire. Excess bracket length shall be bent down.

Lathing — The gypsum lath shall be applied with the long length vertical, butted lightly, with the foil facing the furred space, by setting bottom of lath in the groove of the base or grout, clipping top of lath to the ceiling runner and wire tying over a nail at the edges to intermediate horizontal channel furring. Cut and fit gypsum lath to allow slight clearance around window frames, where vertical joints in the lath extend directly from window jambs, or are cut-in less than 8" from corner of frame, apply a 3" strip of metal lath over the joint.

PLASTERING

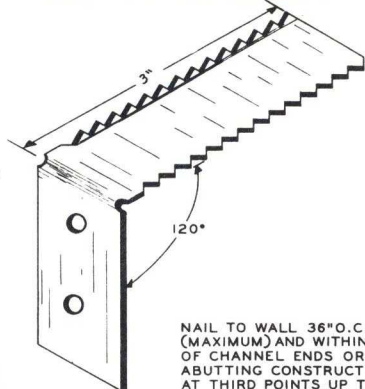
Gypsum plastering shall be as specified elsewhere, using scratch, brown and finish to a full $\frac{3}{4}$ " over face of lath. Cut basecoat plaster with edge of trowel along margin of metal window frame.

UNITED STATES GYPSUM COMPANY

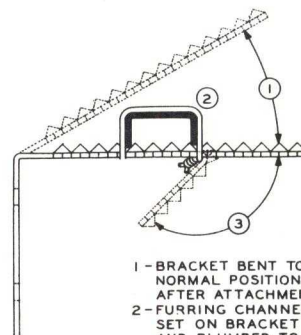


DETAIL-1

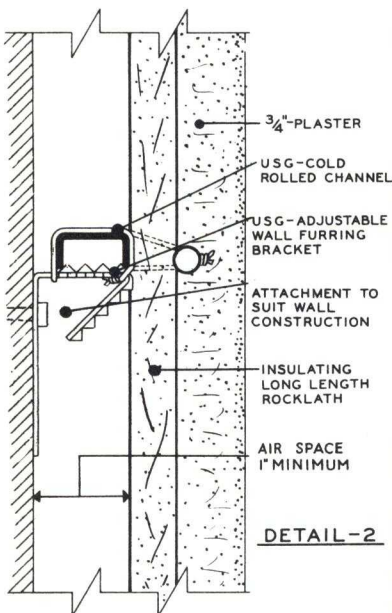
USG-ADJUSTABLE WALL FURRING BRACKET



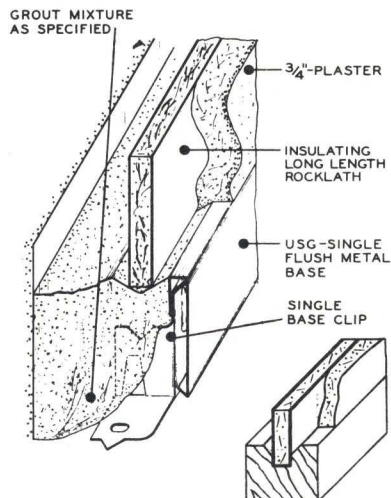
NAIL TO WALL 36" O.C.
(MAXIMUM) AND WITHIN 4"
OF CHANNEL ENDS OR
ABUTTING CONSTRUCTION
AT THIRD POINTS UP TO
9'-0" AND AT FOURTH
POINTS FROM 9'-0" TO
12'-0" PLACE ABOVE AND
BELOW WINDOWS AS
REQUIRED



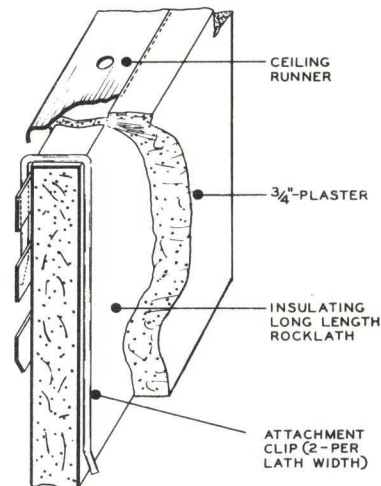
1-BRACKET BENT TO
NORMAL POSITION
AFTER ATTACHMENT.
2-FURRING CHANNEL
SET ON BRACKET
AND PLUMBED TO
REQUIRED FURRING
LINE (1"-AIR SPACE
MINIMUM) AND WIRE
TIED TO BRACKET.
3-EXCESS LENGTH BENT
DOWN AND BACK.



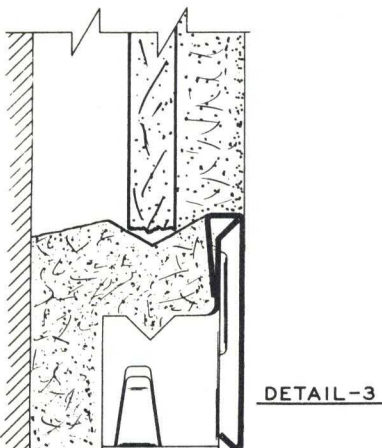
DETAIL-2



DETAIL-3

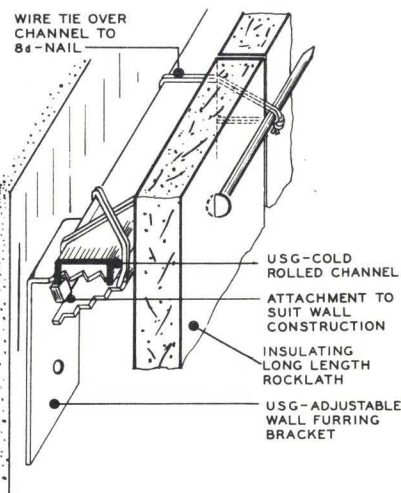


DETAIL-1

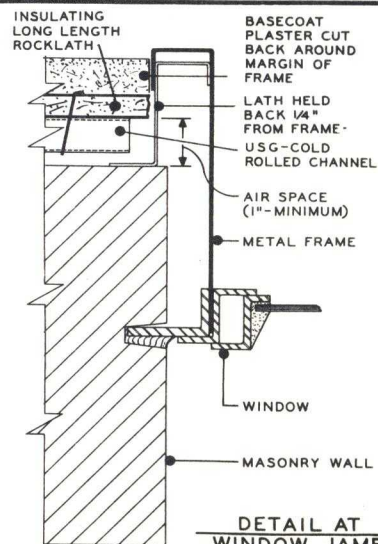


DETAIL-3

SECTION THROUGH FURRED WALL



DETAIL-2



DETAIL AT
WINDOW JAMB

HEAD AND APRON DETAIL SIMILAR

● 2" SOLID ROCKLATH* AND PLASTER PARTITION

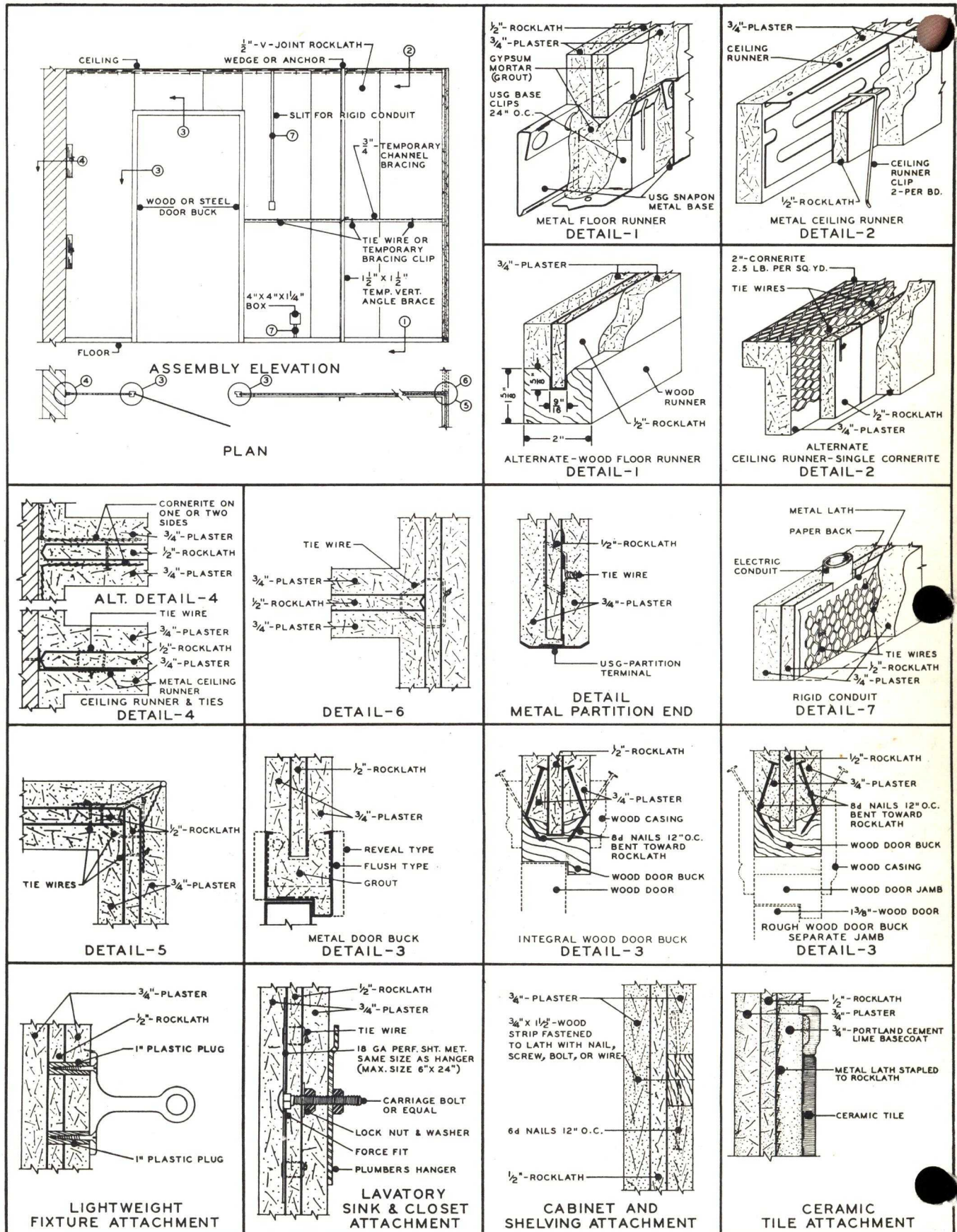


R-10A. Revised 1951

UNITED STATES GYPSUM COMPANY
300 W. Adams Street • Chicago 6, Illinois

*T. M. Reg. U. S. Pat. Off.

2" SOLID ROCKLATH* AND PLASTER PARTITION



2" SOLID ROCKLATH* AND PLASTER PARTITION

SPECIFICATIONS

SCOPE

Unless otherwise shown on plans, all interior, non-load-bearing partitions are included.

MATERIALS

Lath—Gypsum long-length lath shall be V-joint plain ROCKLATH $\frac{1}{2}$ " thick, 24" wide by ceiling-high length, manufactured by the United States Gypsum Company.

Plaster—Shall be RED TOP* Gypsum Plaster manufactured by the United States Gypsum Company.

Aggregate—(Choose one of following)

Sand—Shall conform to ASTM Designation C 35-39.

Perlite—Shall conform in gradation to ASTM Designation C 35-39, except minimum retained on a No. 100 sieve may be 90 per cent, and shall weigh between $7\frac{1}{2}$ and 15 pounds per cubic foot.

Floor Runner—Shall be USG $2\frac{1}{2}$ " high, flush Metal Base. (Or, shall be $1\frac{5}{8}$ " x 2" wood runner, milled according to specification. Wood to be select stock and resistant to splitting.)

Ceiling Runner—Shall be USG Metal Ceiling Runner.

Tie-In Shoes—Shall be 12" or longer pieces of ceiling runner or cornerite.

Priming—Metal or Wood Runners and Bucks to be factory or field prime-coated before plastering.

Plaster Finish—As selected by the architect.

APPLICATION

Floor Runner—Metal Base shall be attached to rough floor by nailing clips not over 24" o.c. according to partition layout. Snap side plates over clips, cutting and bending at corners as required. Fill base with gypsum-sand or gypsum-perlite grout and form a V-groove as grout stiffens and before it sets.

Ceiling Runner—Attach to ceiling construction as required by plumbing up from floor runner.

Tie-In Shoes—Shall be attached to exterior walls, columns, abutting partitions, etc. by nailing, wire tying or stapling, as required, at third points of partition height.

Rocklath—ROCKLATH plaster base shall be cut in lengths to allow $\frac{1}{4}$ " minimum and $1\frac{1}{4}$ " maximum top

clearance in the ceiling runner. The ROCKLATH shall be erected vertically, engaging the bottom in the groove of floor runner and either tying or clipping top to ceiling runner. Vertical edges of ROCKLATH shall be kept as plumb as possible and the V-joint edges be brought into intimate contact one with the other. No vertical cut edges of lath shall be used in the central portion of partition. The use of lath having cut edges shall be confined to the ends of the partition or at door bucks. ROCKLATH shall be neatly cut for electrical conduit, other piping or door struts, and one side shall be covered with metal lath backed with paper fastened to the ROCKLATH. Where ROCKLATH plaster base intersects other partitions, exterior walls or columns, it shall be wire-tied or fastened to tie-in shoes at the third point of height.

Temporary Bracing—For partitions not over 9' in height, bracing shall consist of a $\frac{3}{4}$ " c. r. channel erected horizontally, with flanges turned down, just below midpoint of height. The bracing member shall extend the full length of the partition and shall be fastened to the lath by the use of tie wires looped over the channel, or USG wire bracing clip, at center of the lath in such a manner as to keep the lath joints together as well as securing the channels to the lath. It shall be similarly wire-tied or clipped to the lath at channel ends.

For partitions over 6' in length the horizontal braces shall be reinforced by vertical struts every 6' or fraction thereof formed from $1\frac{1}{2}$ " x $1\frac{1}{2}$ " angles (or heavier materials) fastened securely at the bottom and wedged firmly against the construction at the head. Vertical struts shall be securely wire-tied to horizontal braces.

For partitions over 9' in height, two horizontal braces at third points shall be used. Attach to lath in a similar manner.

Alternate Temporary Bracing—Wood bracing members may be used in lieu of metal bracing, provided they are attached in a similar manner to hold lath rigid during initial plastering stages.

Plastering—General provisions for plastering apply. Plaster shall be sanded in proportion of 1 part plaster to 2 parts sand, by weight, for the scratch coats and 1 part of plaster to 3 parts of sand, by weight, for the brown coats, or 100 pounds of gypsum plaster to 2 cubic feet of perlite for scratch coat and 100 pounds of gypsum plaster to 3 cubic feet of perlite for brown coat. (See FIRE RATING under Optional and Related Inclusions.) Procedure shall be as follows:

2" SOLID ROCKLATH* AND PLASTER PARTITION

SPECIFICATIONS (Continued)

First, apply a scratch coat of plaster with a maximum 3 hour set, about $\frac{3}{8}$ " thick, to each side of the lath. In no case, shall application of scratch coat to second side of lath be delayed longer than the setting time of the scratch coat applied to the first side. Scratch lightly in horizontal direction only.

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

(Note—If steel bucks are used include following)
All steel bucks shall be fully grouted prior to lathing leaving a V-groove to the grout to receive the lath.

Finish Coat—As specified elsewhere.

OPTIONAL AND RELATED INCLUSIONS:

Fire Rating: Where one (1) hour rating is required for either 2" solid or hollow pipe chase partitions, change proportions to one part plaster to one part sand, by weight, for scratch coat and one part plaster to two parts sand, by weight, for brown coat; or 100 lbs. gypsum to 2 cubic feet of perlite for scratch coat and 100 lbs. gypsum to 3 cubic feet perlite for brown coat. Floor runner must be either USG Metal Base or, if wood runner, it shall be "fireproof".

Door Bucks: Shall be as specified elsewhere. Wood bucks shall be milled according to details, of select stock, resistant to splitting and prime coated if stop is integral with the buck. Wood floor runner may be used as rough buck if separate jamb plus casing is to be used. After ROCKLATH plaster base is set in the groove, 8d coated nails shall be driven in at a 45° angle each side, approximately 12" o.c., and bent over against the lath for subsequent anchorage in the plaster. Separate bracing is required to keep buck alignment with partition and, in addition, a door templet will be required when integral finish buck is used.

Steel bucks shall be furnished with clip inserts for centering ROCKLATH in partition. If door buck struts are furnished, they shall not exceed $\frac{5}{8}$ " size in direction of partition thickness.

Fixture Attachment: Light-weight fixtures and trim may be installed by drilling set, dry plaster to a minimum depth of $\frac{3}{4}$ " and inserting a plastic plug for anchorage of attachment screws.

Cabinet and shelving grounds shall consist of $\frac{3}{4}$ " (actual dimension) by $1\frac{1}{2}$ " wood strips, having 6d (minimum) coated nails driven $\frac{3}{4}$ " into both edges at not over 12" o.c., attached to the ROCKLATH by nailing, wire tying or bolting. Exposed shanks and heads of the nails shall be completely embedded in the plaster.

Lavatory and sink hangers on 2" solid partitions shall be installed by wire tying an 18 gauge perforated plate of size equal to hanger (maximum 6"x24") to opposite side of the lath and placing hanger bolts prior to plastering.

Pipe Chases: Pipe chase hollow partition, not over 12' in length, shall be constructed using two ceiling runners and two floor runners, erected to provide hollow space indicated on the plans. To tie-in shoes erected on the abutting partitions at the third point of height and vertical $\frac{3}{4}$ " channels, not over 4'6" on center, $\frac{3}{4}$ " channel shall be erected horizontally at the third points of height and cross braced not over 30" on center with channel brackets wire-tied. Long length ROCKLATH, $\frac{1}{2}$ " thick and V-edge, shall be set in floor runner, clipped or wire tied to ceiling runner, and wire-tied over a nail to each intermediate horizontal channel.

Plaster shall be proportioned and applied as specified for 2" solid plaster partitions to $\frac{3}{4}$ " thickness over the lath on each face of partition.

Ceramic Tile: Where ceramic tile is required over ROCKLATH, diamond mesh metal lath shall be stapled over the ROCKLATH plaster base with staples spaced approximately 8" on center, horizontally and vertically, and portland cement-lime plaster shall be applied in scratch and brown coats to $\frac{5}{8}$ " grounds over lath as a base for the ceramic tile.

Electrical Work: Electrical conduit and outlet boxes shall be specified elsewhere. Embedded conduit size shall not exceed $\frac{1}{2}$ " rigid. Switch boxes and convenience outlet boxes shall not exceed $1\frac{1}{2}$ " in depth and, if plaster ring is used on 4"x4" convenience outlet boxes opening one side only, the box shall not exceed $1\frac{1}{4}$ " in depth, to provide $\frac{1}{2}$ " of plaster on the back side.

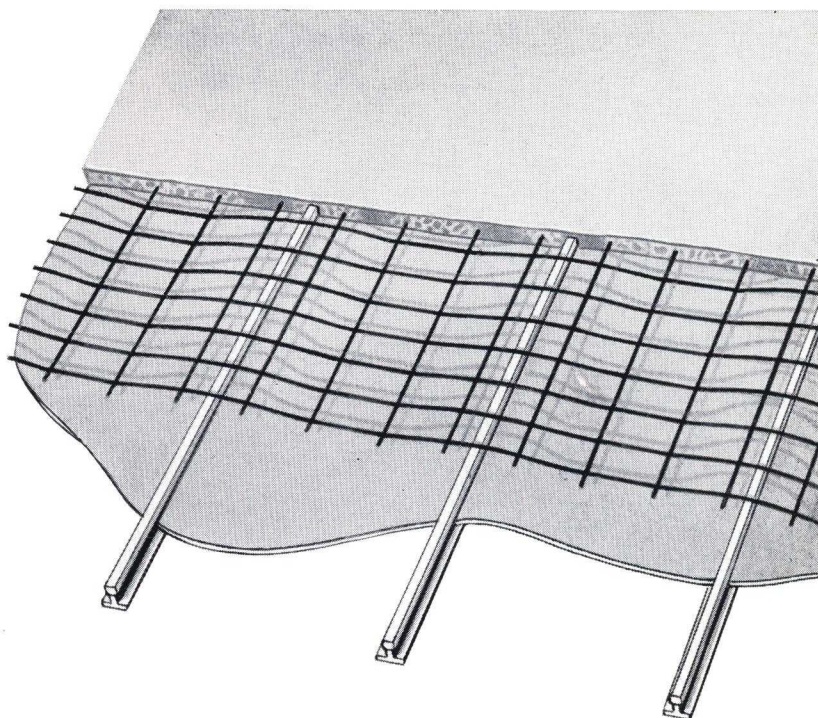
Special Lathing Condition: In reinforced concrete or steel framed buildings with concrete fireproofing, partitions located so the plane of the plaster continues from the plaster base across the face of the columns and/or beam above shall have number 30 asphalt felt or equal membrane placed over the concrete and covered with 2.5 pound diamond mesh metal lath. Scatter nail 12" center with $\frac{5}{8}$ " concrete stub nails to the columns and beam and staple or otherwise fasten to the plaster base.

3-11-52
1952

TECHNICAL INFORMATION

SHEETROCK* PYROFILL*USG* Insulation PYROFILL • Asbestos-Board PYROFILL
Acoustical PYROFILL**ROOF DECKS**

*no vapor barrier -
cures from bottom -
water absorbent
Hard to accommodate
holes thru roof.*



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

MAY, 1952

**United States Gypsum****For Building • For Industry**

Gypsum • Lime • Steel • Insulation • Roofing • Paint

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PYROFILL ROOF DECKS

SHEETROCK PYROFILL • USG Insulation PYROFILL • Asbestos Board PYROFILL

INSTALLATION SERVICE

Reinforced PYROFILL roof decks are installed by experienced U. S. G. Gypsum Roof Deck Contractors who are located conveniently in all parts of the U. S. A. This service insures the best in workmanship, quality and safety. Consult your USG representative for contractors serving your area.

DESCRIPTION

SHEETROCK PYROFILL, USG Insulation PYROFILL and Asbestos Board PYROFILL roof decks are reinforced gypsum concrete (PYROFILL) slabs poured in place over permanent formboards of SHEETROCK, USG Insulation or asbestos cement boards.

Two basic methods of installation are used:

1. Over structural steel framing with roof purlins spaced more than 36" on centers, where steel sub-purlins are required as supplemental supports.
2. Over bar-joist or lightweight steel beams spaced not more than 36" on centers, where supplemental supports are not structurally required.

STEEL SUB-PURLINS are lightweight carbon steel sections, of structural quality. They are available in various sizes, weights and shapes, and are selected according to their utility and economy. NOTE: Steel sub-purlins are not manufactured or sold by USG.

SHEETROCK Formboard is a rigid type gypsum board, 1/2" thick by 32" wide (or 48" wide), and made to specified lengths to fit purlin spacings. Treated to resist mildew effectively.

REFERENCE: Federal Specification SS-W-51a. Type A and ASTM C36-50.

USG Insulation Formboard is a rigid type wood fiber insulation board, 1" thick, 32" wide, (or 48" wide), and cut to specified lengths to fit purlin spacings. Treated to resist mildew effectively. REFERENCE: Federal Specification LLL-F-321b.

ASBESTOS-CEMENT Formboard is a rigid industrial type asbestos cement board, 1/4" thick, cut to 32" wide by 48" long. Supplemental tees required in cross joints. REFERENCE: Federal Specification SS-S-283 Type I or II.

NOTE: Asbestos cement formboard is not manufactured or sold by USG.

STEEL REINFORCING for PYROFILL slabs is a welded type galvanized wire mat consisting of No. 12 gauge longitudinal wires spaced 4" on centers and No. 14 gauge transverse wires spaced 8" on centers—usually referred to as BD 1214 mat. The effective cross sectional area per foot width of slab (No. 12 gauge wires) is 0.026 sq. in. Other comparable types of galvanized mat may be used if their effective cross sectional area is equal to or greater than BD 1214 mat, and if they will give adequate bond.

NOTE: Galvanized reinforcing mats are not manufactured or sold by USG.

PYROFILL is a mill mixed gypsum concrete consisting of calcined gypsum and not more than 12 1/2% by weight of wood chips, shavings or fibers. It requires the addition of water only on the job. REFERENCE: Complies with ASA—A59.1—1945.

DESIGN

REINFORCED PYROFILL slabs (2" of reinforced PYROFILL poured over permanent formboards) are designed to span continuously over sub-purlins spaced 32 5/8" on centers, or over bar joist spaced not more than 36" on centers.

STEEL SUB-PURLINS vary in size, weight and shape, and are selected according to required span and loading. The standard spacing is 32 5/8" on centers to accommodate 32" wide formboards. 48" wide formboards are never used with sub-purlins. See specifications for slabs over bar joist for use of 48" wide formboards.

FORMBOARDS, as described herein, are permanently installed between the sub-purlins or over bar joist.

STEEL REINFORCEMENT for poured in place PYROFILL slabs is installed with the Number 12 gauge wires placed continuous and perpendicular to the sub-purlins or bar joist.

PYROFILL (gypsum concrete) is mixed at the job site with clean water only, then poured in place, over the formboards, to an average thickness of not less than 2".

FUNCTION AND UTILITY

Economical and safe roof decks are built with USG poured in place reinforced PYROFILL construction. Some of the outstanding features are:

Lightweight

A regular SHEETROCK PYROFILL slab, including sub-purlins (2" of reinforced PYROFILL over 1/2" SHEETROCK Formboard), weighs approximately 12 lbs. per sq. ft.; a USG Insulation PYROFILL slab, approximately 11.5 lbs.; and an Asbestos board PYROFILL slab, approximately 13.5 lbs. See table on page 4.

Strong

In tests by nationally recognized laboratories, a continuous 2" Reinforced PYROFILL slab and permanent formboards over supports spaced 32 5/8" on centers carries a total load equivalent to more than 450 lbs. per sq. ft. when thoroughly wet, and over 700 lbs. per sq. ft. when dry.

Incombustible

SHEETROCK PYROFILL and Asbestos board PYROFILL slabs will not burn. USG Insulation PYROFILL slabs are usually classed as incombustible with a deficiency penalty when the incombustible reinforced PYROFILL slab is supported independent of the formboard.

Durable

Gypsum is chemically inert and will not rot, burn or decay. Reinforced PYROFILL slabs have been in use for half a century and are still in excellent condition. Reinforced PYROFILL roof deck constructions are thoroughly proven by the test of time. Alterations can be made freely as the slab can be cut and patched easily and quickly, with a minimum of expense.

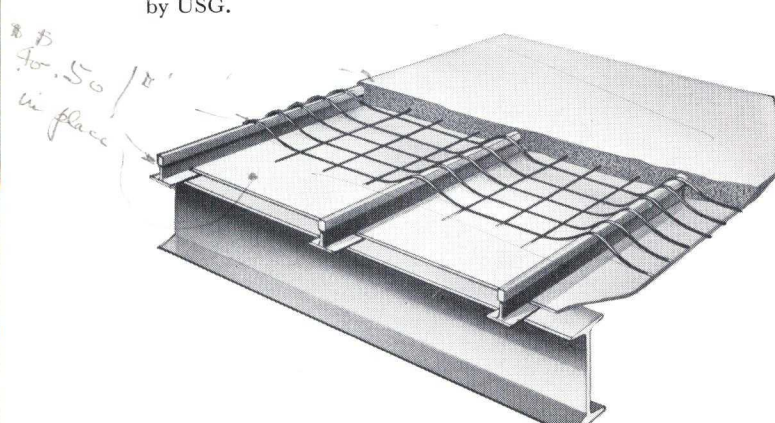
Appearance

The permanent formboards provide a smooth, light-colored ceiling of good-looking panelled surfaces, which should not require further decorating. See "Painting" under "Limitations of Use."

Speed of Erection

No other monolithic type of poured concrete roof deck can be installed faster. PYROFILL sets quickly (within 30 minutes), permitting workmen to work on previously poured sections in pouring new sections. Up to 30,000 sq. ft. of roof area have been poured in one day.

"USG", "PYROFILL" and "SHEETROCK" are registered trademarks owned by United States Gypsum and are used by it to distinguish its products. "PYROFILL" identifies the particular gypsum fiber concrete; "SHEETROCK" identifies the particular gypsum formboard, all manufactured by United States Gypsum.



PYROFILL ROOF DECKS

SHEETROCK PYROFILL • USG Insulation PYROFILL • Asbestos Board PYROFILL

All-Weather Construction

These roof decks can be installed during the coldest weather in which men normally work. Sufficient heat within the gypsum is generated to prevent freezing during the set. See "Exposure" under "Limitations of Use."

Adaptability

Reinforced PYROFILL slabs may be installed on flat, warped, saw tooth, curved or pitched roof framing.

Seismic Loads

PYROFILL roof decks have been accepted by the City and County of Los Angeles, California, as adequate for seismic loads. The requirements of these code authorities are available on request.

Low Cost

The simplicity of design, light weight, and speed of erection combined with its other outstanding qualities of rigidity, incombustibility, and finished undersurface make the overall cost of this construction very economical.

LIMITATIONS OF USE & RECOMMENDATIONS

Excessive Moisture or Temperature

PYROFILL roof decks are suitable for all types of buildings and occupancy with normal temperature and humidity conditions. Where intermittent high temperatures occur, it is advisable to use cement asbestos-board PYROFILL roof decks. Where abnormally high humidity conditions prevail, such as in wet process plants, or where unusually high temperatures prevail such as in foundries, over breechings, in furnace rooms, etc., consult your USG representative for recommendations.

Exposure

During application, PYROFILL roof decks withstand the effects of normal rainfall, snow, freezing and thawing; however, they should be covered as soon as practicable. The water-proof (built-up type) roof covering should be applied as soon as the top surface of the slab is reasonably dry; i.e., when there is no visible moisture gloss. For the application of built-up roof covering, we recommend that the first 2 plies of the felt be nailed. The nail for this purpose should be a large head roofing nail not less than 10 ga. which will penetrate approximately 2", or a clinch type nail used with a conventional type tin cap.

Drying

PYROFILL roof slabs dry out from the underside (through the formboard). Adequate heat and ventilation below the slab are required to permit the escape of this moisture. In buildings without windows or with fixed windows, adequate mechanical (forced) ventilation is required to remove all construction moisture. Consult your USG representative if unusual conditions prevail.

Acids

Acid fumes generally are not harmful to gypsum although they may be harmful to other materials. If acid fumes are considered a problem, consult your USG representative.

Heavy Loads

Although the reinforced PYROFILL slab will carry loads in excess of 100 lbs. per sq. ft. with adequate factors of safety, the sub-purlins or bar joists govern the safe load limit. All superimposed concentrated loads, such as flag pole bases, water tanks and ventilating fans, must be directly or indirectly supported on steel framing, not on the gypsum slab.

Steep Roofs

PYROFILL roof slabs are designed to receive built-up roof coverings. On steep roofs, where slate, ceramic tile or rigid type shingle roof coverings are required, the use of USG's 3" SHORT SPAN "NAILING TYPE" Gypsum Roof Tile is recommended. See page 11 for PYROFILL nail holding data.

Expansion and Contraction

Reinforced PYROFILL roof decks, like all roof decks, are subject to expansion and contraction due to temperature changes. When the slab is rigidly attached to the steel framing, the slab movement is controlled largely by the movements in the steel framing itself. When expansion joints have been provided in the main structure, it is also necessary to provide them in the roof deck.

Expansion and contraction problems are usually associated with long narrow buildings, long narrow skylights, and buildings of "L" or "U" shape. Expansion joints in the main structural framing should always be considered in these cases.

As a general precaution, a wood fiber or glass fiber filler at all junctions of roof slabs with parapet walls is recommended. See details. Consult your USG representative for further recommendations.

Painting

PYROFILL Roof Decks do not generally require further decorating, as the formboards provide a finished undersurface. When decoration is desired, painting should not be done until the slab is thoroughly dry. Before painting, the slab should be checked for dryness throughout its entire thickness. An electric type moisture meter can be used if contacts are driven well into interior of slab. Consult your USG representative.

Suspended Ceilings

Suspended ceilings under PYROFILL roof decks should be hung from the structural steel frame. If they are hung from the roof deck, the hangers should be attached to the sub-purlins, never in the gypsum slab. When hung from the sub-purlins, the sub-purlins must be capable of supporting the added weight of the ceiling with a deflection not to exceed 1/360 of their span. See selection table on page 5 for load values of various sub-purlins.

Sheet Metal Roof Coverings

Sheet metal roof coverings such as aluminum, copper or tin can be successfully applied over PYROFILL roof decks if properly anchored to the slab. The recommended attachment is by bolting the anchoring members to the slab, using toggle bolts extending entirely through the slab.

Uplift

During hurricanes or high winds all roof decks are subject to uplift forces. Therefore, roof decks should be anchored to supports to resist this uplift. The usual requirement is to resist a total uplift force of 35 lbs. per sq. ft. over the main roof area, and 45 lbs. per sq. ft. over the projecting eaves, etc. In developing adequate resistance, the total dead load of the roof deck can be considered as part of the total resistance. In laboratory tests PYROFILL roof decks, using steel rails or bulb tee sub-purlins welded to the steel framing, have an average uplift resistance equivalent to more than 200 lbs. per sq. ft. Slabs with standard tee or flanged channel (fence post sections) sub-purlins and slabs over bar-joist should have supplemental anchorage to develop the required uplift resistance.

SALES REPRESENTATIVES

On the front cover of this folder are listed the locations of our district offices. A competent sales representative located at each of these offices will be glad to assist you with any problems or questions concerning the design or function of these constructions. Call him. There is no obligation on your part.

PYROFILL ROOF DECKS

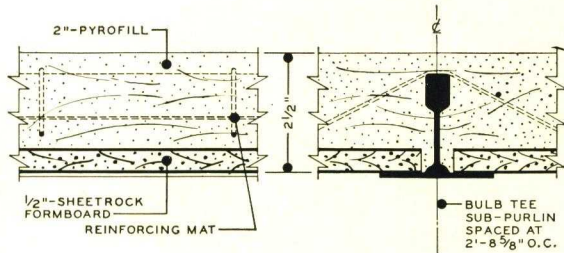
TYPES OF PYROFILL APPLICATION

SHEETROCK PYROFILL

APPLICATION ON SUB-PURLINS

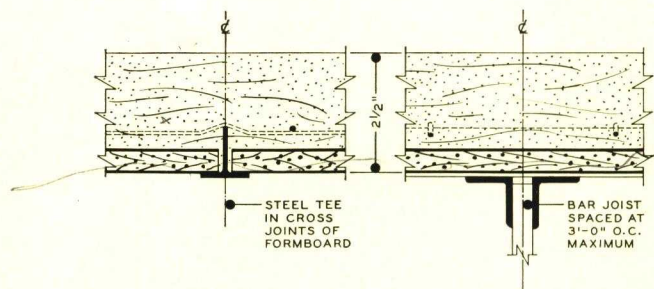
SCALE - 3" = 1'-0"

APPLICATION ON BAR JOIST



LONGITUDINAL

TRANSVERSE



LONGITUDINAL

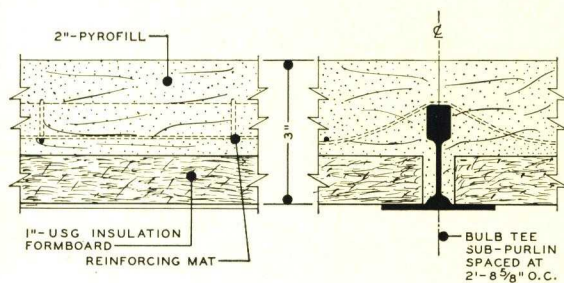
TRANSVERSE

USG-INSULATION PYROFILL

APPLICATION ON SUB-PURLINS

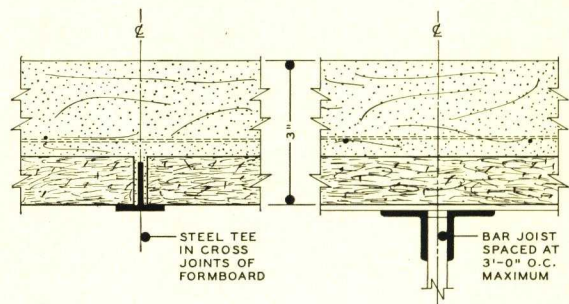
SCALE - 3" = 1'-0"

APPLICATION ON BAR JOIST



LONGITUDINAL

TRANSVERSE



LONGITUDINAL

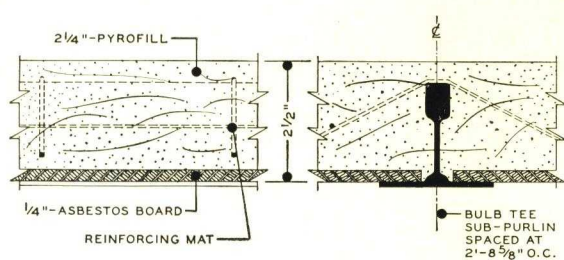
TRANSVERSE

CEMENT ASBESTOS BOARD PYROFILL

APPLICATION ON SUB-PURLINS

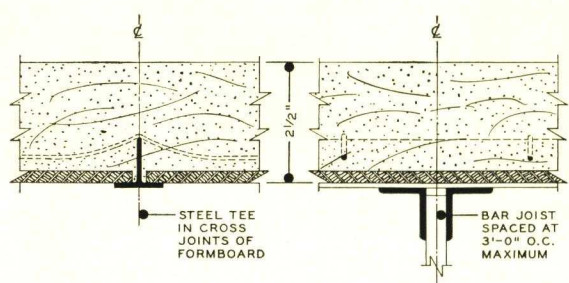
SCALE - 3" = 1'-0"

APPLICATION ON BAR JOIST



LONGITUDINAL

TRANSVERSE



LONGITUDINAL

TRANSVERSE

TABLE OF SLAB WEIGHTS AND THERMAL INSULATION VALUES

	Approx. Slab Weight per Square Foot	"U" Factor for complete roof slab including built-up roof covering (Btu per sq. ft., per hr., per deg. F. diff. in temperature)		
		No Insulation	1/2" Insulation	1" Insulation
STANDARD 2 1/2" SHEETROCK PYROFILL ROOF SLAB 2" PYROFILL Over 1/2" SHEETROCK	10.7	0.38	0.24	0.18
STANDARD 3" U.S.G. INSULATION PYROFILL ROOF SLAB 2" PYROFILL Over 1" U.S.G. INSULATION FORMBOARD	10.1	0.19	0.15	0.12
STANDARD 2 1/2" Asbestos Board PYROFILL ROOF SLAB 2 1/4" PYROFILL Over 1/4" Asbestos Board	12.2	0.40	0.25	0.18

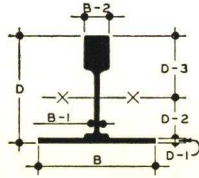
NOTES: 1. For total weight of roof deck add weight of sub-purlins to the approx. slab weights shown above.

2. The component materials weigh approximately: PYROFILL 52 lbs. cu. ft. 1/2" SHEETROCK 2.05 lbs. sq. ft. 1" U. S. G. Insulation Formboard 1.45 lbs. per sq. ft. and 1/4" Asbestos board 2.44 lbs. per sq. ft.

PYROFILL ROOF DECKS

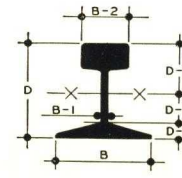
INDIVIDUAL TABLES FOR SUB-PURLIN DETAILS

BULB TEE



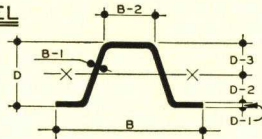
Type	Wt. Ft.	I in 4	S in 3	B inch	B ¹ inch	B ² inch	D inch	D ¹ inch	D ² inch	D ³ inch
178 Bulb T (I)	2.40	0.346	0.313	1.9000	0.1406	0.5000	1.8750	0.1406	0.6294	1.1050
178 Bulb T (B)	2.40	0.340	0.294	2.0000	0.1406	0.5625	1.8750	0.1406	0.5634	1.1710
218 Bulb T (B)	2.95	0.60	0.470	2.3750	0.138	0.5000	2.1875	0.125	0.785	1.2775
200 Bulb T (I)	2.97	0.503	0.460	2.0630	0.1406	0.6563	2.0000	0.1406	0.7674	1.0920
214 Bulb T (B)	3.20	0.682	0.510	2.3750	0.1406	0.6250	2.2500	0.1406	0.7614	1.3480

A.S.C.E. RAIL



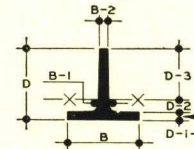
Type	Wt. Ft.	I in 4	S in 3	B inch	B ¹ inch	B ² inch	D inch	D ¹ inch	D ² inch	D ³ inch
8 lbs. per yd.	2.67	0.27	0.31	1.5625	0.1875	0.8125	1.5625	0.2812	0.4188	0.8625
12 lb. per yd.	4.00	0.66	0.63	2.0000	0.1875	1.0000	2.0000	0.3437	0.6163	1.0400
16 lb. per yd.	5.33	1.24	1.01	2.3750	0.2500	1.1875	2.3750	0.3750	0.7750	1.2250
20 lb. per yd.	6.67	1.94	1.43	2.6250	0.2500	1.3750	2.6250	0.4375	0.8325	1.3550

FLANGED CHANNEL



Type	Wt. Ft.	I in 4	S in 3	B inch	B ¹ inch	B ² inch	D inch	D ¹ inch	D ² inch	D ³ inch
1.5 lb. per ft. (B)	1.50	0.072	0.120	2.5625	0.1196	1.0000	1.0625	0.1196	0.3444	0.5985
2.0 lb. per ft. (B)	2.00	0.165	0.218	3.1250	0.1094	1.0938	1.4375	0.1250	0.5520	0.7605
2.25 lb. per ft. (B)	2.25	0.194	0.250	3.1875	0.1094	1.0000	1.4687	0.1406	0.5514	0.7770

STRUCTURAL TEE



Type	Wt. Ft.	I in 4	S in 3	B inch	B ¹ inch	B ² inch	D inch	D ¹ inch	D ² inch	D ³ inch
1" x 1" x 5/16"	1.00	—	0.045	1.000	0.1562	0.1562	1.000	0.1562	—	—
1 1/2" x 1 1/2" x 1/8"	1.33	0.091	0.088	1.500	0.1250	0.1250	1.500	0.1250	0.340	1.035
2" x 2" x 1/4"	3.56	0.370	0.260	2.000	—	0.2500	2.000	0.2500	0.340	1.410
2 1/4" x 2 1/4" x 1/4"	4.10	0.520	0.320	2.250	—	0.2500	2.250	0.2500	0.400	1.600
2 1/2" x 2 1/2" x 1/4"	4.60	0.740	0.420	2.500	—	0.2500	2.500	0.2500	0.460	1.790

SELECTION TABLE OF SUB-PURLINS FOR 2" PYROFILL SLABS OVER FORMBOARDS

VALUES SHOWN ARE BASED ON: Purlins Spaced 2'8 1/2" On Centers, fs @ 20,000 psi, M=1/10 WL except as noted
Exceptions to spacing and slab thickness are noted in the table.

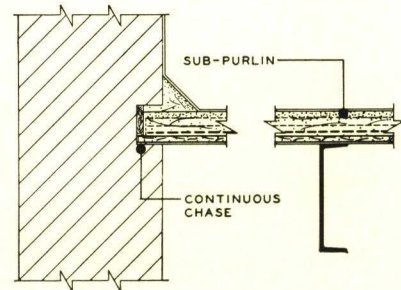
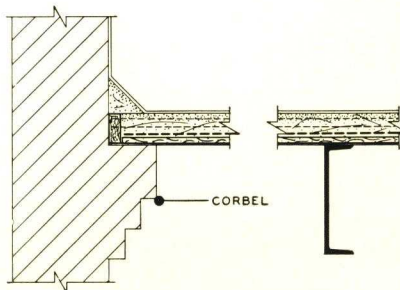
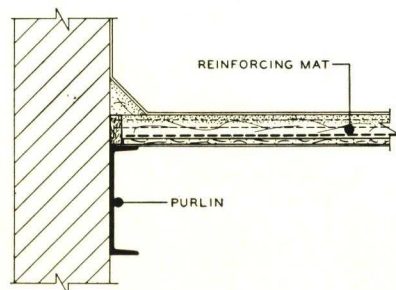
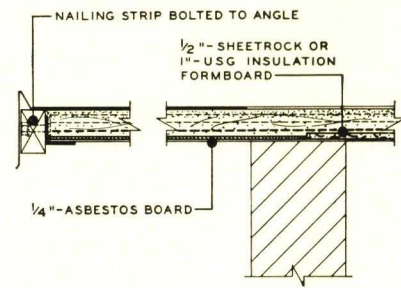
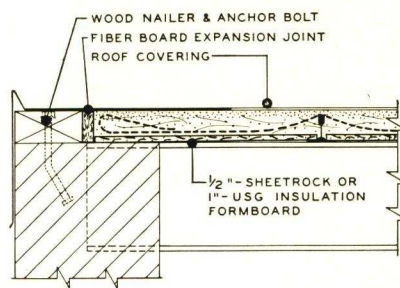
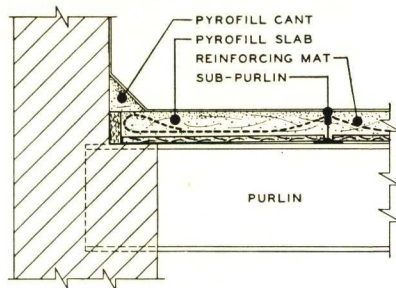
SUB-PURLINS		SAFE TOTAL LOAD in pounds per sq. ft. uniformly distributed for spans of 3' 0" to 12' 0" in increments of 6 inches																		
TYPE	Weight psf of Roof	3'0"	3'6"	4'0"	4'6"	5'0"	5'6"	6'0"	6'6"	7'0"	7'6"	8'0"	8'6"	9'0"	9'6"	10'0"	10'6"	11'0"	11'6"	12'0"
1½x1½x¼" T	0.49	60	44	34																
1.5 lb. Flg. Ch.	0.54	80	58	45	35	sub-purlins spaced 2'9½" on center														
2.0 lb. Flg. Ch.	0.71	—	105	81	64	52	42	36	sub-purlins spaced 2'10" on centers											
2.25 lb. Flg. Ch.	0.80	—	120	92	72	59	48	40	35	sub-purlins spaced 2'10" on centers										
2x2x¼" T	1.31	—	—	100	78	64	53	44	38	33										
178 Bulb T (B)	0.88	—	—	113	89	72	60	50	43	37	32									
8 lb. ASCE Rail	0.98	—	—	119	94	76	63	53	45	39	34									
178 Bulb T (I)	0.88	—	—	120	95	77	63	53	45	39	34									
2¼x2¼x¼" T	1.51	—	—	123	97	79	65	55	46	40	35	31								
2½x2½x¼" T	1.69 min slab 3" total	—	—	127	103	85	72	61	52	46	40	36	32							
218 Bulb T (B)	1.08	—	—	—	—	115	95	80	68	59	51	45	40	36	32					
200 Bulb T (I)	1.09	—	—	—	—	113	93	78	67	57	50	44	39	35	32					
214 Bulb T (B)	1.18	—	—	—	—	125	103	87	74	64	56	49	43	39	35					
12 lb. ASCE Rail	1.47	—	—	—	—	—	127	107	91	79	69	60	53	48	*42	*38	*35			
16 lb. ASCE Rail	1.96	—	—	—	—	—	—	—	—	126	110	97	86	76	69	62	*55	*49	*45	*40
20 lb. ASCE Rail	2.45 min slab 3" Total	—	—	—	—	—	—	—	—	—	—	—	121	108	97	88	79	72	*65	*59

- NOTES: 1. Loads to left of heavy line have deflections less than 1/360 of span—To Right over 1/360 but less than 1/240 of span.
2. Loads marked * limited by deflection—deflection based on semi-continuous spans or D=3 WL/384 EI Per A.I.S.
3. To determine total safe load for Bending Moment of 1/8 WL use 80% of the tabulated load.
4. To determine total safe load for a maximum fiber stress of 18,000 psi use 90% of tabulated load.
5. For suspended ceilings use loads shown to the left of the heavy line; or 75% of loads shown to right of the heavy line can generally be safely used.
6. The most economical spans are from 6'0" to 8'0"—Values for other sub-purlin spacings can be determined by direct ratio.
7. (I) Inland Steel Co. (B) Buffalo Steel Co.
8. We do not recommend using loads less than 45 pounds per sq. ft.

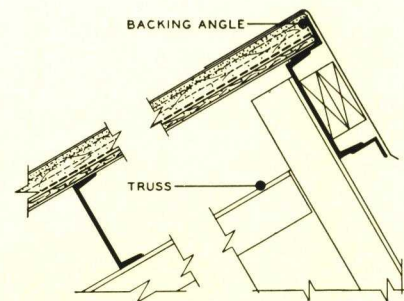
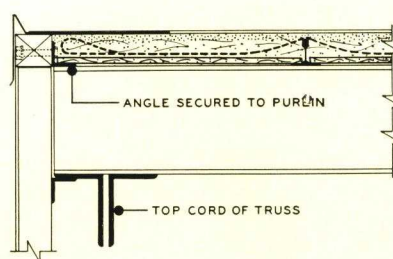
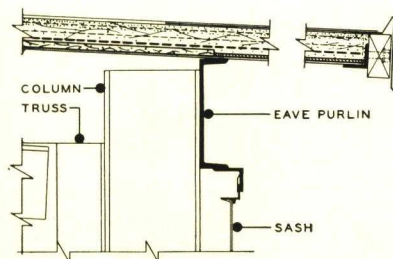
PYROFILL ROOF DECKS

APPLICATION OVER STEEL BEAMS

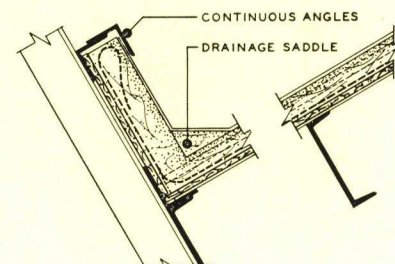
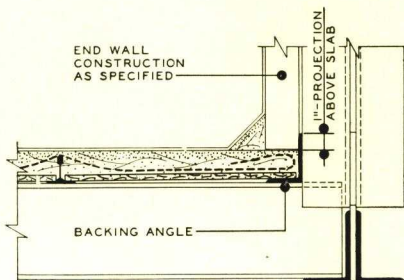
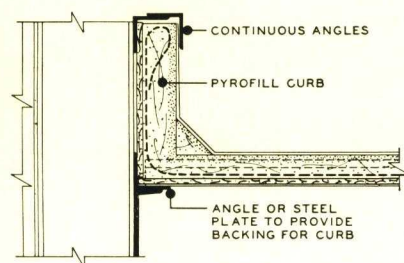
WALL DETAILS



EAVES



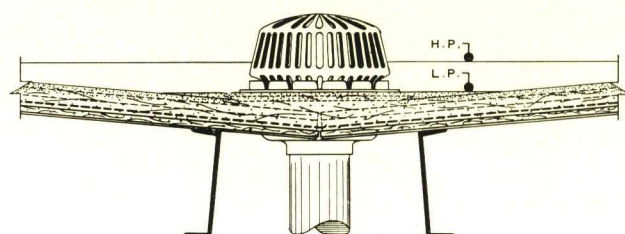
CURBS



RIDGE



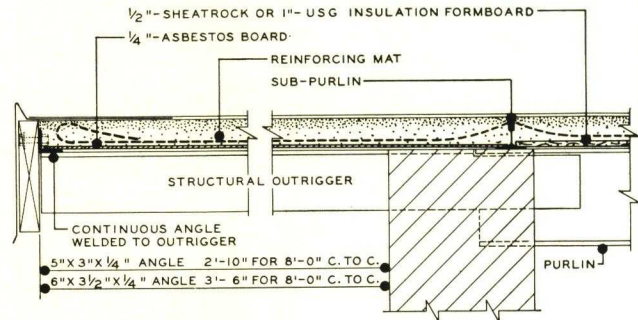
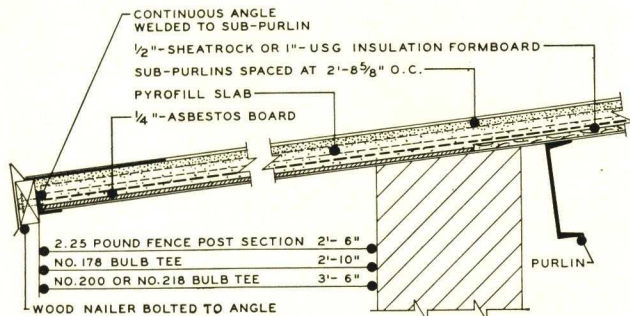
VALLEY



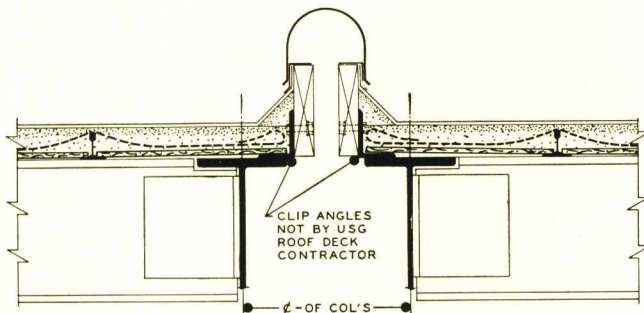
PYROFILL ROOF DECKS

APPLICATION OVER STEEL BEAMS

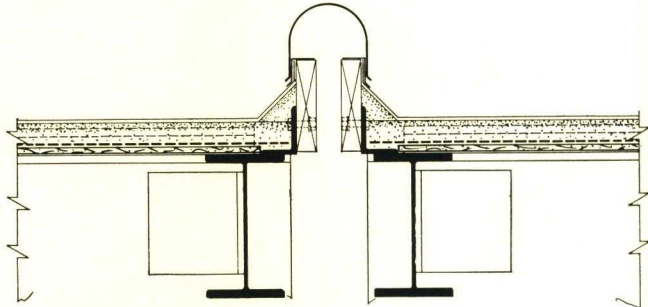
EAVE & GABLE OVERHANG (OVERHANG BASED ON 45[°]/4' TOTAL LOAD)



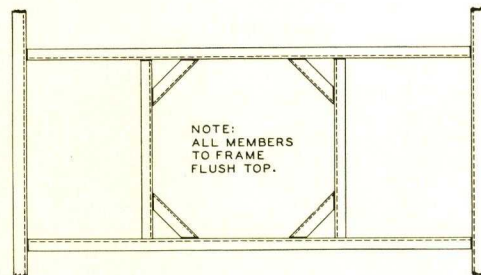
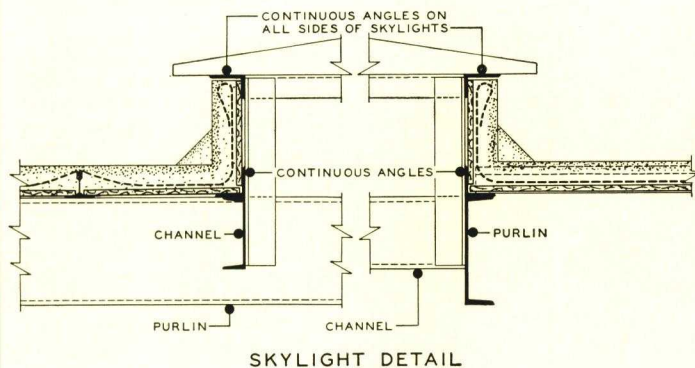
EXPANSION JOINT PARALLEL TO GIRDER



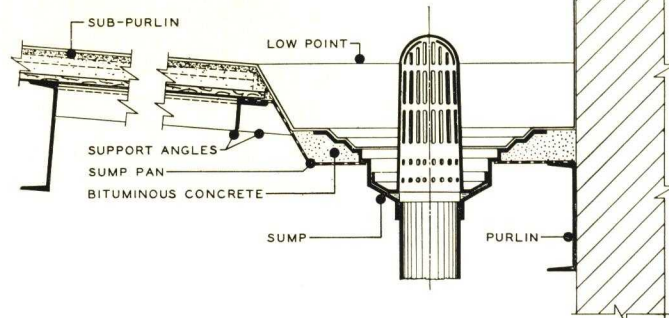
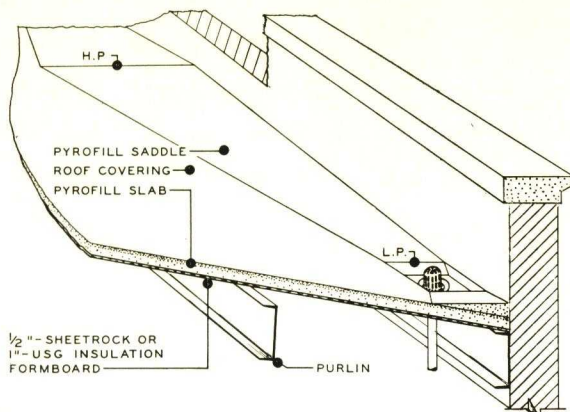
EXPANSION JOINT PARALLEL TO PURLIN



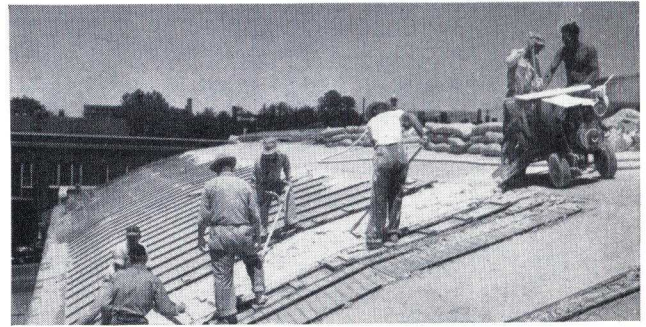
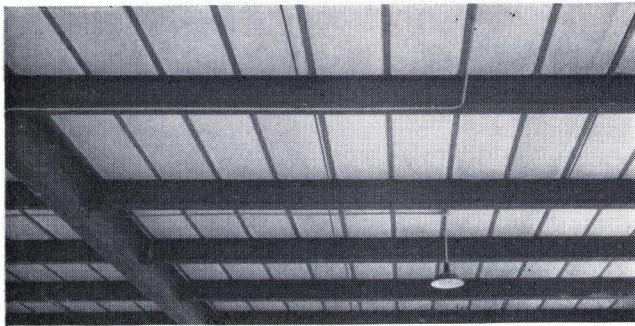
MISCELLANEOUS DETAILS



TYPICAL FRAMING AROUND
OPENINGS LARGER THAN 30"
OPENINGS LESS THAN 30" TO BE
FRAMED WITH SUB-PURLINS



PYROFILL ROOF DECKS



ARCHITECTURAL SPECIFICATIONS POURED GYPSUM ROOF DECK WITH SUB-PURLINS

SHORT FORM

WORK INCLUDED:

The contractor shall furnish all material, labor and equipment and install (select one):

- a. U.S.G. Standard 2½" SHEETROCK PYROFILL
- b. U.S.G. Standard 3" Insulation PYROFILL
- c. U.S.G. Standard 2½" Asbestos-board PYROFILL

poured gypsum roof deck on the entire area of the building. All to be in accordance with standards of the United States Gypsum Company as currently published.

LONG FORM

SCOPE OF WORK:

The contractor shall furnish all labor, material and equipment and install complete the poured gypsum roof decks, together with cants, curbs and drainage fills as shown and specified. Approved shop drawings are required before work proceeds.

MATERIALS

1. **Steel Sub-purlins:** The steel sub-purlins shall be an approved type capable of carrying the required live load and dead load. All to be cut to length and shop painted one coat of an approved paint. All end joints are to bear on roof supports.
2. **Formboards:** The permanent formboards shall be: (select one):
 - a. USG ½" treated SHEETROCK formboard 32" wide, in lengths equal to main purlin spacings.
 - b. 1" treated USG Insulation formboard 32" wide in lengths equal to main purlin spacings.
 - c. Cement-asbestos board ¼" thick, 32" wide, 48" long complete with approved galvanized or painted steel tees in the cross joints between sub-purlins.
3. **Reinforcing Mesh:** The reinforcing in the poured gypsum slab shall be a galvanized welded wire mesh having No. 12 gauge longitudinal wires spaced 4" on centers, or similar type with equal or better qualities, having an effective cross sectional area of not less than 0.026 square inch per foot width of slab.
4. **Gypsum Concrete:** The gypsum concrete shall be PYROFILL containing calcined gypsum with not more than 12½% by weight of wood chips, shaving or fibers. PYROFILL is processed and bagged at the producing mill ready for use by the addition of water only at the job site.

INSTALLATION

1. **Steel Sub-purlins:** Place and weld each sub-purlin to main purlins

at each contact point using ¾" long fillet welds placed on alternate sides of sub-purlins where accessible.

2. **Formboards:** Place formboards on flanges of sub-purlins with all end or cross joints supported. Forms to fit neatly on all four edges. Cut forms to fit at walls, curbs and openings as shown or required.

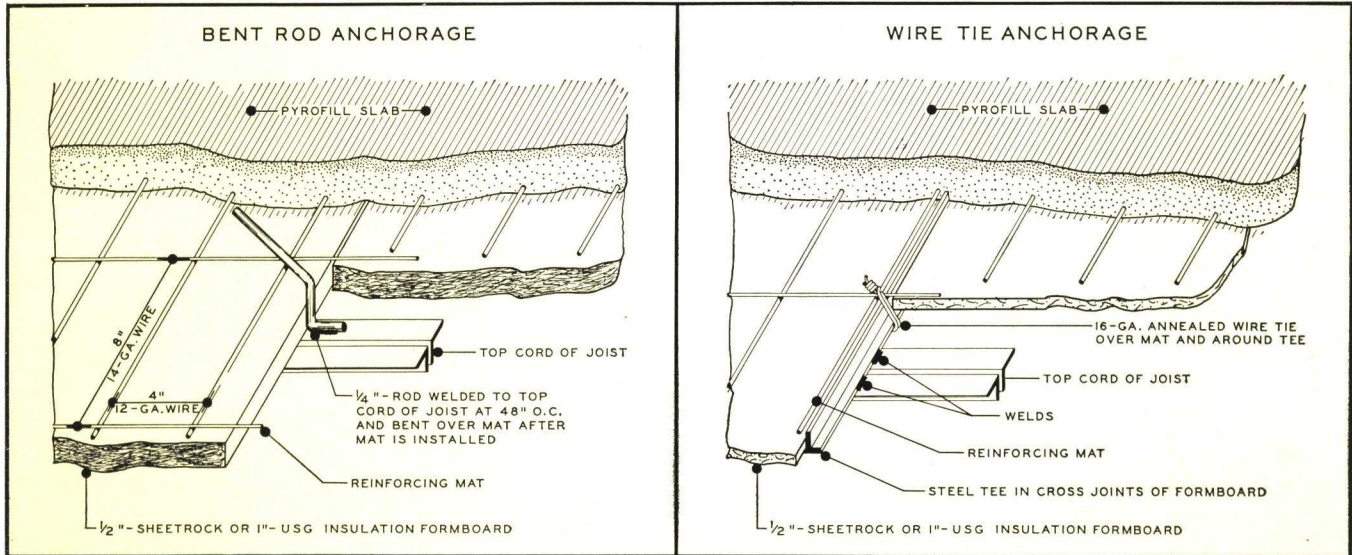
3. **Reinforcing:** Place reinforcing mesh with the No. 12 gauge wires at right angles to the sub-purlins. Lap ends of mesh not less than 6 inches. Sides of mesh are not to be lapped. Cut mesh to fit at all walls, curbs and openings, and carry the mesh into all areas where PYROFILL is poured.

4. **Gypsum Concrete:** Mix PYROFILL with clean water only and pour over the forms to an average thickness of not less than 2 inches (2¼ inches over asbestos board). Screed all surfaces to a smooth even plane ready to receive the waterproof roof covering specified in another section. Pour all cants, curbs and drainage fills as shown or required. After pouring, leave roof deck free and clean for other trades.

NOTES TO ARCHITECT

1. **Expansion Joints:** Where expansion joints are provided in the main structure, they should also be provided in the roof deck.
2. **Up-lift Resistance:** Where resistance to up-lift forces is required, the bulb tee and ASCE type of sub-purlins are most effective, while other types may need supplementary anchorage.
3. **Painting:** Painting the underside of poured gypsum decks is not recommended until it is thoroughly dry. Refer to "Painting" under "Limitations of Use."
4. **Rigid Type Roof Coverings:** PYROFILL roof decks are not recommended for the application of metal or other rigid types of roof coverings. USG's 3" Short Span Precast Gypsum Roof Tile are recommended where rigid types of roof coverings are to be applied.
5. **Suspended Ceilings:** Where suspended ceilings are required, United States Gypsum recommends:
 - a. that they be hung from the main purlins whenever economically possible.
 - b. when hung from the roof deck, that the hangers be attached to the sub-purlins, never in the gypsum slab. The selection of the proper size sub-purlin will depend on the added weight of the suspended ceiling.
6. **Precast Curbs or End Walls:** If conditions require factory precast gypsum roof tile for curbs or end walls, consult your USG representative for recommendations.
7. **Eave Angles and Wood Nailers:** Unless impractical, this work should be included in the steel and carpentry specifications.

PYROFILL ROOF DECKS



ARCHITECTURAL SPECIFICATIONS

POURED GYPSUM ROOF DECK *WITHOUT* SUB-PURLINS, USUALLY OVER BAR JOISTS (For use when purlin spacing does not exceed 36" on center)

SHORT FORM

WORK INCLUDED

The contractor shall furnish all material, labor and equipment and install (select one):

- U.S.G. Standard 2½" SHEETROCK PYROFILL
- U.S.G. Standard 3" Insulation PYROFILL
- U.S.G. Standard 2½" Asbestos-board PYROFILL

poured gypsum roof deck on the entire area of the building. All to be in accordance with standards of the United States Gypsum Company as currently published.

LONG FORM

SCOPE OF WORK

The contractor shall furnish all labor, material and equipment and install complete the poured gypsum roof decks, together with cants, curbs, and drainage fills as shown on plans and specified herein.

MATERIALS

- Supplemental Tees:** Install approved, light weight galvanized or shop painted steel tees in all cross joints of formboard between main supports.
- Formboards:** The permanent formboards shall be (select one):
 - U.S.G. ½" treated SHEETROCK formboard 32" or 48" wide, in lengths equal to multiples of purlin spacings.
 - 1" treated USG Insulation formboard 32" or 48" wide, in lengths equal to multiples of purlin spacings.
 - Cement-Asbestos board ¼" thick, 32" wide and 48" long, complete with necessary supplemental steel tees for proper support per details.
- Reinforcing Mesh:** The reinforcing mesh in the poured gypsum slab shall be a galvanized welded wire mesh having No. 12 gauge longitudinal wires spaced 4" on centers and No. 14 gauge transverse wires spaced 8" on centers; or similar type with equal or better qualities, having an effective cross sectional area of not less than 0.026 sq. in. per foot width of slab.
- Gypsum Concrete:** The gypsum concrete shall be PYROFILL containing calcined gypsum with not more than 12% by weight of wood chips, shavings or fibers. PYROFILL is processed and bagged at the producing mill ready for use by the addition of water only at the job site.

INSTALLATION

- Supplemental Tees:** Place supplemental steel tees in cross joints of the formboards as required. Tack weld the tees to supports at each contact point. Ends of tees to bear on supports.
- Formboards:** Place formboards on the steel framing and supplemental tees so that all four edges are supported. Cut to fit at walls, curbs, and openings as required.
- Reinforcing:** Place reinforcing mesh over the formboards with the No. 12 gauge wires running at right angles to the main supports. Lap ends of mesh not less than 6 inches. Sides of mesh are not to be lapped. They may be spaced apart, but not more than 4 inches. Cut to fit at all walls, curbs and openings and carry the mesh into all areas where PYROFILL is poured.
- Gypsum Concrete:** Mix PYROFILL with clean water only and pour over the forms to an average thickness of not less than 2 inches (2¼ inches over asbestos board). Scream all surfaces to a smooth even plane ready to receive the waterproof roof covering specified in another section. Pour all cants, curbs and drainage fills as shown or required. All mixing and pouring to be done as close as possible to the point of deposit. After pouring, clean all surfaces of debris and loose particles and leave roof deck free and clean for other trades.

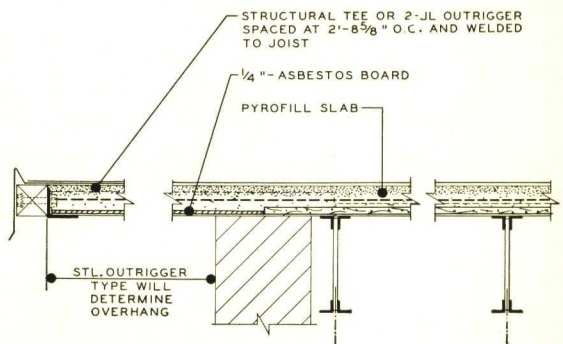
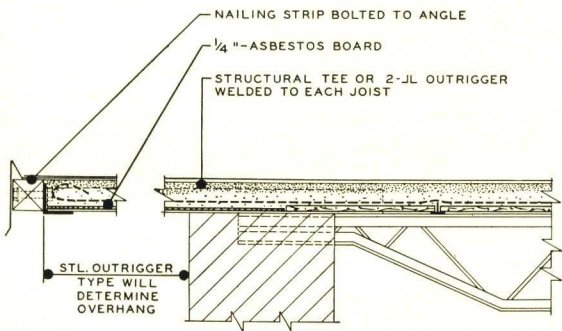
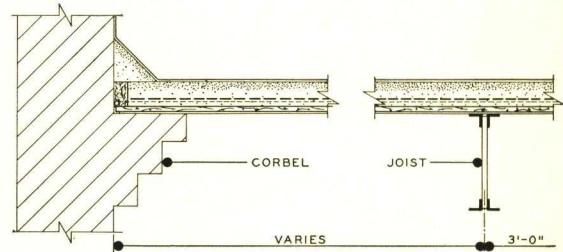
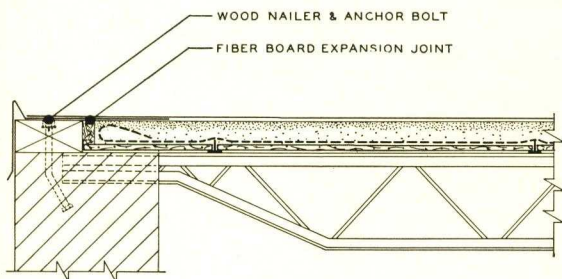
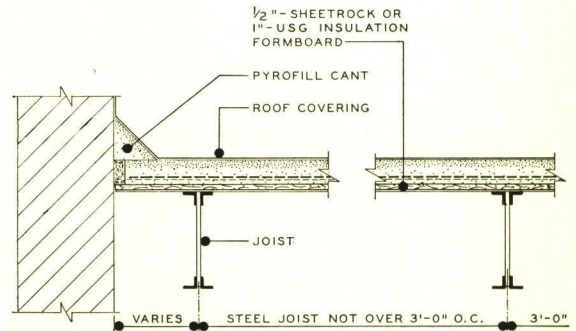
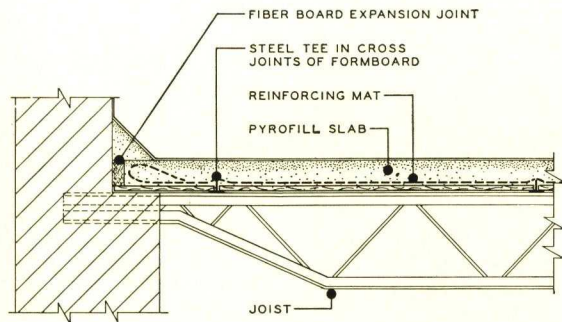
NOTES TO ARCHITECT

- Expansion Joints:** Where expansion joints are provided in the main structure, they should also be provided in the roof deck.
- Up-lift Resistance:** Where resistance to up-lift forces is required supplemental anchorage is necessary. See details above for suggested methods.
- Painting:** Painting the underside of poured gypsum decks is not recommended until they are thoroughly dry. Refer to "Painting" under "Limitations of Use."
- Rigid Type Roof Coverings:** PYROFILL roof decks are not recommended for application of metal or rigid types of roof coverings. USG's 3" Short Span Precast Gypsum Roof Tile are recommended for this purpose.
- Precast Curbs or End Walls:** If conditions require factory precast gypsum roof tile for curbs or end walls, consult your USG representative for recommendations.
- Eave Angles and Wood Nailers:** Unless impractical, this work should be included in the steel and carpentry specifications.

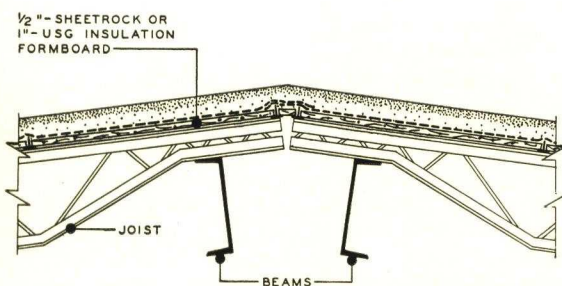
PYROFILL ROOF DECKS

APPLICATION ON BAR JOIST

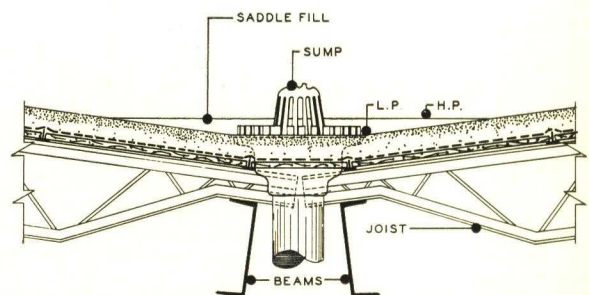
WALL DETAILS



RIDGE DETAIL


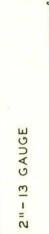
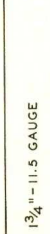
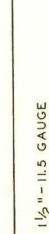






VALLEY DETAIL

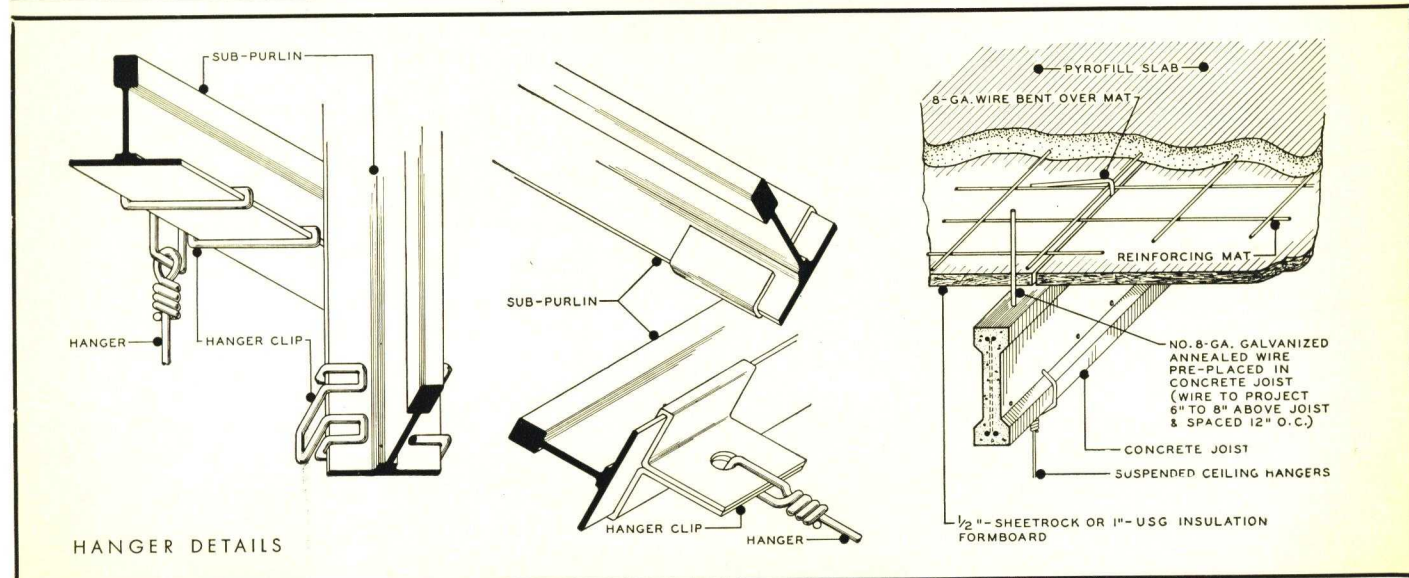
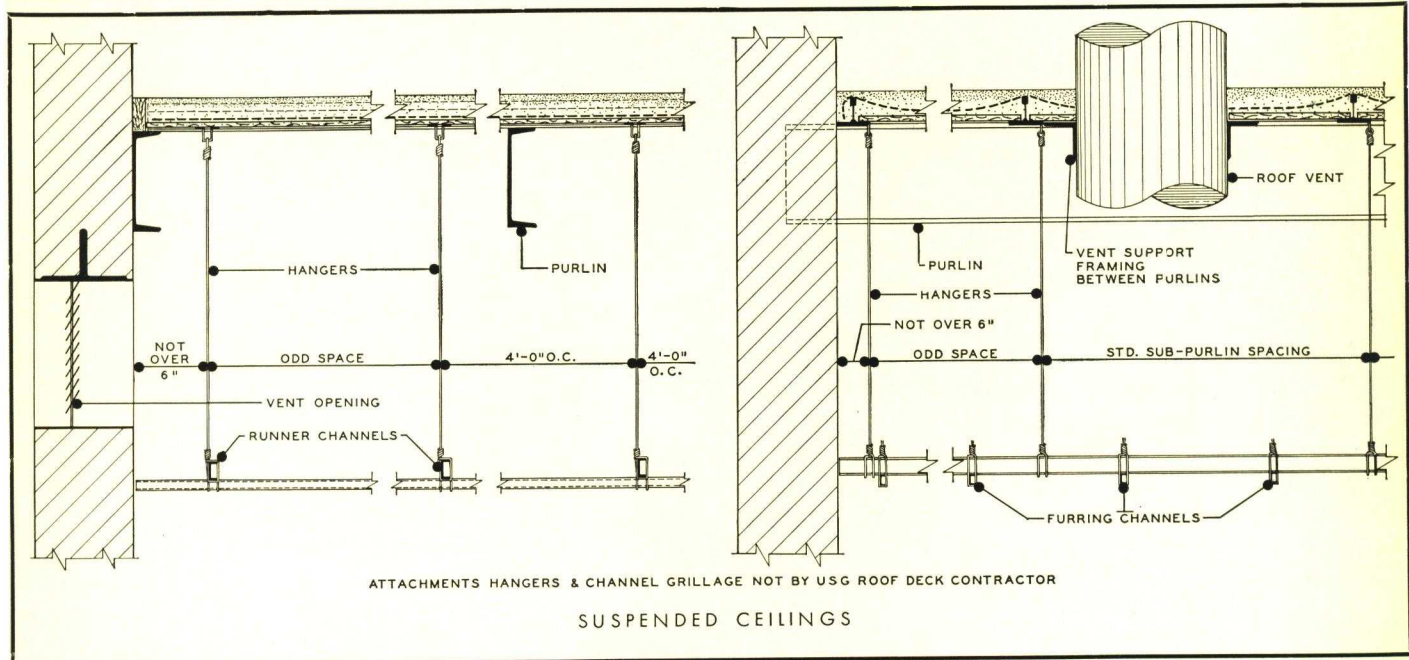


PYROFILL ROOF DECKS

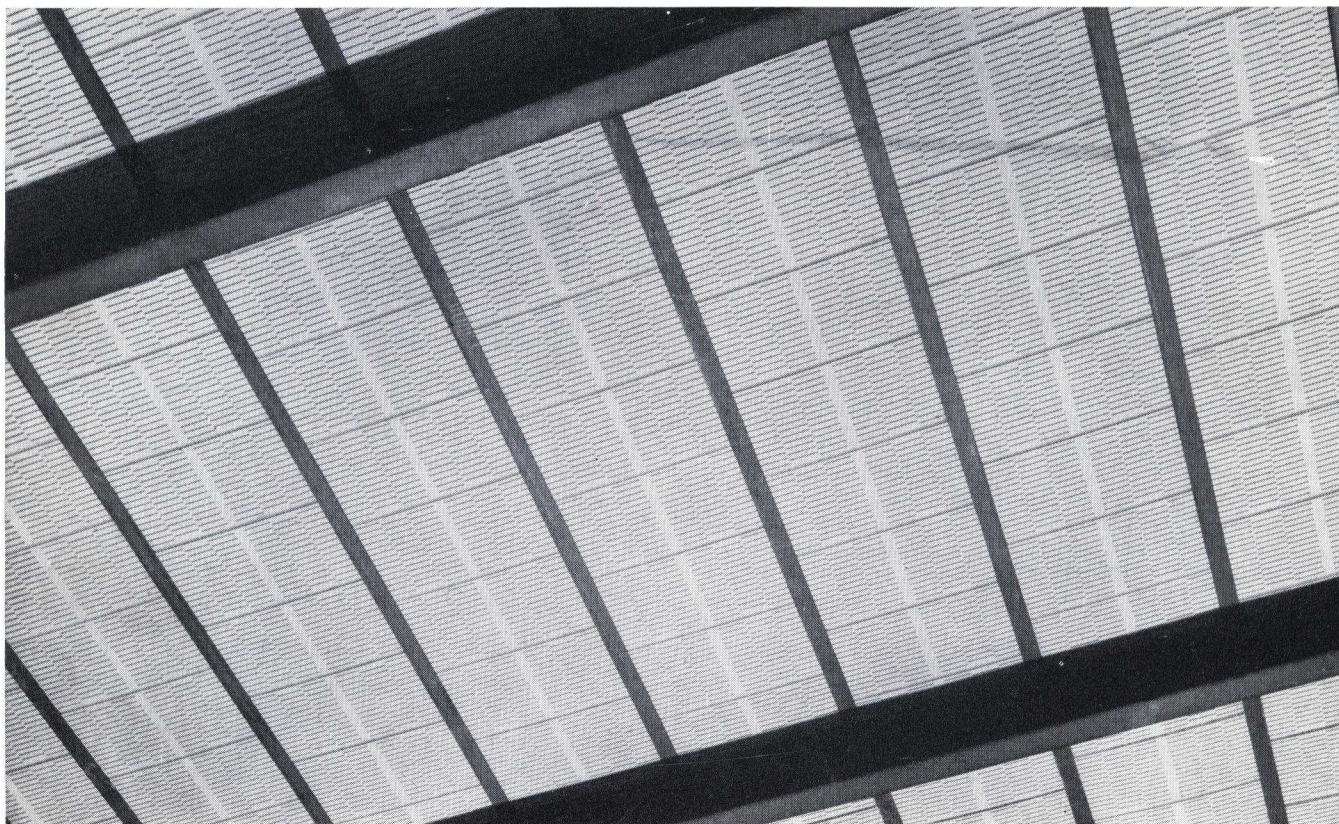
MISCELLANEOUS DATA AND DETAILS

NAIL HOLDING POWER								
RESISTANCE TO DIRECT PULL IN POUNDS PER NAIL FOR PENETRATION SHOWN								
TYPE OF NAIL	SMOOTH WIRE NAILS						CUT NAIL	ES-NAIL
DETAILS OF NAILS								
PENETRATION	2"	1 7/8"	1 5/8"	1 1/4"	1 1/8"	7/8"	1 7/8"	1 5/8"
7d - BOX	33	—	—	—	—	—	—	—
CEMENT COATED	—	48	—	—	—	—	—	—
GALVANIZED	—	—	28	26	—	21	—	49
BRIGHT	—	—	28	24	24	—	—	—
COPPER	—	—	—	—	—	—	135	—

- NAIL HOLDING VALUES SHOWN ARE BASED ON THE FOLLOWING:
- 1.-RESULTS OF TESTS BY USG RESEARCH LABORATORY.
 - 2.-NAILS DRIVEN INTO AND PULLED FROM DRY SLABS OF 50 POUNDS PER CUBIC FOOT DENSITY.
 - 3.-NAILS WERE DRIVEN NORMAL TO THE SURFACE OF THE SLAB AND PULLED DIRECT IN THE SAME PLANE.
 - 4.-OTHER NAILS OF SAME SHANK SIZE AND PENETRATION SHOULD GIVE EQUAL HOLDING POWER.
 - 5.-CLINCH TYPE NAILS (ES-NAIL) MUST BE DRIVEN THROUGH METAL DISK TO OPERATE CLINCHING MECHANISM.



ACOUSTICAL PYROFILL ROOF DECKS



DESCRIPTION

Acoustical PYROFILL Roof Decks consist of a 2" thick reinforced, incombustible PYROFILL gypsum concrete slab poured in place over USG Acoustical formboard to provide a rigid, monolithic, paintable, insulated roof deck—with excellent acoustical value.

Sub-Purlins—use regular sub-purlins spaced 24 $\frac{5}{8}$ " on centers to accommodate 24" Acoustical Formboard.

USG Acoustical Formboard is a rigid type wood fiber insulation board, 1" thick, 12" wide, 24" long with square cut ends and ogee tongue and groove matched longitudinal edges. The exposed surface is slotted and painted white.

Slab Reinforcement—same as for regular PYROFILL gypsum concrete construction.

PYROFILL Slab—2" minimum thickness, same as for regular PYROFILL construction.

Load Carrying Capacity—with 24 $\frac{5}{8}$ " spacing, refer to the selection table on page 5 and multiply the tabulated loads by 1.372. For example, a tabulated load of 35 psf would become 48 psf.

Installation—similar to regular PYROFILL construction. Sub-purlins are spaced 24 $\frac{5}{8}$ " on centers and welded to main purlins. USG Acoustical Formboard is placed with ends supported on flanges of steel sub-purlins and with matched edges closely fitted to prevent leakage of PYROFILL. Slab reinforcement is placed over sub-purlins and Formboard. PYROFILL gypsum concrete is poured to a minimum thickness of 2" over the Formboard, and screeded to an even plane to receive built-up roof covering.

FUNCTION AND UTILITY

This construction provides the outstanding advantages of regular PYROFILL construction, plus:

High Acoustical Absorption Value—noise reduction coefficient (N.R.C.)=.65.

High Light Reflection—78%.

Excellent Appearance—finish: Hi-Lite, painted white.

Lightweight—USG Acoustical Formboard weighs only 1.2 lbs. per square foot.

High Insulation Value—U=.20 Btu (3" total thickness slab);

Paintable—without loss of noise reduction efficiency.

Economy—considerably lower in cost than regular deck constructions, plus separate acoustical treatment.

LIMITATIONS OF USE

This construction is subject to the same limitations of use as other PYROFILL constructions.

SPECIFICATIONS

Follow specifications on page 8, but modify to show USG Acoustical Formboard and 24 $\frac{5}{8}$ " sub-purlin spacing, etc.