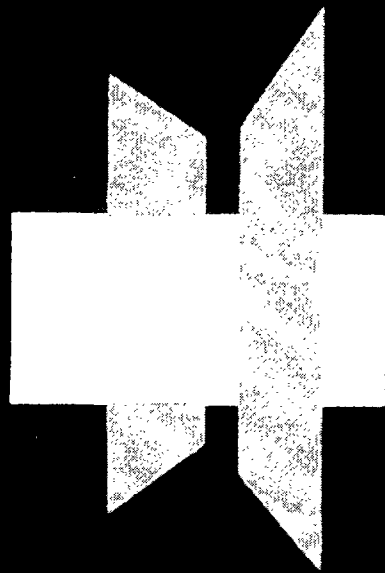


BESTWALL

GYPSUM PRODUCTS MANUAL



WALLBOARD

PLAINTIFF'S EXHIBIT

GP-653

SGP 0028471

BESTWALL

**GYPSUM
PRODUCTS
MANUAL**

WALLBOARD

SGP 0028472

BESTWALL GYPSUM COMPANY

GYPSUM WALLBOARD MANUAL

1965 EDITION

NOTE

This Manual No. _____ is the property of Bestwall Gypsum Company for the exclusive use of the sales representatives or other employee to whom it has been issued. It may not be transferred to another employee without permission of the Regional or Area Sales Manager and, under no circumstances, may it be given or loaned to persons outside the Bestwall Gypsum organization. Upon request, it must be returned to Bestwall in good condition excepting normal wear and tear. If it is lost or stolen, notify the Regional Sales Manager immediately.

Receipt of Manual acknowledged.

Date

7/6/65

Signature of Salesman

[Signature]

January 1, 1965.

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BESTWALL GYPSUM COMPANY

GYPSUM WALLBOARD MANUAL

Section 1

1965 EDITION

P R E F A C E

GYPSUM WALLBOARD

All must realize the first place importance of gypsum wallboard in the long list of gypsum products on the market. A review of the statistics will show the tremendous growth of gypsum wallboard sales since World War II. A brief account of the development of this product from its beginning as relatively crude small panels suitable only for use as a substitute for wood lath to the present day high quality large size panels which have largely supplanted lath and plaster for interior walls and ceilings may be of interest.

The old timers say that the first product which might be called gypsum board to appear on the market was made up of four layers of coarse heavy paper similar to roofing felt made into a multilayer sandwich with thin layers of gypsum plaster. The panels were not made larger than 32" x 48". This product was called Sackett board and was available prior to 1900. It was not well suited for use as wall surfacing to receive paint.

The Bestwall Company (not the Bestwall Gypsum Company) was first in the field with large size 4' x 8' panels of gypsum board similar to the present day product. Of course the paper was not folded around the edges and the face paper surfacing was not the clean ivory color we know today. These were later developments.

At first, the Bestwall Company manufactured gypsum board only. They built their plants adjacent to plaster mills of the American Cement Plaster Company and purchased stucco from A. C. P. for use in board manufacture. The wet panels were hung from racks mounted on small wheeled cars and these loaded cars traveled through heated tunnel dryers on small steel rails requiring about 24 hours to dry the board.

The Beaver Company acquired the American Cement Plaster Company and the Bestwall Company and installed continuous dryers of the type used today for drying board.

Certain-teed got into the gypsum business by acquiring the Acme Cement Plaster Company. In 1926, soon after the Acme purchase, Certain-teed built its first gypsum board plant at Acme, Texas. Then in 1928 Certain-teed purchased the Beaver Company and thus acquired the Bestwall trade name.

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The board manufactured at Acme during the first few years of operation of the plant had gray paper on both face and back. It was open edge board, that is, the paper was not folded around the edges. It was reversible since both faces were the same and if one face became damaged before erection, the panel could be applied with the damaged face on the inside toward the studs. It was made in 3/8" thickness only.

In those early days, there was no such thing as a reinforced joint system. Joints and nailheads were treated merely by filling them with a joint filler composed largely of plaster of Paris. The core of the board was composed of stucco and relatively coarse sawdust with some starch added to obtain a good bond of paper to core. This use of foam to lighten the core and fiber in the core to improve flexibility and nailing properties were to come later.

When Certain-teed acquired Beaver, they were making Bestwall with cream colored face paper and gray back paper as well as a so-called lower grade board with gray paper on both faces. The cream-faced Bestwall was priced \$5/MSF higher than the gray-faced board. Some few years later, U.S.G. and National started using cream face paper on all their wallboard and Certain-teed also made this change.

The first 1/2" board to appear was 4' x 8' sheets with tongue and groove edges and gray paper on both faces. It was manufactured by a competitor in Texas and was advertised as a Texas board for Texas people. It was promoted to replace shiplap lumber covered with canvas in the so-called box construction for walls and partitions commonly used in that part of the country in those earlier days. It has long since disappeared from the market. Recessed edge 1/2" board replaced it and now tapered edge board is the standard.

Tru-Grain board, vinyl covered board, foil surfaced board, Firestop - a fire-rated gypsum board, form board, gypsum sheathing and Hummer system panels are some of the board products which have been developed and introduced since Certain-teed, Bestwall's predecessor, first got into the gypsum business.

Certain-teed was the first company to twin mount gypsum board. From the very beginning, a machine process was used for twin mounting. This development received immediate acceptance by the trade and competitors were forced to follow along. At first they applied the tape by hand but later on they also installed machines for doing the job.

Other Bestwall firsts in gypsum board include nail marking (in the late 30's) which became obsolete when horizontal application came along, fire-rated board (Firestop) and glass fiber in board core. This latter development was a real forward step in board manufacture and from the reaction of competitors it appears to be causing them considerable concern. Some gypsum manufacturers have obtained licenses from Bestwall to use the patented features both of fire rated board and of fiberglas and others are negotiating for licenses. Some producers in foreign countries have recognized the value of glass fiber in board and other gypsum products and have signed patent license agreements.

It is difficult to look into the future and predict what the new developments in gypsum board in the next ten or twenty years will be, but it is certain that gypsum board is a dynamic part of the gypsum business which has grown at a tremendous rate and will continue to grow. New products will be developed just as they have been in the past.



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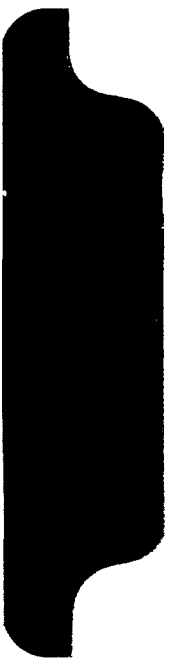
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MANUFACTURE of GYPSUM WALLBOARD and GYPSUM LATHBoard Products

Gypsum Wallboard, Lath and Sheathing are composed of a core, hydrated calcined gypsum fibers and other ingredients, surfaced on both sides with smooth, uniform, specially-prepared paper forming the finished surfaces and serving as a reinforcement.

Each raw material used in the manufacture of these products is for a specific purpose, and only those that meet our rigid specifications are used. The quality and structural value of each board product depends upon its composition and fabrication during manufacture. To thoroughly understand the quality, properties, uses, etc., of each product, its composition and manufacture should be known. Therefore, the manufacturing may best be followed by starting with the raw materials and following their course, step by step, through the process.

1. RAW MATERIALS

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(a) Paper:

Bestwall manufactures in its own paper plants, most of the special paper used for surfacing wallboard, lath and sheathing. A different kind of paper is used for each finished product. Bestwall's three paper mills are located at Pryor, Oklahoma; Thorold, Canada; and Delair, New Jersey. Some paper, as necessary, is purchased from outside sources in accordance with our own specifications.

The papers are manufactured on seven or eight cylinder paper machines, which means that there are seven or eight separate layers of paper stock felted together to form the solid finished sheet. The finished sheet as formed consists of 3 parts which are known as the face liner, filler, and bond liner. By building up the solid sheet in this manner, the composition of each part of the sheet can be controlled so as to produce a paper which will have the properties required by the finished gypsum board products.

All papers used for wallboard, lath and sheathing have certain properties in common:

1. The bond liner in all cases is made from unsized stock and is designed to produce perfect bond to the gypsum core. The bond to the gypsum core is accomplished by the bond liner absorbing the saturated gypsum solution from the gypsum slurry used for forming the core. Gypsum crystals grow in this saturated solution that has been absorbed by the bond liner and interlace into the crystals of the core, thereby producing the bond.

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Manufacture of Gypsum Wallboard & Gypsum Lath (Continued)

2. The filler of all our paper is made from a specially-treated (sized) paper stock to render it water resistant. The water resistance of the filler is very important. It is one of the features of the paper which we use for all types of board, lath and sheathing. The filler is designed to prevent the free water present in the slurry and core from percolating through the face and back papers to the surfaces while the board is being manufactured. If this water filtered through the face and back papers, it would cause unsightly water marks, stains, etc. on the finished sheet.

The water resistant filler in lath paper prevents the passage of free water present in gypsum plaster mortar when it is applied on the surface of gypsum lath, from passing through the covering paper into the core of the lath.

3. The face liner used for wallboards is made from a special paper stock which is colored, highly sized, and treated to render it water and scuff resistant. The finished surface is smooth, uniform, and non-absorptive. The face liner of lath paper is water absorbent exactly the same as the bond liner (as explained in 1 above), because its surface must have the properties of bonding to the gypsum plaster applied to the lath.

The face liner of gray wallboard back paper is made from stock that is slightly sized so as to render it scuff-resistant. The face liner of the paper used on sheathing is made from paper stock which is colored black, highly sized, and treated to render it water resistant, and scuff resistant. The finished surface is smooth, uniform and non-absorptive.

(b) Stucco:

The stucco used for manufacturing the core is designed especially for this purpose. It is of proper fineness and is low in water carrying capacity. This produces a core which has the proper hardness and strength.

(c) Glass Fiber:

The glass fiber used in Bestwall gypsum wallboards is the continuous textile grade which is soft and non-irritating to the skin. It has a very high tensile strength, being stronger than many steels. It is obtained in multiple strands wound in spools, and is cut to proper length continuously in synchronization with the belt speed of the board machine. The glass fiber is used under Bestwall Gypsum Company's Patent No. 2,681,863.

(d) Paper Fiber:

Paper Fiber is used along with glass fiber in all lath and board products except Firestop Bestwall, which contains only glass, lath and fiber. The paper fiber is scrap paper purchased from outside sources or waste paper from the wallboard operation. The paper is beaten up in water in a hydro-pulper in either a 2½ or 3 percent

concentration. It is pumped to the mixer by a variable speed pump which proportions the proper amount of paper pulp, depending upon the type of product being made and the speed of operation.

The glass fiber and paper pulp are added to the core for the following reasons:

1. To give proper nailing properties to the core and to eliminate chipping and shattering of the core at open edges of the board.
2. To reduce the brittleness of the core.
3. To produce a wallboard that has the required flexibility and which can be handled without breakage.
4. To reduce the weight of the board.

(e) Adhesives:

The gypsum crystals which form the core and bond it to the bond liner of the paper used are very fine and brittle. To protect these crystals, and to add to the bond between the core and the bond liner of the paper, a special adhesive is used. This adhesive is mixed into the ingredients in the core. It is water soluble and, therefore, concentrates between the gypsum crystals where the core is in contact with the bond liner. This reinforces the crystalline structure and adds to the bond between the core and the paper covering. This concentration of the adhesive at the surfaces of the core is somewhat similar to the action of the soluble gum added to produce the case-hardened surfaces of statuary casting plaster.

(f) Accelerator:

The gypsum core must be set hard by the time the board reaches the cut-off knife, which is near the end of the board machine, so that the board can be cut into the required lengths. This makes it necessary to use an accelerator to regulate the setting time of the slurry. The accelerator which we use is ordinary pulverized gypsum rock. Chemical accelerators such as potassium sulphate, ammonium sulphate, etc. may also be used.

(g) Foam:

The foam added to the slurry used for producing the core is made from a solution of rosin soap or other foaming agent. This solution is passed through special equipment that beats it into a stable, uniform-structured, small-bubble foam. The foam produces microscopic air voids throughout the gypsum core. The soap solution reacts with the gypsum to form insoluble calcium salts which further reinforce the void structure of the gypsum core. Foam is added to the slurry to:

1. Increase the thermal insulation value of the board.
2. Reduce the brittleness of the core.

3. Add to the flexibility of the board.

4. Reduce the weight of the board.

2. PROCESS OF MANUFACTURE:

Each step in the process of manufacture is carefully controlled to produce quality and uniformity in the board, lath or sheathing. Quality depends upon the combination of the face and back paper used and the structure of the core (the paper has been described above). The paper and the structure of the core controls rigidity, structural strength and durability of the finished product. The required hardness and strength of the core can be achieved by proper formulation of the dry ingredients and control of the water-plaster ratio.

The proper mixing of the dry ingredients, the addition of the foam, paper pulp, glass fibers and the proper wet mixing before the slurry is poured onto the paper covering are all very important. A very rigid system of inspection, testing and control is maintained at all our plants to make sure that the proper percentage of each raw material is used, and that the mixture is thoroughly dry mixed and wet mixed before it is used for forming the core.

(a) Dry Mixing:

It is essential to thoroughly mix the glass fiber, accelerator and adhesive into the dry stucco so that a uniform mixture is obtained. Dry mixing is accomplished in the conveying equipment as the material is delivered to the wet end of the machine.

(b) Wet Mixing:

The dry ingredients are fed into a high-speed centrifugal mixer and are blended with mixing water, paper pulp and foam. The consistency of the slurry is accurately controlled by regulating the mixing water through the use of a recording water meter. The weight of the slurry is controlled by varying the foam content as required to produce a slurry of a definite density. Slurry from the mixer is discharged in three streams so that three streams of gypsum lath may be made at one time. For other boards, the streams all blend together at the forming rolls except where two streams of sheathing are made in which case only two streams are used.

(c) Edge Formation:

Square Edge, Tapered Edge, Tongue & Groove Edge, and Beveled Edge Boards are made by cutting grooves along the edges of the face paper after it leaves the paper rack. The inside grooves regulate the width of the finished product. As the grooved paper approaches the forming rolls, it is folded into the various shapes along the grooves which are required for the particular type edge being made by means of edge folding devices. Spaces between grooves are set depending upon the type product being made and its thickness. Gypsum lath paper is not grooved along its edges

(continued on next page)

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but is passed through edge forming devices which fold the paper in a semi-circle on each side producing a "round" edge product.

As the papers pass through the forming rolls, adhesive is applied to each edge of the back paper which serves to stick the edges of the back paper to the folded edges of the face paper.

(d) Thickness:

Thickness of the various products is controlled by the spacing of the forming rolls.

(e) Length of the Machine:

As the gypsum board or lath leaves the forming section, it is carried on wide rubber belts and carrier rolls to allow time for the gypsum core to harden (set). The total length of the machine depends to a considerable degree upon the speed operated. Our longest machine is at Brunswick where this distance is 949 ft.

(f) Cut-Off Knife:

All plants use rotary knives for cutting the board into various lengths. The drive for the cutting mechanism is adjustable so that lengths can be varied as needed for various products.

(g) Transfer Table:

After the boards are cut to length, they are picked up by a transfer table and carried sideways to a tipple table which feeds the boards into the dryer. The dryer runs parallel with and alongside the board machine. As 48" wide wallboards are transferred, they are inverted so that the ivory face is turned up. This preserves the finish of the ivory paper from blemishes, slick spots, etc. which may occur when the paper is in contact with the kiln rolls.

(h) Drying

The board from the transfer is fed by the tipple table into the dryer which has 6 or 8 decks, and is wide enough to take 2 streams of board 4' wide, 3 streams 32" wide, 4 streams 24" wide, and 6 streams 16" wide. Our dryers are heated either by steam coils or by direct combustion of natural gas. The temperature is carefully controlled in the various zones into which the dryer is divided so as to dry the products properly. Large circulating fans blow the hot gases over the boards and laths and the moisture which is evaporated is blown out through exhaust stacks.

(i) Take-off:

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In all plants except Blue Rapids, wallboard products are grouped into pairs face to face automatically and conveyed through a bundling machine where the end tapes are applied. The bundled packages are

stacked automatically and handled to the warehouse or loading dock by fork trucks. Lath is handled on a separate system where it is bundled into 6 pieces to the bundle (5 at Sigurd). At Blue Rapids, board and lath are unloaded from the kiln by hand and fed into the packaging machines.

(j) Pinholath

Pinholath is made under exclusive license from the Pinco Co. under Patent No. 3,879,662. The pinholes puncture the paper and permit water from plaster applied thereto to be absorbed into the core in a controlled amount. This serves to rigidify the plaster next to the paper face and is designed specifically for use with machine applied plaster.

(k) Perforated Lath

The perforating is done by a punching machine at the end of the board machine; the operation being performed on the wet lath before it is cut into 48" lengths. The perforations are 3/4" in diameter and spaced 4" apart.

(l) Reclaiming Department

In this department, re-cutting equipment is available so that the damaged goods can be cut into smaller sizes and reclaimed for shipment to the trade.

(m) Loading Cars & Trucks

Loading cars of wallboard, lath and sheathing is done under close supervision. All possible precautions are taken to insure delivery of board in good condition. To illustrate the precautions which are taken, here is the routine which is followed in loading cars:

All cars are carefully inspected before they are accepted for loading wallboard, lath & sheathing. Any cars with leaky roofs, broken or unusually dirty floors, etc., are rejected. All loose nails are pulled from the floors & sides. Any loose boards are fastened to prevent damage to the load. After the cars have been cleaned and prepared, the floors are covered with dunnage board and the walls covered with paper. Only then does loading start. While loading the cars, paper pads are attached to the side of the cars to protect the ends & edges of the piles of board, lath or sheathing. Special care is used to brace, tie and protect the piles, and to prevent shifting or damage enroute.

Wherever possible, gypsum board products are now loaded into box cars or on flat cars by fork lift trucks. By this method, whole units are set in place at one time. Spacers are placed between each unit so that the forks of the lift truck can be easily inserted and withdrawn.

Flat cars are covered & the load held in place with steel strapping.

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3. INSPECTION:

All raw materials and entire process of manufacture are under the supervision of competent inspectors. An inspector is on duty at all times and on all shifts and is responsible for the quality of the products produced on that shift. Every step in the process is checked hourly or at fixed intervals as a matter of control. Finished boards are tested hourly or more often for thickness, width, length, bond, nailing properties, flexibility, strength, weight, appearance, resistance to moisture, etc. All tests and inspections are recorded on standard report forms which are made up in duplicate. These reports are watched by the board plant superintendent as the entries are made throughout the day. The reports when completed are signed by the inspectors and turned over to the board plant superintendent and plant manager for approval. One copy of the report is sent to the Paoli Laboratory. These reports are carefully analyzed by all concerned and then filed for reference.

4. SAMPLES:

All samples of wallboard, lath and sheathing are cut from standard production at Fort Dodge where the sample department is located.



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GYPSUM WALLBOARD MANUAL

Section 4.

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ASTM, FEDERAL, ASA and ETC.

Refer to the Gypsum Lath and Plaster Manual, 1965-Edition, - Section 5 regarding the Standards under which the Bestwall Gypsum Company's Gypsum products are manufactured.

- | | | |
|-------------|---|----------------|
| 1 - A S T M | - | Specifications |
| 2 - Federal | - | Specifications |
| 3 - A S A | - | Specifications |

BESTWALL

BESTWALL GYPSUM PRODUCTS

NOVEMBER, 1964

PRODUCT SPECIFICATION DIRECTORY

This list provides a simple up-to-date cross reference of Bestwall products with applicable American Society for Testing Materials Standards (ASTM Standards), Federal Specifications and American Standards Association Specifications (ASA). The last two digits in the ASTM reference number indicate the year of the edition. Where any specification covers more than one material the type or paragraph is shown. Items for which no standard is written are indicated.

PRODUCT	THICK- NESS	WIDTH	LENGTH	ASTM STANDARDS	FEDERAL SPEC.	= APPLIED UNDER
BESTWALL WALLBOARD						
Tapered Edge	3/4"	4'	6' to 12'	C 36-62	Type III — Grade R SS-L-30b 7/9/63 — Supersedes SS-W-0051b SS-W-51a	ASA 97.1
Square or Tapered Edge	3/4"	4'	6' to 16'			
	1/2"	4'	6' to 16'			
	3/8"	4'	6' to 16'			
BESTWALL INSULATING WALLBOARD						
Square or Tapered Edge	3/4"	4'	6' to 16'	C 36-62	Type III — Grade R SS-L-30b 7/9/63 — Supersedes SS-W-0051b SS-W-51a	ASA 97.1
	1/2"	4'	6' to 16'			
	3/8"	4'	6' to 16'			
BESTWALL TRU-GRAIN PANELING						
TRU-GRAIN Knotty Pine (Square Edge)	3/8"	4'	8' 9' 10'	C 36-62	Type III — Grade R SS-L-30b 7/9/63 — Supersedes SS-W-0051b SS-W-51a	ASA 97.1
TRU-GRAIN Honey Aspen (Square Edge)						
TRU-GRAIN Mellow Mahogany (Square Edge)						
DELUXE TRU-GRAIN Fruitwood (Square Edge)						
DELUXE TRU-GRAIN Heritage Cherry (Square Edge)						
BESTWALL ETERNAWALL						
Seafoam Blue (Beveled Edge)	1/2"	4'	8' †	C 36-62	Type III — Grade R SS-L-30b 7/9/63 — Supersedes SS-W-0051b SS-W-51a	ASA 97.1
Snowdrift (Beveled Edge)						
Spring Green (Beveled Edge)						
Shadow Gray (Beveled Edge)						
Sand (Beveled Edge)						
Woodmere Walnut (Beveled Edge)						
BESTWALL FIRESTOP WALLBOARD						
Square or Tapered Edge	1/2"	4'	6' to 16'	C 36-62	Type III — Grade X SS-L-30b 7/9/63 — Supersedes SS-W-0051b SS-W-51a	ASA 97.1
	3/4"	4'	6' to 16'			
BESTWALL FIRESTOP INSULATING WALLBOARD						
Square or Tapered Edge	1/2"	4'	6' to 16'	C 36-62	Type III — Grade X SS-L-30b 7/9/63 — Supersedes SS-W-0051b SS-W-51a	ASA 97.1
	3/4"	4'	6' to 16'			
BESTWALL TILE BACKER BOARD						
Tapered Edge	1/2"	4'	8', 11' and 12'	—	—	—
BESTWALL SOUND DEADENING BOARD						
Square Edge	1/2"	4'	8'	C-208-60 Class A	LLL-1-535 Class A	—
BESTWALL FIREPROOF GYPSUM SHEATHING						
Long edges Tongue and Groove core-treated	1/2"	2'	8' Std.†	C 79-54	TYPE II SS-L-30b Supersedes SS-5-276	—
Tongue and Groove Non core-treated	1/2"	2'	8' Std.†	C 79-50		—
Square Edge core-treated	1/2"	4'	8' & 9'	C 79-54		—
BESTWALL BACKER						
Square Edge	3/8"	4'	8' Std.†	C 442-61†	Type IV SS-L-30-b	—
Tongue and Groove Edge	1/2"	2'	8' Std.†			
Firestop Tongue and Groove Edge	3/8"	2'	8' Std.†			
BESTWALL DENS-COTE BASE						
	1/2"	4'	8' & 10'†	—	—	—
BESTWALL LATH						
Plain, Pinhalath or Perfolath	3/8"	16"	4'	C 37-54	Type I SS-L-30b Supersedes SS-L-30a SS-P-43A	ASA 42.4
	1/2"	16"	4'			
Insulating Lath	3/8"	16"	4'			
	1/2"	16"	4'			
Long Length (Plain Only)	1/2"	24"	8' Std.†	—	—	—
Round Edge or Tongue and Groove Edge						
TC Lath—plain or pinhole Tapered Edge	3/8"	4'	8, 10, 12	—	—	—

†Standard Length—Other Lengths on Order. *Standard Thickness—Other Thicknesses on Order.

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PRODUCT SPECIFICATION DIRECTORY

BRAND	PRODUCT	ASTM STANDARDS	FEDERAL SPEC.	APPLIED UNDER
BESTWALL	NEAT BASE COAT PLASTER Unfibered, Fibered*, and Extra Fibered*	C-28-60	SS-P-402 (N)	ASA 42.1
BESTWALL	LITE-MIX BASE COAT PLASTER Unfibered, Fibered (Glass Only) and Masonry Mix	C-28-60	—	ASA 42.1
BESTWALL	WOOD FIBERED PLASTER	C-28-60	SS-P-402 (W)	ASA 42.1
BESTWALL	CONCRETE BOND PLASTER	C-28-60	SS-P-402 (W)	ASA 42.1
BESTWALL	PREPARED TROWEL FINISH PLASTER	—	—	ASA 42.1
BESTWALL	PREPARED SAND FLOAT FINISH PLASTER—White	—	—	ASA 42.1
BESTWALL	BUILDERS LIME (Autoclaved Finish Lime)	C 206-49	SS-L-351 (F)	ASA 42.1
BESTWALL	SMOOTH FINISHING LIME (Normal Hydrated Finish Lime)	C 6-49	SS-L-351 (F)	ASA 42.1
BESTWALL	SPEEDY MASON'S LIME (Autoclaved Mason's Lime)	C 207-49 S	SS-L-351 (M)	ASA 42.1
BESTWALL	MASON'S LIME (Normal Hydrated Mason's Lime)	C 207-49 N	SS-L-351 (M)	ASA 42.1
BESTWALL	KEENE'S CEMENT	C 61-50	SS-C-161	ASA 42.1
BESTWALL	GAUGING PLASTER —White (SATIN SPAR) Local	C-28-60 C-28-60	SS-P-402 (G) SS-P-402 (G)	ASA 42.1 ASA 42.1
BESTWALL	MOULDING PLASTER —White (SUNFLOWER) Local	C 59-50 C 59-50	— —	— —
BESTWALL	DENS-COTE	—	—	—

*Glass Fibered unless Specified Sisal

BRAND	PRODUCT	ASTM STANDARDS	FEDERAL SPEC.	APPLIED UNDER
BESTWALL	JOINT SYSTEM MATERIALS	C 475-61T		ASA 97.1
BESTWALL	METRO-MIX	C 317-55		
BESTWALL	FORM BOARD	C 318-55	Type V SS-L-30b	ASA 59.1

Any question not answered by the information on this sheet or available in the District Sales Office should be referred to the General Sales Office. Be sure to give all information as to issuing office, date of specification, job description, location, enforcing party, product involved, description of use if other than normal, amount involved, etc. This is particularly important when special limitations under standard specifications are involved.

Each Bestwall Gypsum Company Regional Sales office has a book of applicable Federal Specifications. Each Specification is preceded with a detailed analysis prepared by the Laboratory of which Bestwall products meet the specification and any limitations. The District Sales Manager is authorized to write a letter of certification in accordance with the Laboratory analysis.

BESTWALL GYPSUM COMPANY

GYPSUM WALLBOARD MANUAL

Section 4

1965 EDITION

<u>COMPANY</u>	<u>MAIN PLANT</u>	<u>% Bd</u>	<u>PLANTS</u>			<u>INDUSTRY POSITION BOARD ONLY</u>
			<u>Pl.</u>	<u>Bd.</u>	<u>Pl & Bd.</u>	
American Gypsum Co.	Albuquerque, N.M.				1	
Barrett Div.	New York, N. Y.			1	.	
Bestwall Gypsum Co.	Paoli, Pa.				9	3
Celotex Corp.	Chicago, Ill				4	
Fiberboard Paper Prod. (Pabco)	San Francisco, Calif.				4	
Flintkote	New York, N. Y.				5	
Grand Rapids Gypsum Co.	Grand Rapids, Mich.				1	
Kaiser Gypsum Co.	Oakland, Calif.				7	4
National Gypsum Co.	Buffalo, N. Y.		2		18	2
Kuberoid	Wheatland, N. Y.				1	
Texas Gypsum Co.	Dallas, Texas				1	
U. S. Gypsum Co.	Chicago, Ill.				26	1
Dierks, Inc.	Briar, Ark.				1	
Republic Gyosum Co.	Duke, Okla				<u>1</u>	
		TOTAL			82	

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SECTION 4

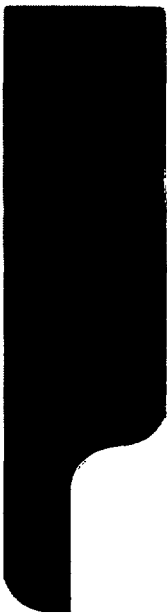
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BEST WALL GYPSUM COMPANY

Cancels previous
issueGYPSUM WALLBOARD MANUAL1965 EDITION

<u>COMPANY</u>	<u>MAIN PLANT</u>	<u>PLANTS</u>			<u>INDUSTRY POSITION BOARD ONLY</u>
		<u>% Bd</u>	<u>Pl.</u>	<u>Bd.</u>	<u>Pl & Bd.</u>
American Gypsum Co.	Albuquerque, N.M.				1
Barrett Division	New York, N.Y.			1	
Bestwall Gypsum Co.	Paoli, Pa.				9 3
Celotex Corporation	Chicago, Ill.				4
Dierks, Inc.	Briar, Ark.				1
Fiberboard Paper Products (Pabcc)	San Francisco, Calif.				4
Flintkote	New York, N.Y.				5
Grand Rapids Gypsum Co.	Grand Rapids, Mich.				1
Kaiser Gypsum Co.	Oakland, Calif.				7 4
National Gypsum Co.	Buffalo, N.Y.		2		18 2
Republic Gypsum Co.	Duke, Okla.				1
Ruberoid	Wheatland, N.Y.				1
Texas Gypsum Co.	Dallas, Texas				1
U.S. Gypsum Co.	Chicago, Ill.				26 1
				<u>TOTAL</u>	<u>82</u>

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BESTWALL GYPSUM COMPANY

GYPSUM WALLBOARD MANUAL

Section 5
Sub-section A

1965 EDITION

WALLBOARD PRODUCTS

- (a) Bestwall Gypsum Wallboard is available in square edge, tapered edge, or beveled edges. Thicknesses available are 1/4", 3/8", 1/2" and 5/8" thicknesses and 48" widths. Tapered edge differs from square edge in that during manufacture vinyl tapes up to 1/32" thick are inserted under the edges of the board. This holds up the edges of the board, taking the shape of the vinyl tape, until the core hardens and thus produces a taper on the face. Beveled edge board is made by making three score marks on each edge of the paper and then forming each edge one half perpendicular and the other half at a 45° angle. All thickness boards are bundled two pieces to the bundle.

NOTE: - Refer to the Brochure "Gypsum Wallboard Products" File No. 23-L for additional information on Wallboard Products, which need not be repeated here.

- (b) Insulating Gypsum Wallboard is well presented in the brochure. Some concerns laminate with a paper backed foil which naturally presents a smoother wrinkle free foil side. Bestwall laminates with a bare foil which will reflect even the texture of the backing paper which in no way deters from its end use. Insulating board is shipped bundled with the ivory faces together, and the foil side out being protected by total wrapping with paper and edge tapes and protector and tear strips.
- (c) Gypsum Sheathing is largely made with a water repellant core which is water-proofed with a wax-asphalt emulsion. It may be obtained untreated with the normal white wallboard core on special order. The treated board meets A.S.T.M. designation C79-54. The cover papers on gypsum sheathing are colored black and the face has a large yellow imprint with the Bestwall brand name.
- (d) New Improved Firestop has been given additional fire resistance compared to the original Firestop board. It is made in the same manner as regular Bestwall except that special ingredients (textile glass fiber and raw vermiculite unexpanded) are added to the core in carefully controlled amounts so that Bestwall Firestop lends increased fire resistance to constructions in which it is used. The face is printed to indicate it is Bestwall Type "X" fireproof board. This is so building inspectors may see that Type "X" board is installed on the proper walls needing extra fire protection.
- (e) 5/8" Firestop Gypsum Backer has the same, superior core characteristics as the New Improved Firestop. Read the brochure for details on its use.

- (f) Tile Backer Board is a new product added to Bestwall's line of Wallboard products. It is essential that the special self-adhering vinyl tape supplied by Bestwall is used with this board to seal joints, cut ends and edges. If used in showers it is recommended that it be treated as advised by the Gypsum Association in that the full surface be first water-proofed with the recommended tile adhesive.

PRE-DECORATED GYPSUM PANELING

- (g) Eternawall is regular bevel edged wallboard that has a vinyl sheet laminated to the face and around the edge onto the back. There are now 5 standard colors and a new standard true wood appearance vinyl called Woodmere Walnut. A new feature is the wrap around of the edges which insure adequate adhesion at these places. Nails are available at the plants to use with the 6 standard finishes. A Decorator line of Eternawall is also available with a multitude of colors and patterns. These special vinyls are subject to minimum orders.
- (h) There are now 5 lines of wood grain paneling called Tru-Grain. All except Knotty Pine have a random plank design of black depressed lines. The Knotty Pine design shows a plank design in its photographic reproduction. Block headed nails are available for the 4 tru-grains with the random plank design. All Tru-Grain paneling are now square edge boards. Knotty Pine, Honey Aspen and Mellow Mahogany are finished with a durable transparent coating that will withstand repeated cleaning. The Deluxe Tru-Grain panels Fruitwood and Heritage Cherry offer additional durability. Deluxe Tru-Grain has an additional 2 mil clear vinyl coating.
- (i) Formboard is made 1/2" thick and 32" wide for use as a support for poured-in-place gypsum roof decks. Both cover papers on formboard are heavy and strong to lend strength and rigidity during the pouring of the gypsum fibered concrete. The face paper is treated in manufacture with a fungicide so that mold growth will not occur during the relatively long drying period required for poured-in-place decks. The back paper has a soft absorbent face liner to promote good adhesion between it and the gypsum concrete. The formboard then acts as a tension member of the roof deck which insures high strength.
- (j) Laminated Constructions: Refer to Section 6 - Sub-Section B. There is a technical Data table on various constructions giving fire ratings, sound transmission, building codes, etc. - Section 7 - Partition and Ceiling Systems.
- (k) Joint System Products are dealt with briefly at the back of the Sweet's Bestwall Gypsum Wallboard Products literature. References are given of more detailed direction for the use of these products, Section 6 - "Joint Treatment".

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GYPSUM WALLBOARD PRODUCTS

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REINFORCED WITH GLASS FIBERS

the original
BESTWALL®
 glass fiber reinforced
 GYPSUM
 WALLBOARD

Bestwall Gypsum Wallboard consists of a glass fiber reinforced core of gypsum rock enclosed between two layers of tough paper. The durable cream face paper is folded around the long edges to reinforce and protect the core. The ends are square cut and smooth finished. A strong gray paper is on the back side. The fiberglass content of Bestwall gypsum board products is an important and unique factor to consider in specifying drywall construction. Literally miles of glass fiber filaments of uniform strength and length are dispersed in the gypsum core to add greater resilience, strength and handling ease.

THICKNESS	APPROX. CONTENT IN MILES PER SQ. FT.
3/8"	1.2
1/2"	1.6
5/8"	2.1
1 1/2" Firestop	10.4
2" Firestop	12.8

Fireproof—The solid core of gypsum wallboard is incombustible. Gypsum will not burn and will not transfer heat in excess of 212° F. until all its water of crystallization has been driven off in the form of steam.

Strength—Readily resists flexural stresses and will not crack or sag when applied to ceilings in the specified manner. Flexible enough to conform to moderately curved surfaces.

Joint Treatment—Bestwall Wallboard is finished with tapered edges to accommodate the Bestwall Joint Systems or square edges for exposed joints.

Fast Decoration—Gypsum Wallboard, a "dry" material, allows painting or other decoration shortly after application of Joint Treatment.

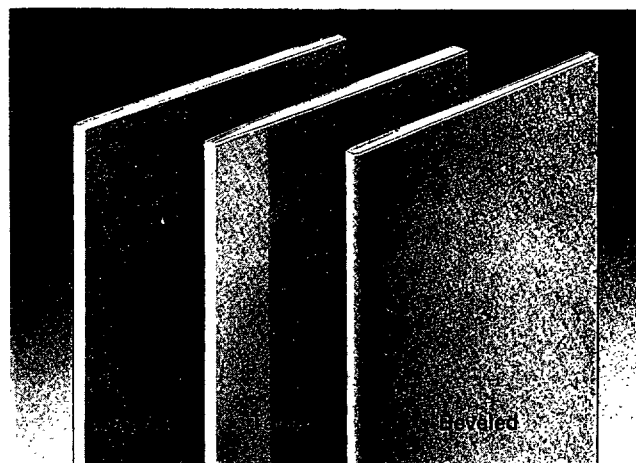
Economy—Large, lightweight panels go up fast. They may be "scored and snapped" or sawed to size.

Drywall—Plant fabricated gypsum wallboard eliminates extreme moisture in wall constructions.

LIMITATIONS OF USE:

1. Gypsum Wallboard shall not be used where it will be exposed to water or excessive moisture. Bestwall Gypsum Tile Backer Board shall be used in any high moisture area.
2. 1/4" Bestwall Gypsum Wallboard should be applied only to existing surfaces or used in temporary or display work. Surfaces should be sound. When necessary, furring strips should not be spaced over 16" o.c. 3/8" Bestwall Gypsum Wallboard should not be applied to nailing members spaced over 16" o.c. Horizontal application must be used on ceilings. 1/2" or 5/8" Bestwall Gypsum Wallboard should not be used on nailing members over 24" o.c. When applied to ceilings with the nailing members exceeding 16" o.c. the wallboard must be applied with the paper bound edges at right angles to nailing member.
3. All furring used in application of gypsum wallboard shall have a minimum cross section of 2" x 2" (nominal), with space limitations as above.

BESTWALL GYPSUM WALLBOARD



Beveled

LENGTH	WIDTH	THICKNESSES	EDGES
6' to 16' (in even feet)	4'	1/4", 3/8" 1/2", 5/8"	Tapered, Square, Beveled (special order only)

TECHNICAL DATA

Bestwall Regular Gypsum Wallboard is manufactured with Tapered or Square Edges and faced with a strong, cream-colored paper which will take any type of decorative treatment. 1/2" and 5/8" wallboard with Tapered Edges are recommended for single layer application in new construction. Tapered Edges are designed to be reinforced by the Bestwall Joint Systems for smooth, seamless surfaces.

Square Edges are recommended for use where exposed joints are acceptable. Increased resistance to fire exposure and sound transmission depend upon greater board thickness used (see Technical Data Chart, p. 6).

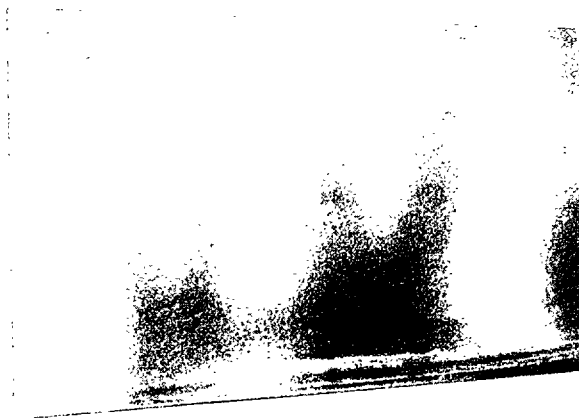
Wood stud load-bearing partitions faced on both sides with 1/2" Bestwall Gypsum Wallboard have a fire endurance of 40 minutes, as tested in accordance with E-119 Standard Method of Fire Tests of Building Construction and Materials specified by the American Society for Testing Materials. When faced with 3/8" Bestwall, the fire endurance is 25 minutes.

3/8" Gypsum Wallboard is used primarily in repair and remodeling work. Light weight permits easy handling and application. It is also recommended for use in double-layer laminated gypsum wallboard construction.

1/4" Gypsum Wallboard is a lightweight economical gypsum product for application directly over existing walls and ceilings and for use on curved surfaces and in display work.

Bestwall Gypsum Backer, designed for field lamination of gypsum wallboard, acoustical tile and other compatible materials with adhesives, provides low cost, level surfaces for further decorative treatments. It may be applied over load bearing or non-load bearing wood or metal framing with nails or clips.

INSULATING GYPSUM WALLBOARD (FOIL BACKED)



SIZES

LENGTH	WIDTH	THICKNESSES	EDGES
6' to 16' (in even feet)	4'	$\frac{3}{8}$ " $\frac{1}{2}$ " $\frac{5}{8}$ "	Tapered, Square

DESCRIPTION

Bestwall Insulating Gypsum Wallboard is regular gypsum wall board with bright aluminum foil laminated to the back surface. In a single application it provides the advantages of regular gypsum wallboard, plus an effective vapor barrier and insulating qualities. It is manufactured with Tapered or Square edges.

ADVANTAGES

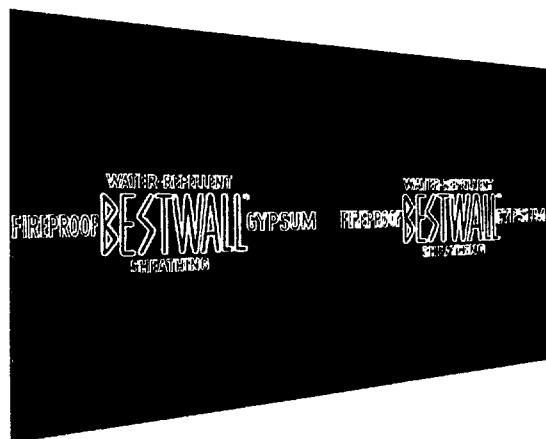
Insulation—Panels must be installed with foil side against the studs. To have reflective insulation value, FHA requires the foil to face a minimum air space of $\frac{3}{4}$ ". The aluminum foil, according to U. S. Bureau of Standards Tests, reflects 90% of radiant heat. It provides insulation approximately equal to $\frac{1}{2}$ " fiberboard.

Vapor Barrier—Bestwall Insulating Gypsum Wallboard provides an efficient vapor barrier. The aluminum foil stops vapor from entering the exterior wall construction, thereby reducing condensation in stud spaces.

Economical—Large, lightweight panels handle easily and can be scored and snapped to desired size.

Glass Fiber Reinforced—Miles of glass fibers are dispersed in the gypsum core to provide added resilience, strength and handling ease.

GYPSUM SHEATHING



SIZES

LENGTH	WIDTH	THICKNESSES	EDGES
8'	2'	$\frac{1}{2}$ "	V edge Tongue-and-Groove
8', 9'	4'	$\frac{1}{2}$ "	Square

DESCRIPTION

Bestwall Gypsum Sheathing is the only gypsum sheathing reinforced with glass fibers. The "asphalted" reinforced gypsum core is protected by highly water repellent paper, eliminating need for an underlayer of treated building paper (except where required by local building codes).

The 2' wide sheathing is manufactured with precision formed tongue-and-groove edges to provide a structurally strong and stable wall. V-tongue-and-groove edges fit snugly minimizing wind infiltration.

The 4' wide square-edge sheathing, applied vertically, completely eliminates the need for corner bracing. It is designed to meet FHA Technical Circular 12 requirements. Racking Tests were made in conformance with ASTM E72.

ADVANTAGES

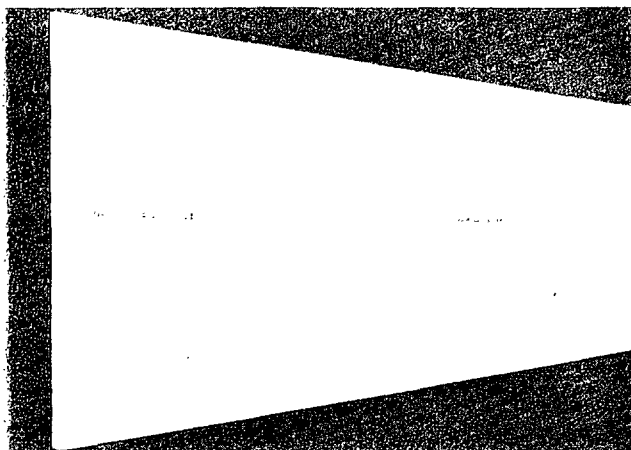
Fireproof—Exterior wood stud wall is rated for one full hour fire-resistance from both sides in combination with $\frac{5}{8}$ " Bestwall Firestop or other 1-hour interior construction applied over studs and any exterior finish (wood siding, stucco, brick, veneer, etc.) over $\frac{1}{2}$ " gypsum sheathing.

Glass Fiber Reinforced—This exclusive development assures greater flexibility and resistance to shock and setting, better nailing qualities and strength.

Water Repellent—The gypsum core contains an emulsion to provide high resistance to water absorption. Meets ASTM 79-54 including the water resistance test.

Economical—Large panels cover large areas quickly and with little waste. Building paper is not required (except where demanded by local building codes). New 4' sheathing eliminates corner bracing, thus keeping labor and material costs to a minimum.

NEW IMPROVED BESTWALL FIRESTOP



SIZES

LENGTH	WIDTH	THICKNESS	EDGES
6' to 16' (in even feet)	4'	$\frac{1}{2}$ " $\frac{5}{8}$ "	Tapered, Square or Tongue-and-Groove

DESCRIPTION

New Improved Bestwall Firestop, combining all the advantages of the original gypsum wallboard in the original Type "X" gypsum wallboard, has substantially greater glass fiber reinforcement than ever before for increased fire protection, strength and better nailing qualities. The original Type "X" gypsum wallboard provided a full 1 hour fire retardant rating in single layer application over incombustible and combustible framed walls and partitions and floor and ceiling assemblies. Now through greater glass fiber reinforcement, its fire resistance has been increased to permit two hours when used in a single layer treatment as the ceiling below an incombustible floor and ceiling assembly.

ADVANTAGES

Economical—Large, lightweight panels handle easily and can be scored and snapped to desired size.

Low Cost—New Improved Bestwall Firestop is one of the lowest cost fireproofing materials available today.

Crack-Resistance—Resists cracks due to framing movements, vibrations and settling. Unaffected by humidity or extremes in temperatures.

Strength—Resists crosswise stresses. $\frac{5}{8}$ " Firestop has flexural strength of 240 to 290 lbs. as compared to ASTM minimum requirements of 145 lbs. for $\frac{5}{8}$ " regular gypsum wallboard and a Federal Specifications minimum requirement of 105 lbs. for $\frac{1}{2}$ " regular gypsum wallboard.

MEETS BUILDING CODE REQUIREMENTS

Bestwall Firestop in various assemblies meets Building Code requirements from 45 minutes to 3 hours for interior wall and ceiling construction in buildings of all types from highly incombustible to wood frame; and for various occupancies of residential, public and commercial character.

SOUND TRANSMISSION RATINGS

Official Sound Transmission Tests of various assemblies make possible partitions with Sound Transmission Class (STC) of 34 to 58. $\frac{5}{8}$ " Bestwall Firestop over $\frac{1}{2}$ " Bestwall Sound Deadening Board each side of wood studs 16" on center has been proven in a full scale fire test to have a 1 hour fire resistance. This same construction has an STC of 45.

FIRE RESISTANCE

Bestwall Firestop is recommended where extra fire resistance is required in residential, commercial and public buildings. $\frac{5}{8}$ " thickness for years has provided one-hour fire resistance in single layer application on both walls and ceilings over wood or steel, while $\frac{1}{2}$ " thickness has provided 45 minutes fire rating in single layer application when applied over wood framing, for both walls and ceilings.

See the tabulation on pages 8-9 for greater fire resistance in single layer application for both $\frac{1}{2}$ " and $\frac{5}{8}$ " thick Bestwall Firestop.

The extra fire protection offered by Bestwall Firestop is built right into the core through the use of specific amounts of incombustible glass fibers and unexpanded vermiculite.

$\frac{1}{2}$ " and $\frac{5}{8}$ " Bestwall Firestop qualify for Building Code acceptance in the constructions as shown in the table on pages 8-9. Bestwall Firestop is listed by Underwriters and carries the UL Label for 45 minutes, 1, 2 and 3 hour Fire Resistance in various Designs and for Fire Hazard Classification of 10-15 Flame Spread.

MANIFEST FOR $\frac{5}{8}$ " BESTWALL FIRESTOP

FIRE HAZARD CLASSIFICATION

Flame Spread	10-15
Fuel Contributed	5-15
Smoke Developed	0.45



FLOOR AND CEILING

Design No. 69—2 hr.
Design No. 217—2 hr.
Design No. 13—1½ hr.
Design No. 2—1 hr.
Design No. 1—1 hr.

FIRE RESISTANCE CLASSIFICATION

COLUMN PROTECTION

Design No. 18—3 hr.
Design No. 8—2 hr.

WALLS AND PARTITIONS

Design No. 5—3 hr.
Design No. 7—2 hr.
Design No. 5—1 hr.
Design No. 10—1 hr.
Design No. 11—1 hr.

YOU ARE PROTECTED AGAINST SUBSTITUTION of inferior material by Underwriters' Laboratories Inspection Service, as evidenced by the Underwriters' Laboratories Manifest which appears on the twin mounting tape binding each bundle of 2 pieces. And especially important to architects and building inspectors, the front of each sheet is marked with " $\frac{5}{8}$ " Bestwall Firestop Type X" so that it's easy to identify when in place.

5/8" FIRESTOP GYPSUM BACKER**SIZES**

LENGTH	WIDTH	THICKNESS	EDGES
8'	2'	5/8"	Tongue-and-Groove
6' to 16'	4'	5/8"	Square

DESCRIPTION

Bestwall 5/8" Firestop Gypsum Backer, with greater glass fiber reinforcement than ever before, is used as a backing for decorative surface treatments of acoustical plasters, tile, plywood and various veneers. A single layer application of 5/8" Bestwall Firestop Gypsum Backer on both sides of wood or steel framing, enables load bearing or non-load bearing wall, floor and ceiling assemblies to resist temperatures rising to 1700°F in a standard time temperature curve for one hour.

Firestop Gypsum Backer consists of a gypsum core with unexpanded vermiculite, reinforced with literally miles of high tensile strength glass fibers, firmly bonded to a fibrous grey paper on both sides. The vermiculite balances gypsum shrinkage by expanding when exposed to heat, while the textile glass filaments keep the core intact even after its chemically combined water has been released. Official tests by Underwriters' Laboratories have proven the fire resistance of wall and floor and ceiling assemblies do not need the joints treated and finished for the fire resistance ratings shown in the chart on page 8-9.

COLUMN FIREPROOFING**DESCRIPTION**

Fireproofing with Bestwall Firestop Gypsum Wallboard provides a fast, efficient and economical method of protecting steel columns. Fire resistant assemblies of two and three hours are obtainable depending upon the number of layers of 5/8" Bestwall Firestop used. These layers are held in place by a combination of screws and metal studs. Both the two and three hour fire rated assemblies of Firestop have passed Official Fire Tests conducted by the Underwriters' Laboratories.

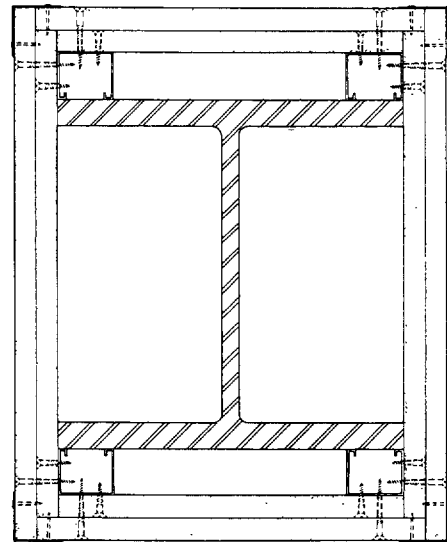
ADVANTAGES

Fire Resistance—3 hour fire resistive protection for steel columns can be obtained with three layers of 5/8" Bestwall Firestop and 2 hour fire resistive protection can be obtained with two layers of 5/8" Firestop. Where necessary 1 hour of fire protection can be obtained with two layers of 1/2" Bestwall Gypsum Wallboard and 1 1/2 hour protection with 3 layers of Bestwall Gypsum Wallboard.

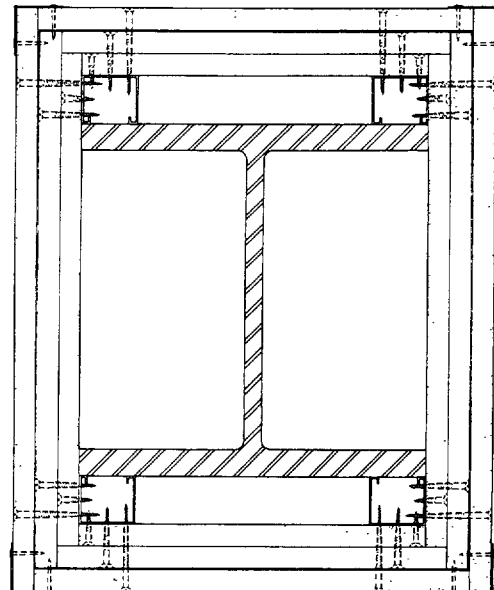
Economy—Low material cost, speed of erection and minimum number of materials provides lower construction costs.

Lighter—As compared to other types of fireproofing, a dead load saving of from 50 to 75% can be realized with Bestwall Firestop Column Fireproofing.

Speed of Erection—Bestwall Firestop Gypsum Wallboard can be installed quickly and easily when used for column fireproofing following Bestwall details. Minimum amount of the wire and adhesives are used.



TWO-HOUR fire rated steel column assembly with 5/8" Bestwall Firestop.



THREE-HOUR fire rated steel column assembly with 5/8" Bestwall Firestop.

TILE BACKER BOARD

SIZES

LENGTH	WIDTH	THICKNESS	EDGE
8', 11', 12'	4'	$\frac{1}{2}$ "	Tapered

DESCRIPTION

Bestwall Tile Backer Board is a water-resistant gypsum product with a light blue face paper, designed for use as a base for the adhesive application of ceramic, metal or plastic tile. The gypsum core consists of incombustible gypsum rock, reinforced with glass fibers, combined with an emulsion giving high water resistance. This new Bestwall product is ideal for bathrooms, kitchens, powder rooms, and all high moisture areas.

Bestwall Tile Backer Board can be erected as easily as wallboard and requires no finishing of joints or nail heads with joint treatment nor further waterproofing under tile applied adhesively. Tile Backer Board is sealed at cut edges with a special 2" wide self-adhering vinyl tape. Approximately one roll per msf. wallboard. Also used over any joints under tile.



ADVANTAGES

Water Resistant—Core is specially treated with a water resisting emulsion and the paper is treated in manufacturing to make Bestwall Tile Backer Board more water resistant.

Economical—Taping joints and cut edges with vinyl pressure-sensitive tape can save time and money.

Ease of Application—Bestwall Tile Backer Board can be applied like regular gypsum wallboard. Cut edges can be sealed easily with vinyl tape and no waterproofing primer is necessary before applying the tile.

Glass Fiber Reinforced—Miles of glass fiber filaments of uniform strength and length are dispersed in the gypsum core to provide greater shock resistance and greater compressive strength.

Convenience Outside Tile Area—For areas not covered by tile, joints and nail heads may be treated as those in regular wallboard and the surface primed and painted with adjacent areas of regular wallboard.

PRE-DECORATED GYPSUM PANELING

ETERNAWALL



SIZES

LENGTH	WIDTH	THICKNESSES	EDGES
8', 10' (other lengths on order)	4'	$\frac{1}{2}$ " ($\frac{3}{8}$ ", $\frac{5}{8}$ " on order)	Beveled

DESCRIPTION

Bestwall Eternawall combines all the advantages of regular gypsum wallboard with the beauty and durability of vinyl. The fireproof gypsum core of the panels are reinforced with glass fibers for extra strength. The deep linen-textured vinyl surface provides permanent scuff, crack and chip-resistance. Eternawall Panels are available in 5 standard colors: Sand, Shadow Gray, Snowdrift, Seafoam Blue and Spring Green. Also available in the Standard Line of Eternawall is Woodmere Walnut, a striking new pattern that gives a rich true-wood appearance.

The Decorator Line of Eternawall is available in over 200 trend setting colors and patterns that offer unlimited design possibilities.

Both the standard colors and the Decorator Line provide bright, attractive interiors or accent walls in homes as well as commercial and institutional structures . . . whenever beautiful, easy-to-clean walls are desired.

ADVANTAGES

Fade-Resistant Colors—Eternawall colors are permanently fade resistant. Inexpensive to maintain, the color, texture or design will not be impaired when cleaned.

Easy Maintenance—An occasional wipe with a damp cloth keeps the vinyl surface clean and new looking. No special treatment is needed. The surface may be repainted, if desired, to accommodate subsequent changes in decor.

Easy to Install—Large panels handle with the ease of regular gypsum wallboard. Vinyl surface is easily scored and the board snapped to size. Nails of matching colors blend with the paneling.

Reinforced with Glass Fibers—Miles of glass fibers reinforce the gypsum core for added impact strength and resilience.

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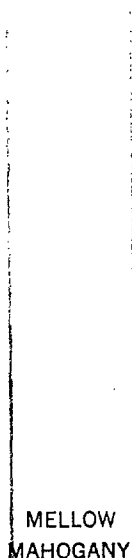
TRU-GRAIN



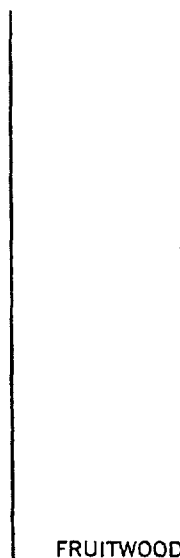
KNOTTY PINE



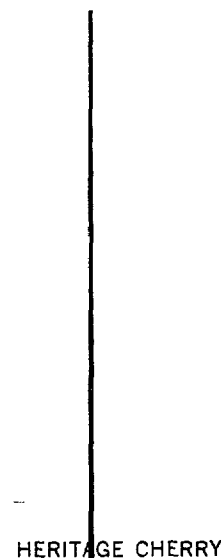
HONEY ASPEN

MELLOW
MAHOGANY

DELUXE TRU-GRAIN



FRUITWOOD



HERITAGE CHERRY

SIZES

LENGTH	WIDTH	THICKNESSES	EDGES
8' 9' 10'	4'	$\frac{3}{8}$ " ($\frac{1}{2}$ " on order)	Square

LENGTH	WIDTH	THICKNESSES	EDGES
8' 9' 10'	4'	$\frac{3}{8}$ " ($\frac{1}{2}$ " on order)	Square

DESCRIPTION

Bestwall Tru-Grain Gypsum Paneling is regular gypsum wallboard pre-finished with beautiful photographic reproductions of selected wood panels. These reproductions are printed on a special paper and cemented to the face of the gypsum wallboard.

The Bestwall Tru-Grain Line is available in three low-cost woodgrain patterns, Knotty Pine, Honey Aspen and Mellow Mahogany. The random plank design of Tru-Grain gives a handsome true-wood look and makes joints easier to conceal. All are finished with a durable transparent coating.

Bestwall Deluxe Tru-Grain is available in two luxurious woodgrain patterns, Fruitwood and Heritage Cherry in

random plank design. In addition to providing high style beauty, this premium gypsum paneling offers added durability. Deluxe Tru-Grain has a 2 mil clear vinyl covering which gives added resistance to scuffing and insures classic long-lasting beauty.

Bestwall Tru-Grain Gypsum Paneling combines the beauty of wood panels with the cutting and handling ease, the incombustibility and economy of gypsum wallboard. It can be scored with a knife and snapped off to the desired size or can be sawed. Ideal for new construction as well as remodeling, it lends warmth and color to homes, offices, motels, restaurants and other commercial and institutional buildings.

ADVANTAGES

Five Finishes—Five striking true-wood reproductions are available: Knotty Pine, Honey Aspen and Mellow Mahogany in the Tru-Grain Line and Fruitwood and Heritage Cherry in the Deluxe Tru-Grain Line.

Strength—Miles of glass fibers dispersed in the fireproof gypsum core assure added strength and resilience. Deluxe Tru-Grain has a 2 mil clear vinyl covering to provide extra scuff resistance.

Easy to Apply—Large panels go up fast with no heavy handling. Tru-Grain is available in easy-to-apply 4' x 8'

panels. Can be quickly nailed in place with matching color-headed nails.

Low Maintenance—Tru-Grain is easy to clean. Just an occasional wipe with a damp cloth will keep panels fresh and sparkling.

Fire Resistance—The core of Tru-Grain is fireproof gypsum, a mineral that will not burn.

Easy-To-Cut—Bestwall Tru-Grain can be scored with a knife and snapped off to the desired size or can be sawed.

TECHNICAL DATA • GYPSUM WALLBOARD CONSTRUCTION

CONSTRUCTION	THICK- NESS	WEIGHT LB./SQ. FT.	WALL SURFACE	SOUND TRANSMISSION CHARACTERISTICS												
				INDIVIDUAL FREQUENCIES—CPS												
				125	175	250	350	500	700	1000	1400	2000	2800	4000		
PARTITIONS: 2" x 4" Wood Studs: 16" O. C. Load bearing except when noted "N".	4 3/4"	5.2	3/4" Bestwall, Both sides	—	—	—	—	—	—	—	—	—	—	—		
	4 3/4"	5.9	1/2" Bestwall, Both sides	22	23	28	32	33	41	44	—	46	—	39		
	4 3/4"	6.0	1/2" Bestwall, Both sides, with Mineral Wool in stud space	—	—	—	—	—	—	—	—	—	—	—		
	4 3/4"	5.2	3/4" Bestwall Firestop, Both sides	—	—	—	—	—	—	—	—	—	—	—		
	4 3/4"	5.9	1/2" Bestwall Firestop, Both sides	—	—	—	—	—	—	—	—	—	—	—		
	4 3/4"	6.0	1/2" Bestwall Firestop, Both sides, with Mineral Wool in stud space	—	—	—	—	—	—	—	—	—	—	—		
	(N)	4 3/4"	7.0	3/4" Bestwall Firestop, Both sides	22	16	29	31	33	38	41	41.5	36	36.5	45	
		5 1/2"	9.5	3/4" Bestwall Firestop, 1 layer one side, 2 layers other side	23.5	19.5	33	34.5	36	40	43	45	40	40	47	
		6 1/4"	12.0	3/4" Bestwall Firestop, 2 layers each side	26.5	22	36	37	42	43.5	48	49.5	45	44.5	51	
		5 3/4"	8.5	3/4" Bestwall Firestop over 1/2" sound deadening board both sides	25	30	38	43	47	52	57	58	55	54	59	
		—	13.4	3/4" Bestwall Firestop, 2 layers each side staggered studs	41	41	41	43	46	48	49	—	41	—	54	
		5 3/4"	7.1	3/4" Bestwall Firestop, 1 layer nailed one side, 1 layer on resilient furring other side	27.5	26	33	41	43	49	51	51	42	41.5	51	
	(N)	5 3/4"	7.2	3/4" Bestwall Firestop, 1 layer nailed one side, 1 layer on resilient furring other side plus fiber glass insulation in stud space	33.5	35	43	50.5	51	54	55	55	54	47.5	53	
		6"	9.6	3/4" Bestwall Firestop, 2 layers one side, 1 layer on resilient furring other side	32.5	32	38	44.5	49	52.5	55	56.5	49	45	54	
		5 1/4"	8.2	3/4" Bestwall, 2 layers both sides	27	24	31	35	40	42	46	—	53	—	48	
		5 3/4"	9.9	1/2" Bestwall, 2 layers both sides	—	—	—	—	—	—	—	—	—	—	—	
		5 3/4"	11.0	1/2" Bestwall, 2 layers both sides, staggered studs	42	40	39	40	45	42	45	—	41	—	53	
		Nailable Steel Stud: Load Bearing 3 3/4" x 24" O. C.			4 3/4"	6.5	3/4" Bestwall Firestop, 1 layer each side	—	—	—	—	—	—	—	—	
		6 1/4"	11.5	3/4" Bestwall Firestop, 2 layers each side	—	—	—	—	—	—	—	—	—	—	—	
		Screw Type Steel Stud: Non Load Bearing 1 1/2" x 24" O. C.			2 3/4"	5.7	3/4" Bestwall Firestop, 1 layer each side	25	29	35	35	40	41	44	43	33
		4 3/4"	6.0	3/4" Bestwall Firestop, 1 layer each side	20.5	26	31	37	41.5	46	50	50.5	42	40	48	
		3 3/4" x 24" O. C.	8.5	3/4" Bestwall Firestop, 1 layer one side, 2 layers other side	24	25	33	40	46	49	52	51	44	45	50	
		3 3/4" x 24" O. C.	8.6	3/4" Bestwall Firestop, 1 layer one side, fiber glass insulation in stud space, 2 layers other side	31	37	45	49	52	55	57	55	50	48	51	
1 3/4" x 24" O. C.		3 3/4"	3/4" Bestwall Firestop, 1 layer one side, fiber glass insulation in stud space, 1 layer 3/4" Bestwall Firestop over 1" core board other side	30	38	43	49	51	54	55	54	51	50	53		
3 3/4" x 24" O. C.		6 1/4"	11.0	3/4" Bestwall Firestop, 2 layers each side	28	29	36	44	48	52	55	53	47	51	55	
3 3/4" x 24" O. C.		6"	8.8	3/4" Bestwall Firestop, 2 layers one side, 1 layer over 1/2" fiber glass board other side	25	33	41	47	52	54	56	55	50	51	55	
3 3/4" x 24" O. C.	6 1/4"	11.1	3/4" Bestwall Firestop, 2 layers each side, fiber glass insulation in stud space	36	41	49	51	53	55	56	55	50	52	55		
Semi-Solid: Gypsum Stud Non Load Bearing	2 1/4"	7.2	Bestwall Hummer System "B" 3/4" Bestwall Firestop, 1 layer each side 1" x 6" Rib	21	17	27	34	36	40	39	43	36	36	39		
	4 3/4"	10.0	3/4" Bestwall Firestop over 1/2" Sound Deadening Board each side of 2 1/2" x 3" Gypsum Rib	28	36	43	46	50	54	58	59	58	57	59		
	2 1/4"	7.8	Bestwall Hummer System "C" 3/4" Bestwall, 2 layers each side of 3/4" x 6" Rib	23	23	31	36	36	38	39	39	36	36	41		
	Solid Gypsum Board			2"	8.1	1/2" Bestwall each side, 1" Core Board	—	—	—	—	—	—	—	—		
Double Solid Gypsum Board	2 1/4"	9.1	1/2" Bestwall Firestop each side, 1" Core Board	—	—	—	—	—	—	—	—	—	—	—		
	4"	13.4	3/4" Bestwall Firestop, 2 layers each side 1" Rib	29.5	31	34.5	37	38	36.5	35	—	42	—	51.5		
	5"	13.4	3/4" Bestwall Firestop, 2 layers each side 1" Rib	32	34	37.5	39.5	39.5	38	38.5	—	46.5	—	54		
	6"	9.5	3/4" Bestwall over 3/4" Bestwall Firestop, each side 1" ribs	—	—	—	—	—	—	—	—	—	—	—		
	6"	13	1/2" Bestwall over 1" Core Board, each side of 3" air space	31	36	41	47	49	49	49	47	51	56	60		
	6"	17	1/2" Bestwall, 1 layer over 1" Core Board each side 3" air space with 1" Core Board centered in air space	29	34	40	45	47	50	54	55	59	60	60		
FLOOR & CEILING: Wood Joists 16" O. C. Finished floor on rough subfloor	Ceiling	—	3/4" Bestwall	—	—	—	—	—	—	—	—	—	—	—		
		11.4	1/2" Bestwall	—	—	—	—	—	—	—	—	—	—	—		
		11.4	1/2" Bestwall Firestop	—	—	—	—	—	—	—	—	—	—	—		
		12.0	3/4" Bestwall Firestop	—	—	—	—	—	—	—	—	—	—	—		
		14.6	2 layers of 3/4" Firestop with resilient furring channel 24" O. C. between layers	—	—	—	—	—	—	—	—	—	—	—		
Steel Bar Joists 24" O. C.	Ceiling	11.5	1/2" Bestwall Firestop applied to resilient metal furring 24" O. C.	34	35	37	44	48	45	49	49	51	50	54		
		—	3/4" Bestwall, 2 layers	—	—	—	—	—	—	—	—	—	—	—		
		—	1/2" Bestwall, 2 layers	—	—	—	—	—	—	—	—	—	—	—		
		34.2	3/4" Bestwall Firestop nailed or screwed to metal furring 16" O. C.	—	—	—	—	—	—	—	—	—	—	—		
		34.2	3/4" Bestwall Firestop Backer, nailed or screwed to metal furring 16" O. C.	—	—	—	—	—	—	—	—	—	—	—		
With 2 1/2" Concrete Floor	—	33.9	1/2" Bestwall Firestop, metal furring 24" O. C.	—	—	—	—	—	—	—	—	—	—	—		
		34.1	3/4" Bestwall Firestop, metal furring 24" O. C.	—	—	—	—	—	—	—	—	—	—	—		
		34.6	3/4" Bestwall Firestop, metal furring 24" O. C.	—	—	—	—	—	—	—	—	—	—	—		
STEEL COLUMN Fire Proofing	—	—	1/2" Bestwall, 2 layers	—	—	—	—	—	—	—	—	—	—	—		
		—	1/2" Bestwall, 3 layers	—	—	—	—	—	—	—	—	—	—	—		
		—	3/4" Bestwall Firestop, 2 layers	—	—	—	—	—	—	—	—	—	—	—		
		—	3/4" Bestwall Firestop, 3 layers	—	—	—	—	—	—	—	—	—	—	—		

1. Fire Hazard Classification—Official Underwriters' Tests.
1/2" and 3/4" Bestwall Firestop, 10-15 (LABELED)
3/4", 1/2", and 3/4" Bestwall, 10-15 (NOT LABELED).

2. This table is a summary only, based on tests sponsored by the Bestwall Gypsum Company, the Gypsum Association and/or others. The fire resistive ratings, weights and sound characteristics are based on assemblies with specific details as covered in official test reports and/or publications of Underwriters' Laboratories, the National Bureau of Standards, Ohio State University, Geiger and

Hamme, Riverbank Laboratories, Ohio Research Corporation and/or the Bestwall Gypsum Company.

3. Inconsistencies in test results are due to tests over a period of 20 years and some variations in laboratory facilities.

4. The performance of a wall or a floor and ceiling assembly in an actual building is affected by installation details at intersection with columns, floors and ceilings, by door and other opening details, by fixtures, plumbing and other items put into the assemblies.

BESTWALL GYPSUM WALLBOARD PRODUCTS**SYSTEMS ENGINEERING**

SOUND TRANS. CHAR.				FIRE RESISTANCE		MODEL BUILDING CODE APPROVALS
STC 5	9 FREQ. AVG.	SPEECH PRIVACY RANGE 6	TEST REF.	RATING 7	TEST REF.	
—	—	—	—	25 Min.	—	A B C
37	34	—	BS-234	40 Min.	—	A B C
—	40	—	—	1 Hr.	—	A B C
—	34	—	—	30 Min.	U.L. #1	B C
—	40	—	—	45 Min.	—	—
—	—	—	—	1 Hr.	—	—
34	32	38	OR-64-8	1 Hr.	U.L. #5	A B C
37	35	41	OR-64-11	1½ Hr.	EST.	—
41	39	46	OR-64-12	2 Hr.	T-194	A B C
46	45	54	OR-64-67	1 Hr.	T-3006	—
—	45	—	BS-244	2 Hr.	EST.	—
43	40	46	OR-64-19	1 Hr.	EST.	—
50	48	53	OR-64-16	1 Hr.	EST.	—
48	45	51	OR-64-15	1½ Hr.	EST.	—
—	38	—	BS-225	1 Hr.	—	A
—	39	—	—	1½ Hr.	—	A
—	43	—	BS-235	—	—	—
42	38	—	—	1 Hr.	U.L. #3	A B C
47	44	—	—	2 Hr.	U.L. #4	B C
35	36	—	TL-62-72	1 Hr.	T-2316	—
42	38	45	OR-63-11	1 Hr.	T-2016	A B C
43	40	48	OR-64-32	1½ Hr.	EST.	—
50	47	53	OR-64-51	1½ Hr.	EST.	—
52	47	53	OR-64-61	1½ Hr.	EST.	—
47	44	51	OR-64-52	2 Hr.	EST.	—
48	46	53	OR-64-34	2 Hr.	EST.	—
52	50	54	OR-64-50	2 Hr.	EST.	—
35	32	37	BW-8 Ft.	1 Hr.	U.L. 10	A B C
51	48	56	OR-64-57	1 Hr.	EST.	—
37	34	37	TL-60-131	1 Hr.	T-1276	A B C
—	37	—	—	2 Hr.	—	—
—	36	—	—	2 Hr.	—	—
—	37	—	TR-57-42	2 Hr.	U.L. #7	A B C
—	40	—	TR-57-43	3 Hr.	U.L. #5	A B C
—	—	—	—	1½ Hr.	U.L.	—
47	46	52	OR-64-39	2 Hr.	T-2575	A B C
51	46	54	OR-64-58	3 Hr.	EST.	—
58	53	58	OR-64-59	3 Hr.	EST.	—
—	—	—	—	15 Min.	—	A B C
—	—	—	—	25 Min.	—	A B C
—	—	—	—	45 Min.	U.L. #1	C
—	—	—	—	1 Hr.	U.L. #1	A B C
50	—	—	—	2 Hr.	U.L. #217	—
Est.	—	—	—	—	—	—
47	44	49	TL-64-155	1 Hr.	U.L. #33	—
—	—	—	—	30 Min.	—	—
—	—	—	—	1 Hr.	—	—
—	—	—	—	1 Hr.	U.L. #2	A B C
—	—	—	—	1 Hr.	—	A B C
—	—	—	—	1½ Hr.	U.L. #17	—
—	—	—	—	1½ Hr.	U.L. #13	—
—	—	—	—	2 Hr.	U.L. #69	—
—	—	—	—	1 Hr.	—	—
—	—	—	—	1½ Hr.	—	—
—	—	—	—	2 Hr.	U.L. #8	—
—	—	—	—	3 Hr.	U.L. #18	—

5. STC under Sound Characteristics is Sound Transmission Class.

6. Average decibel loss in 500-2800 CPS range.

7. Official Underwriters' Tests have proven joint finishing is not required for the rating in assemblies of Firestop.

8. Under "Model Building Code Approvals" A, refers to International Conference of Building Officials; B, refers to Southern Building Code Congress; C, refers to Building Officials Conference of America. Additional Approvals requested.

The Bestwall Gypsum Company has long been a leader in Laminated Gypsum Wallboard Partition Systems. First with proven fire and sound ratings, Bestwall Systems offer the utmost in protection and economy. The laminated construction of these strong, durable systems provides a resistance to nail pops and joint beading that often plague conventional drywall systems.

Bestwall Systems Engineers, specialists in the installation of these drywall systems, are available through Bestwall Gypsum Company Sales Offices to assist with architectural detailing, quantity surveys, and on-the-job construction. They are thoroughly trained to recommend the proper combination of systems to meet the most demanding specifications.

SYSTEM	FIRE RATINGS	SOUND CONTROL	PAGE
TWO LAYER	1 Hr.	38 Db.	10
STRIP LAMINATION	—	34 Db.	11
2¼" SEMI-SOLID	1 Hr.	30 Db.	12
4" SEMI-SOLID	2 Hrs.	37 Db.	13
5" SEMI-SOLID	3 Hrs.	40 Db.	13
SEMI-SOLID GYPSUM			
STUD WALL	1 Hr. Est.	51 Db.	14
2" SOLID	2 Hrs.	36 Db.	15
DOUBLE SOLID	2 Hrs.	47 Db.	16
SOUND DEADENING			
BOARD	1 Hr.	45 Db.	17
METAL STUD FRAMING	1 Hr.	42 Db.	18

BESTWALL

THE FOLLOWING METAL COMPONENTS MANUFACTURERS ARE COOPERATING WITH THE BESTWALL GYPSUM COMPANY'S SYSTEMS ENGINEERING PROGRAM

Curtis Partition Corp. 722 Liberty Ave., North Bergen, N. J.
 Donn Products 700 Bassett Road, Westlake, Ohio
 Henges Company 2814 Locust Street, St. Louis 3, Mo.
 National Rolling Mills P. O. Box 205, Malvern, Penna.
 Neslo Partitions P. O. Box 427, Doylestown, Penna.
 Penn Metal Co. P. O. Box 1468, Parkersburg, W. Va.
 White Partitions Co. 56 Glenwood Ave., Boston 36, Mass.

TWO LAYER Laminated Construction

ONE-HOUR FIRE RATED

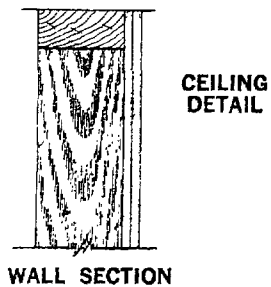
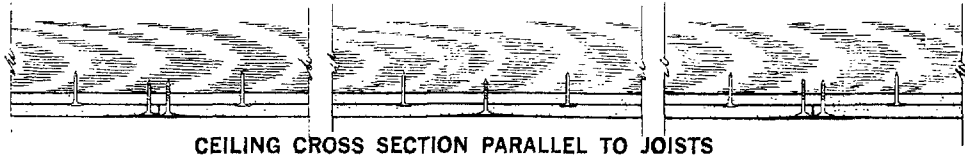
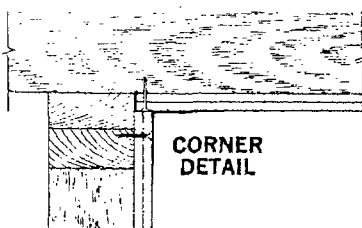
WHAT THE TWO-LAYER LAMINATION SYSTEM PROVIDES:

- FIRE RESISTANCE—ONE-HOUR (with two layers $\frac{3}{8}$ " gypsum wallboard).
- RESISTANCE TO NAIL POPPING—Freedom from nail popping and joint beading which plague conventional drywall systems.
- STRENGTH—Two-layer lamination has greater strength than single layer application.
- STRAIGHT WALL & CEILING SURFACES—Lamination creates smooth monolithic walls and ceilings.
- SOUND TRANSMISSION LOSS—43 Decibels (Tested before 1957), 38 Decibels (Tested 1958), with two layers $\frac{3}{8}$ " gypsum wallboard.

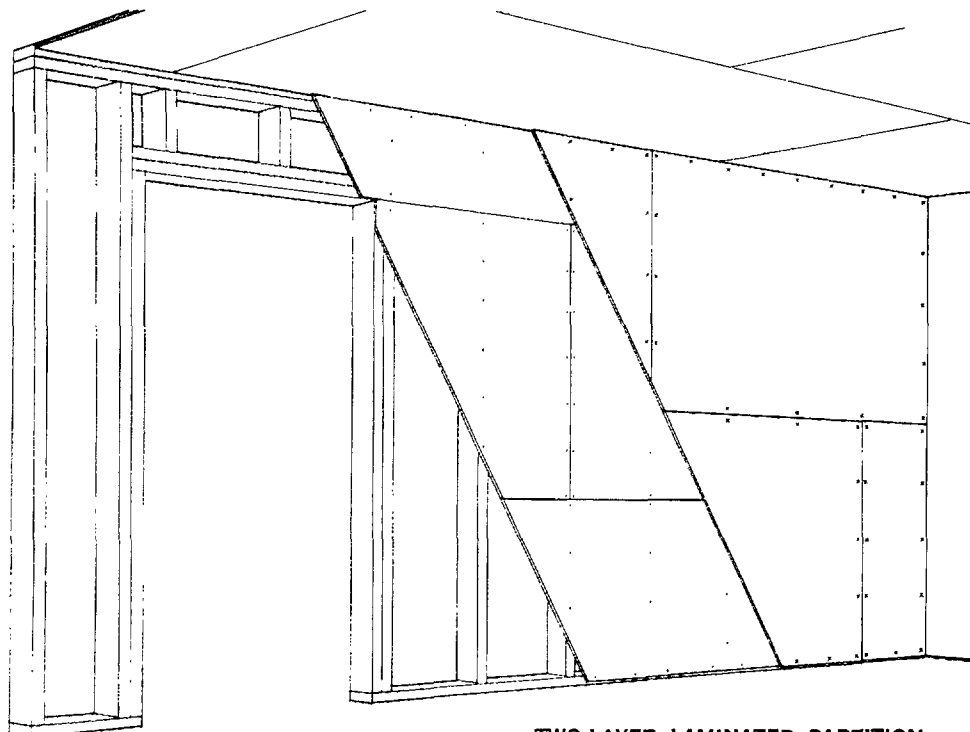
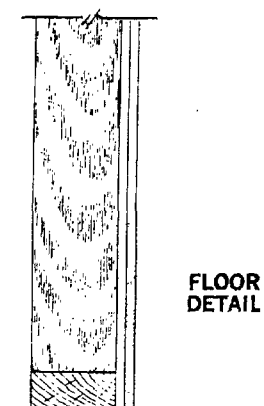
WHAT THE TWO-LAYER SYSTEM IS!

Lamination is an advanced system of wall and ceiling construction erected by laminating two layers of Bestwall Glass Fiber Reinforced Gypsum Wallboard to conventional framing. The first layer is nailed. The second is applied with adhesive and reduced number of fasteners. It is the basic system for fire-rated, durable walls and ceilings over framing for residential, institutional, commercial, and multi-dwellings work in new construction or remodeling based on the original two-layer application developed by E. B. Hummer in the early 1930's.

Reference: Bestwall Hummer Systems Brochure #BW-62380



WALL SECTION



SGP 0028507

STRIP LAMINATION

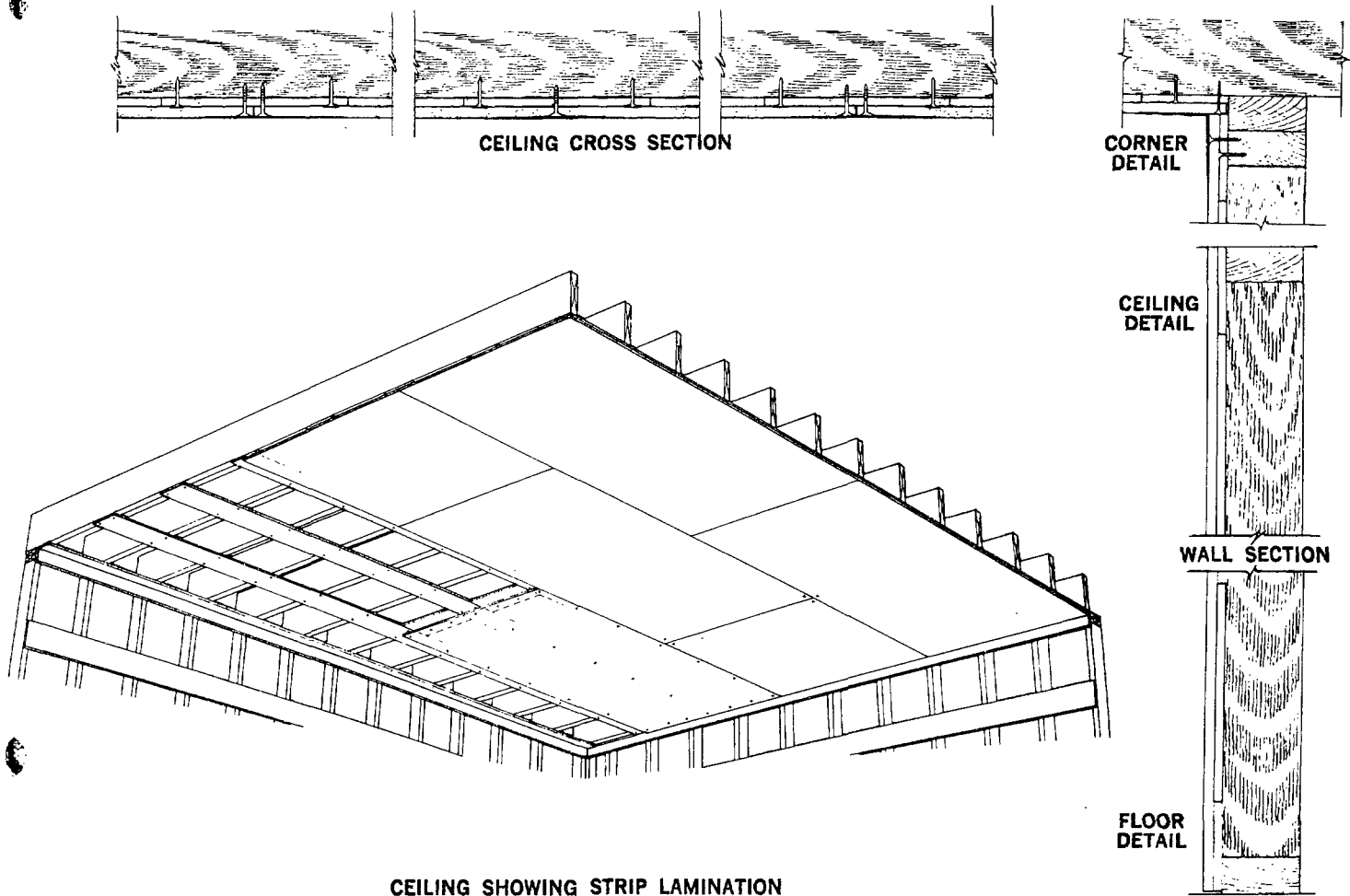
WHAT THE STRIP LAMINATION SYSTEM PROVIDES:

- RESISTANCE TO NAIL POPPING—Same freedom from nail popping and joint beading provided by two layer system.
- STRENGTH—Lamination at board center, edges, and ends greatly strengthens application.
- STRAIGHT WALL AND CEILING SURFACES — Lamination creates smooth monolithic walls.
- SOUND TRANSMISSION LOSS—34 Decibels (Tested before 1957).

WHAT STRIP LAMINATION IS!

This **original** strip laminated method of applying Bestwall Gypsum Wallboard provides nearly all the advantages of two-layer lamination at lower cost. 8" wide strips of $\frac{3}{8}$ " gypsum wallboard 2' on center (4" wide at ceiling and side wall intersection and at floor) are applied at right angles to framing of walls and ceilings. $\frac{1}{2}$ " Bestwall Gypsum is laminated to these strips. The System is recommended for framed residential and commercial work in new construction or remodeling—wherever straight walls and ceilings of long-lasting strength and smooth surface appearance are desired.

Reference: Bestwall Hummer Systems Brochure #BW-62385



SEMI-SOLID Non-Load Bearing Partitions

ONE-HOUR FIRE RATED

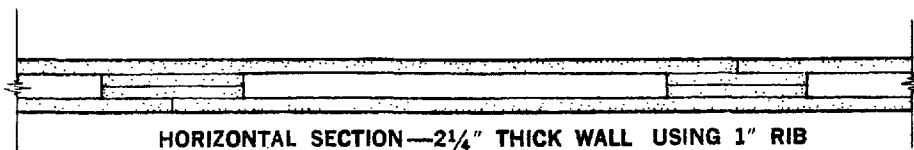
WHAT THE SEMI-SOLID SYSTEM PROVIDES:

- FIRE RESISTANCE—ONE-HOUR with $\frac{5}{8}$ " Bestwall Firestop.
- FREEDOM FROM NAIL POPPING.
- ECONOMICAL—Ease of application and speed of installation can save time and money.
- STRENGTH—More rugged as determined by ASTM E 72-55 Impact Test than wall with 2" x 4" studs, 16" o.c., faced with $\frac{1}{2}$ " gypsum wallboard.
- STRAIGHT WALL SURFACES—Lamination creates smooth monolithic walls and reduces joint beading.
- EXTRA USABLE FLOOR SPACE—With $2\frac{1}{4}$ " thick partitions, 20 sq. ft. additional floor space when compared with 2" x 4" stud wall construction for every 100 lin. ft. of wall.
- SOUND TRANSMISSION LOSS—35 Decibels (Tested before 1957), 30 Decibels (Tested 1958). ($2\frac{1}{4}$ " partition.)

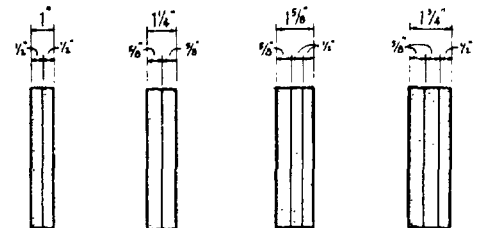
WHAT THE SEMI-SOLID LAMINATED SYSTEM IS!

The Bestwall Hummer Semi-Solid Gypsum Partition System is the original non-load bearing construction erected by laminating $\frac{5}{8}$ " Bestwall Firestop Gypsum Wallboard to 1" x 6" gypsum ribs spaced 24" on center. Other board facings may be used. 6" wide ribs of $1\frac{1}{4}$ ", $1\frac{5}{8}$ ", and $1\frac{3}{4}$ " thickness are also available for wider air space. The Semi-Solid Partition is recommended for institutional, commercial, and residential work in both new construction and remodeling wherever the best in fire-rated, non-load bearing thin partitions is required.

Reference: Bestwall Hummer Systems Brochure #BW-62390

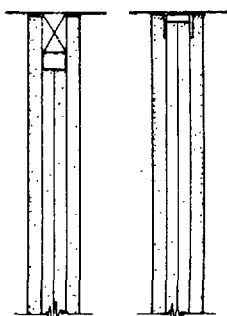


HORIZONTAL SECTION— $2\frac{1}{4}$ " THICK WALL USING 1" RIB

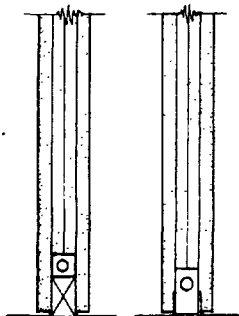


PRE-LAMINATED RIBS AVAILABLE

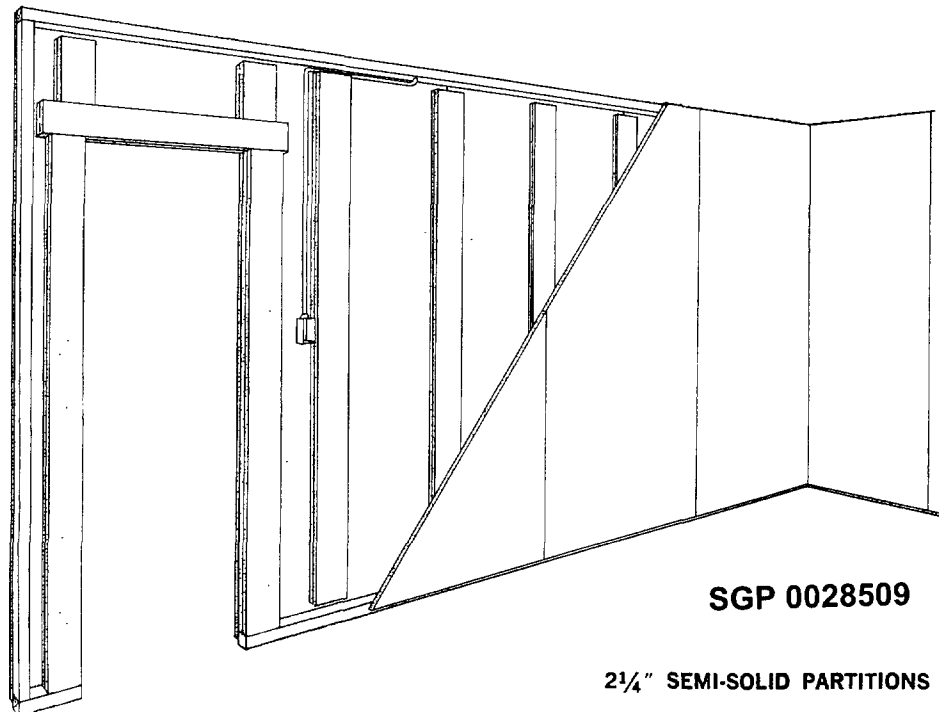
CEILING DETAIL



**WALL SECTION
WOOD METAL**



FLOOR DETAIL



SGP 0028509

$2\frac{1}{4}$ " SEMI-SOLID PARTITIONS

4" and 5" SEMI-SOLID Non-Load Bearing Partitions

TWO-HOUR and THREE-HOUR FIRE RATED

WHAT THE 4" SEMI-SOLID NON-LOAD BEARING SYSTEM PROVIDES:

- FIRE RESISTANCE—TWO-HOURS with two layers of $\frac{5}{8}$ " Bestwall Firestop.
- SOUND TRANSMISSION LOSS—42 Decibels (Tested before 1957), 37 Decibels (Tested 1958).

WHAT THE 5" SEMI-SOLID NON-LOAD BEARING SYSTEM PROVIDES:

- FIRE RESISTANCE—THREE-HOURS with two layers of $\frac{5}{8}$ " Bestwall Firestop.
- SOUND TRANSMISSION LOSS—47 Decibels (Tested before 1957), 40 Decibels (Tested 1958) with 1" low density fiber board in air space.

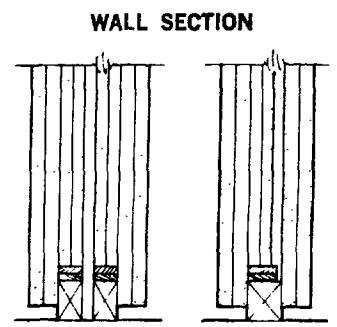
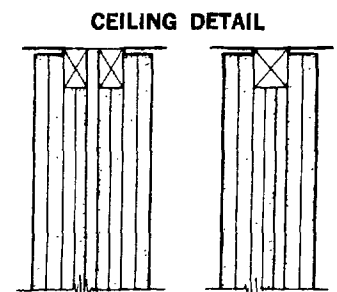
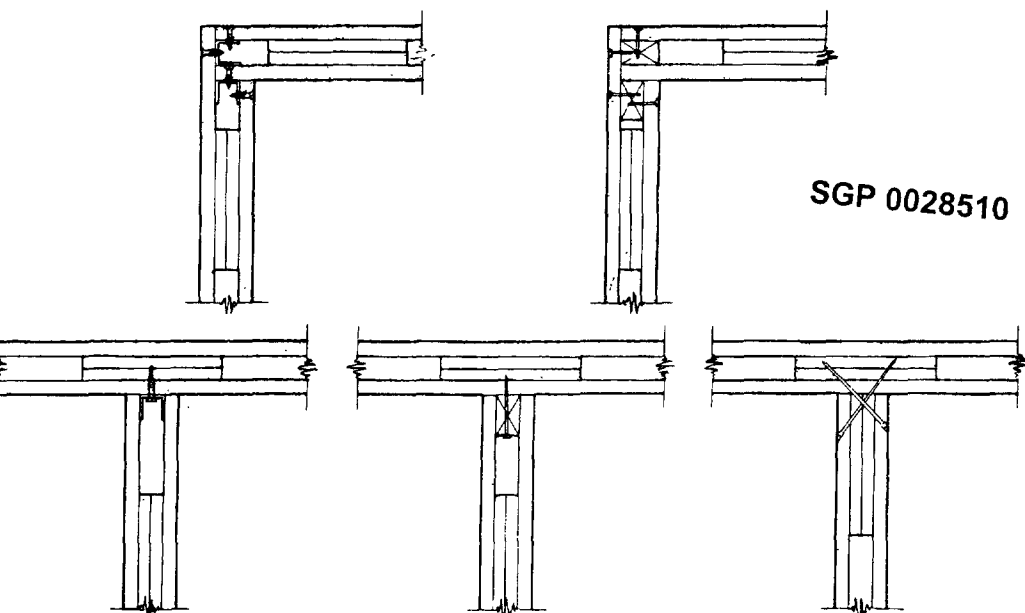
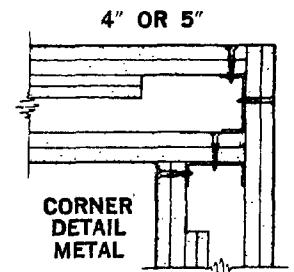
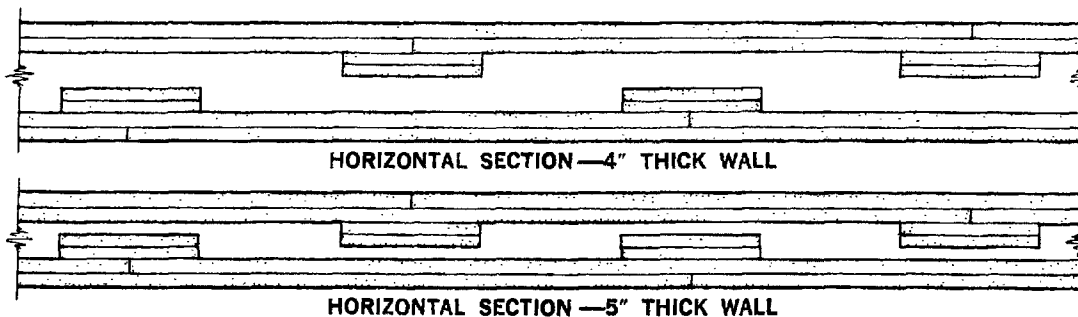
Both Systems Provide:

- STRENGTH—Will withstand abuse as determined by ASTM E-72-55 Impact Test.
- STRAIGHT WALL SURFACES—Lamination creates smooth monolithic walls.

WHAT THE 4" AND 5" SEMI-SOLID NON-LOAD BEARING SYSTEMS ARE!

These Semi-Solid Gypsum Partition Systems are non-load bearing constructions erected by laminating two layers of $\frac{5}{8}$ " Bestwall Firestop Gypsum Wallboard to 1" x 6" gypsum ribs. Recommended for commercial and multi-story dwelling work in both new construction and remodeling—wherever the best in fire-rated, non-load bearing partitions is required.

Reference: Bestwall Hummer Systems Brochure #BW-62390



FLOOR DETAIL

Semi-Solid GYPSUM STUD Partition

ONE- and TWO-HOUR FIRE RATED

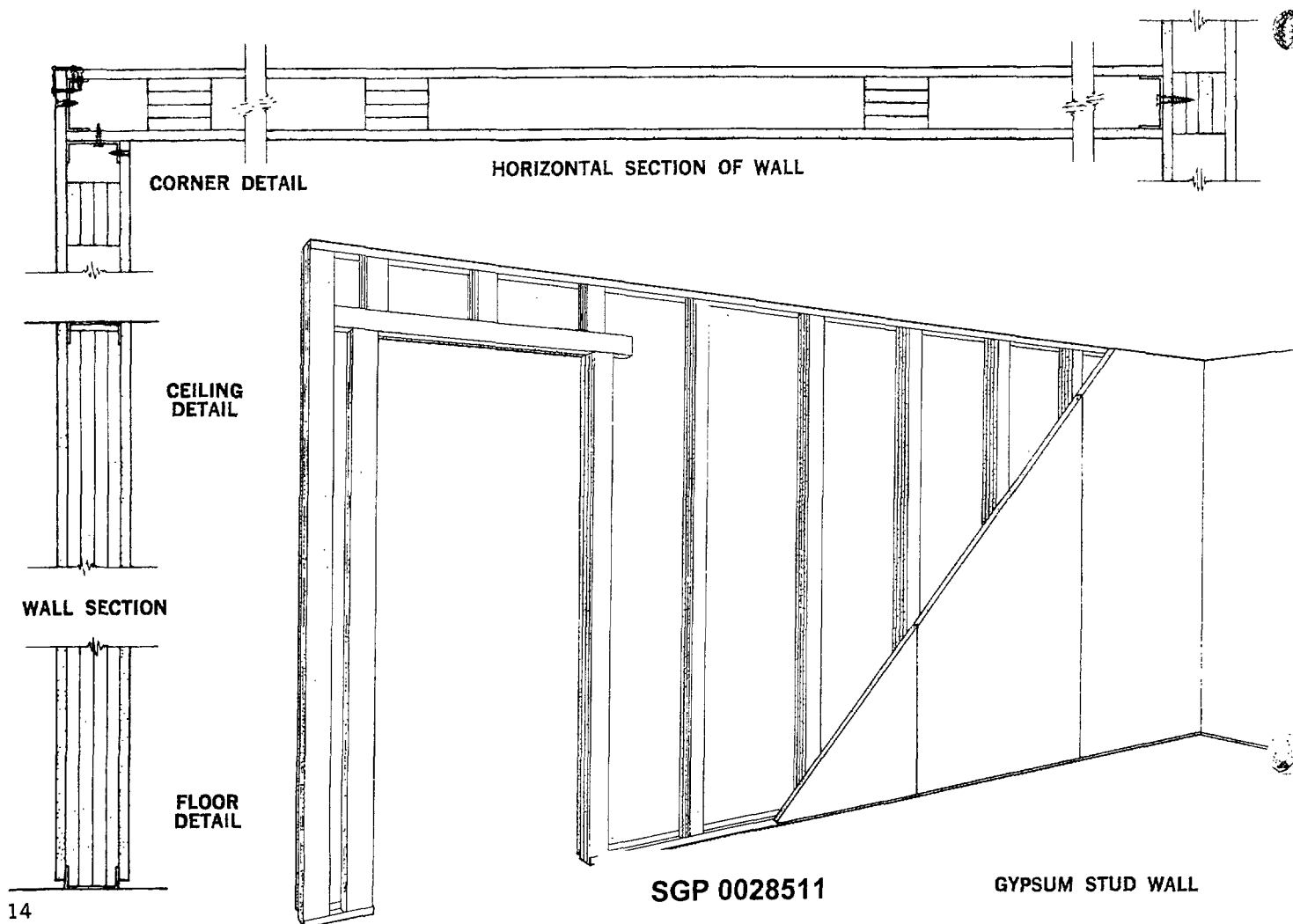
WHAT THE GYPSUM STUD PARTITION SYSTEM PROVIDES:

- FIRE RESISTANCE—Estimated ONE-HOUR with $\frac{5}{8}$ " Bestwall Firestop each side. Estimated TWO-HOUR rating with 2 layers of $\frac{5}{8}$ " Bestwall Firestop each side.
- SOUND TRANSMISSION LOSS— $\frac{5}{8}$ " gypsum wallboard applied over $\frac{1}{2}$ " Bestwall Sound Deadening Board each side of gypsum studs carries an STC of 51.
- STRENGTH—Proven in ASTM E-72-55 Impact Test to be the most rigid of many gypsum non-load bearing partition systems.
- ECONOMICAL—Needs fewer screws than other partition systems. Requires no expensive lumber or metal, goes up fast.
- ADAPTABILITY—Conducive to installation of electrical facilities.
- EASY THREE-STEP ERECTION—(1) Place metal runners top and bottom. (2) Place gypsum studs 24" o.c. (3) Apply wallboard faces on each side.

WHAT THE GYPSUM STUD SYSTEM IS!

The Bestwall Hummer Gypsum Stud Partition System is the most advanced gypsum drywall partition system. It consists of $2\frac{1}{2}$ " thick by 3" wide solid gypsum studs, $\frac{1}{2}$ " or $\frac{5}{8}$ "- gypsum face boards, and metal or wood floor and ceiling runners.

The gypsum stud is a four-layer laminate of 3" wide strips of $\frac{5}{8}$ " gypsum board. The face panels are Bestwall Regular or Fire-Rated Gypsum Wallboard. This Gypsum Stud Partition is an incombustible, non-load bearing partition system recommended especially for residential, multi-story dwelling, and commercial construction. It goes up like a metal stud partition.



2" SOLID LAMINATED Partitions

TWO-HOUR FIRE RATED

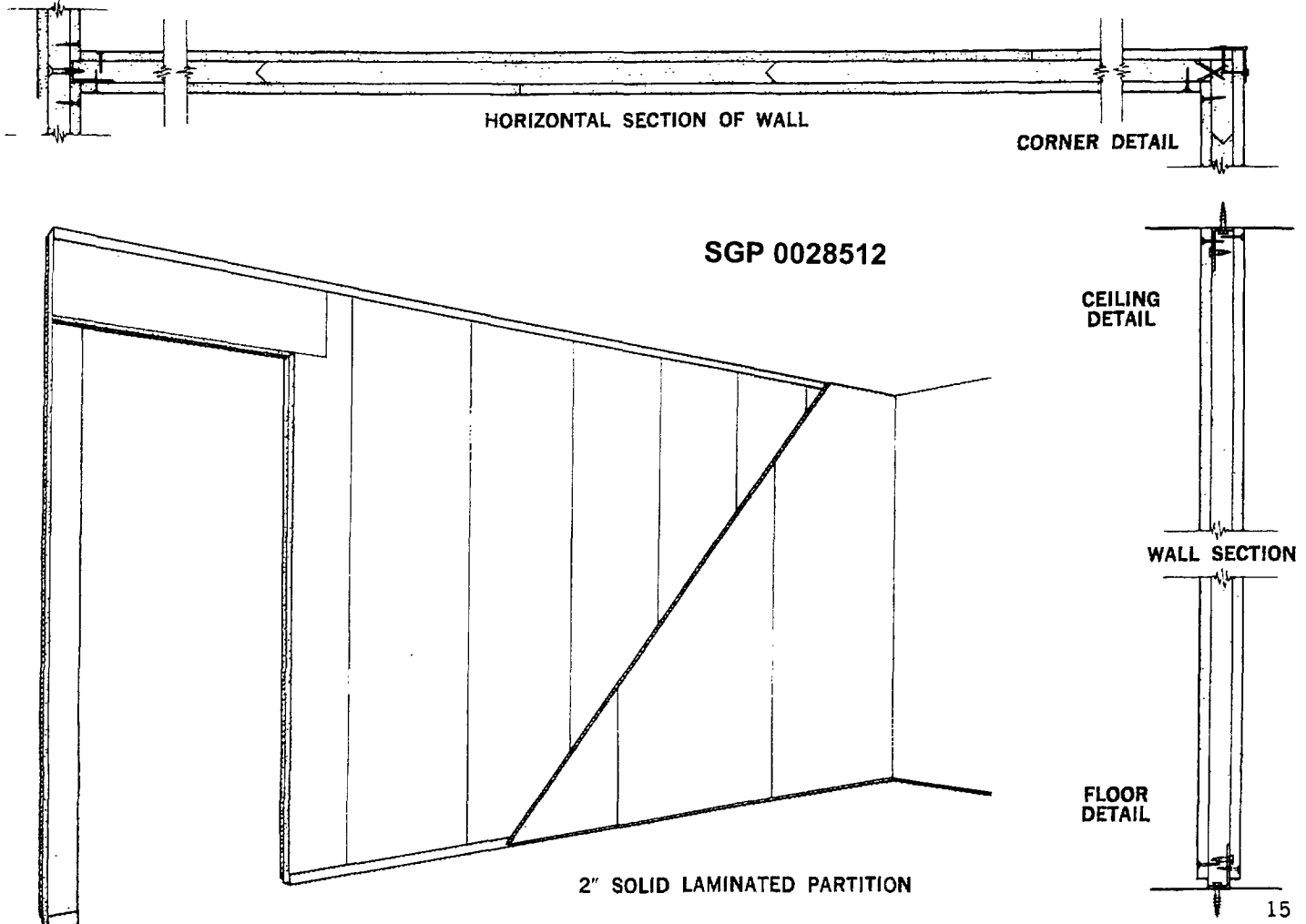
WHAT THE 2" SOLID SYSTEM PROVIDES:

- FIRE RESISTANCE—TWO-HOUR with Bestwall Gypsum Wallboard.
- STRENGTH—Will withstand abuse as determined by ASTM E-72-55 Impact Test.
- STRAIGHT WALL SURFACES—Lamination creates smooth monolithic walls.
- EXTRA USABLE FLOOR SPACE—20 sq. ft more floor space compared with 2" x 4" stud wall construction for every 100 lin. feet of partition.
- ECONOMICAL—Low material and construction costs.
- SOUND TRANSMISSION LOSS—36 Decibels (Tested 1958).

WHAT THE 2" SOLID SYSTEM IS!

This laminated non-load bearing Solid Gypsum Partition System consists of 1" homogeneous core board with face layers of 1/2" Bestwall Gypsum Wallboard.

Reference: Bestwall Hummer Systems Brochure #BW-62395



DOUBLE SOLID Laminated Partitions

TWO-HOUR FIRE RATED

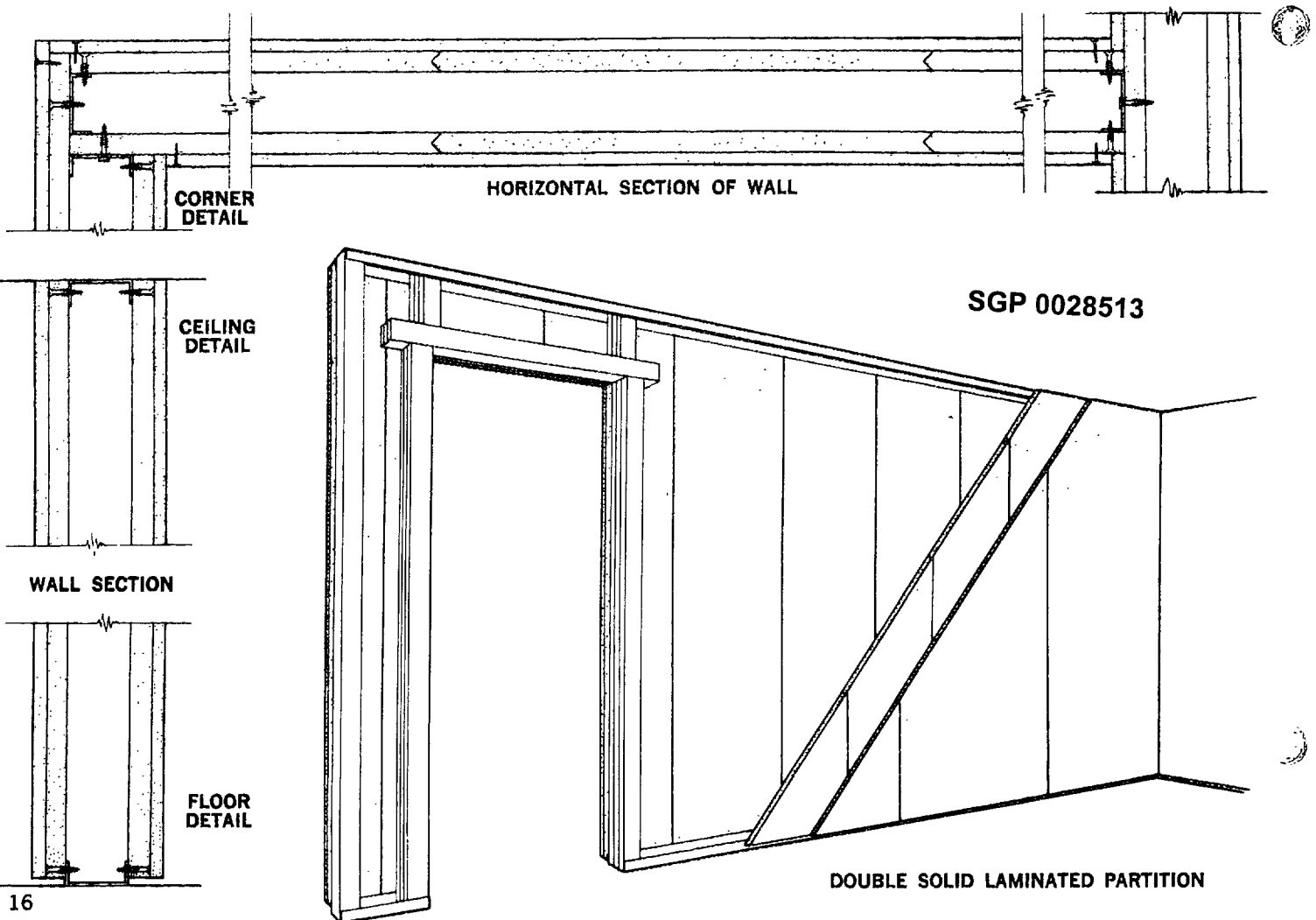
WHAT THE DOUBLE SOLID SYSTEM PROVIDES:

- FIRE RESISTANCE—TWO-HOUR (1½" gypsum each side of 3" air space).
- STRENGTH—Proven in ASTM E-72-55 impact test to have greater resistance to abuse than a standard frame or thin solid wall.
- STRAIGHT WALL SURFACES—Creates smooth monolithic walls.
- 3" CENTER AIR SPACE—Space for piping—conduit—fixture framing—for additional sound transmission loss.
- SOUND TRANSMISSION LOSS—47 Decibels (Tested 1961).

WHAT THE DOUBLE SOLID SYSTEM IS!

This non-load bearing Double Solid Gypsum Partition System is erected by laminating ½" Bestwall Wallboard to 1" tongue and groove core board each side of an air space. It is recommended for corridor and party walls in high rise construction where good sound transmission resistance and fire resistance are needed.

Reference: Bestwall Hummer Systems Brochure #BW-62400



SOUND DEADENING SYSTEM

ONE-HOUR FIRE RATED

WHAT THE SOUND DEADENING SYSTEM PROVIDES:

- SOUND TRANSMISSION LOSS—Excellent sound isolation properties, up to 50 STC in various assemblies.
- FIRE RESISTANCE—ONE HOUR fire rating with 1 layer of $\frac{5}{8}$ " Firestop.
- LAMINATED CONSTRUCTION—Fewer nails and laminated construction practically eliminates nail popping and joint beads.
- ECONOMICAL—Easy to install, fast erection.

WHAT THE SOUND DEADENING SYSTEM IS!

The Bestwall Sound Deadening System is a low cost system designed for use in wall and floor and ceiling systems where a reduction in the passage of sound from room to room is desired. Specially manufactured, Bestwall Sound Deadening Board is ideal for residential or apartment type construction.

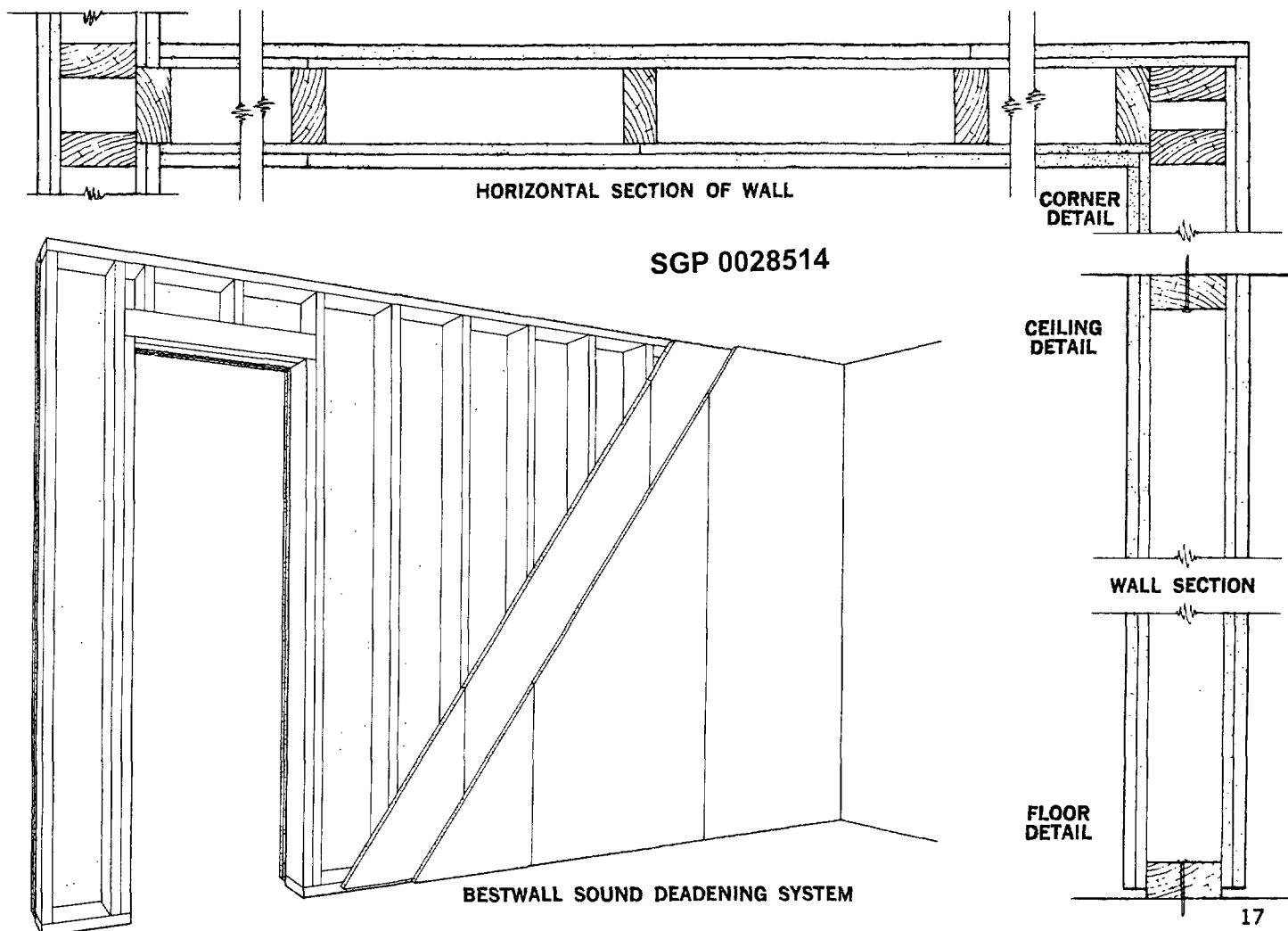
In addition to this system's excellent sound control properties, it can be used in combination with $\frac{5}{8}$ " Firestop to provide an exclusive One-Hour Fire Rating as proven by the Ohio State Testing Laboratory in Test Number T-3006.

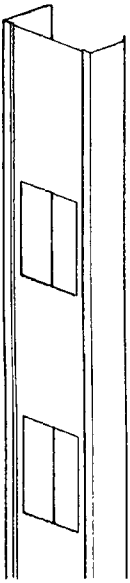
In this test, $\frac{1}{2}$ " x 4' x 8' Bestwall Sound Deadening Board was applied vertically to each side of 2" x 4" wood studs spaced 16" o.c. top and bottom with joints staggered on

opposite sides by nailing with 5d coated nails spaced 24" o.c. at joints, edges and intermediate framing.

$\frac{5}{8}$ " Bestwall Firestop was then applied vertically over the Sound Deadening Board with joints staggered on opposite sides and was nailed 12" o.c. around the perimeter with one nail per stud in the field of the board.

Bestwall Firestop was laminated to the Sound Deadening Board, using Bestwall Laminating Compound applied in 6" wide strips around the perimeter and vertical centerline of each full Bestwall Firestop sheet and the wallboard joints were taped and finished. This assembly developed an STC of 46, as well as resulting in the exclusive One-Hour Fire Rating.





METAL STUD PARTITIONS

What Metal Stud Framing Provides:

- Simple and fast erection
- Variety of sound and fire ratings available
 - 1 Hour Fire Rating with $\frac{5}{8}$ " Firestop on each side of $1\frac{5}{8}$ ", $2\frac{1}{2}$ ", or $3\frac{5}{8}$ " metal stud—STC of 42 ($3\frac{5}{8}$ " stud)
 - $1\frac{1}{2}$ Hour estimated fire rating with $\frac{5}{8}$ " Bestwall Firestop two layers one side, one layer other side—STC of 43 ($3\frac{5}{8}$ " stud)
 - 2 Hour Fire Rating with two layers of $\frac{5}{8}$ " Bestwall Firestop each side—STC of 47 ($3\frac{5}{8}$ " stud)
 - 2 Hour Fire Rating with same as above with $1\frac{1}{2}$ " blanket in cavity—STC of 52 ($3\frac{5}{8}$ " stud)
- All incombustible components

What Metal Stud Framing Is!

Metal Stud framed partitions are non-load bearing constructions consisting of metal studs inserted into floor and ceiling tracks with Bestwall Gypsum Wallboard (or Firestop) attached to studs with drywall screws. These partitions are recommended for institutional, commercial and multi-story dwellings work in new and remodeled construction when low cost incombustible partitions with good fire and sound ratings are required.

Reference: Bestwall Metal Stud Partitions #BW-62120

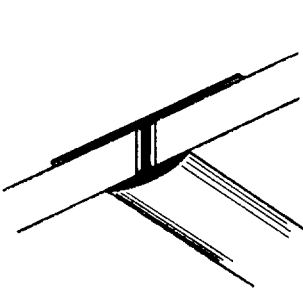
CEILING SYSTEMS

See Bestwall Gypsum Sweet's catalog Number $\frac{11a}{Be}$ for:

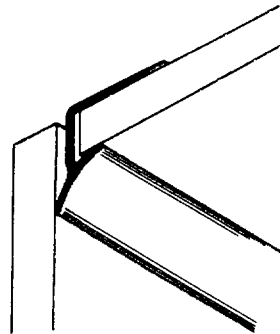
- a—Bestwall Gypsum Incombustible Acoustical Tile
- b—Bestwall Gypsum Incombustible Ceiling Tile
- c—Bestwall Gypsum Incombustible "Firestop-120" Ceiling Tile (Two-hour rated ceiling assembly)

METAL ACCESSORIES

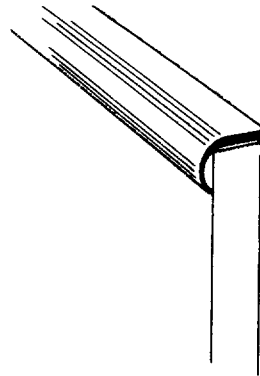
Pre-Decorated (Aluminum sections in matching finish for Eternawall available for $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ " thick wallboard).



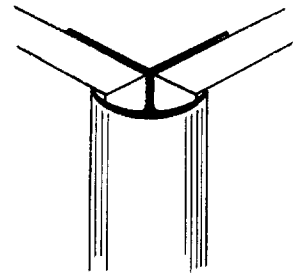
DIVIDER



INSIDE CORNER

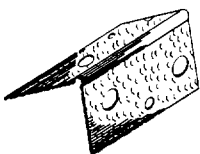


END CAP

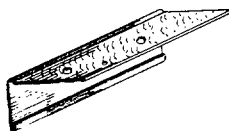


OUTSIDE CORNER

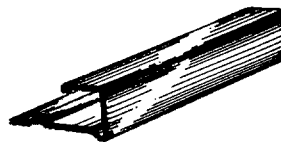
METAL TRIM



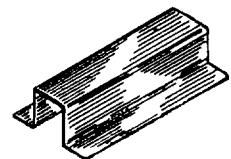
METAL CORNER



ANGLE EDGE
METAL CASING



SQUARE NOSE
METAL CASING



HAT SECTION

BESTWALL GYPSUM WALLBOARD PRODUCTS

JOINT SYSTEM PRODUCTS

Bestwall Joint System Products are designed to conceal joints and nail heads. All have easy working characteristics and very low shrinkage. Used in recommended joint treatments, they literally surface weld Bestwall Gypsum Wallboard panels together, providing smooth, uninterrupted walls with joints as strong as wallboard itself. Instructions are included on each container.

Bestwall Joint System Compound—A plasticized compound used for both bedding and topping Bestwall Tape and for spotting nail heads. Sanding may be eliminated by careful application.

Ready Mix Joint Compound—A prepared wet mix product which is used for taping and finishing joints, cornerbead, and nailheads.

1-Day Wallboard Joint Compound—A setting type material that is formulated to harden in 2½ to 3 hours. It is designed for taping and all coats preceding the final coat on joints, cornerbead, and nailheads.

Bestwall Bedding Compound—Designed to provide maximum adhesion of tape to the joints. It spreads smoothly.

Bestwall Topping Compound—Used for finishing taped joints and spotting nail heads. Sanding is unnecessary. Long working and low shrinkage.

Bestwall Tape—Includes skived edges and center crease, this tape is roughened for excellent bonding qualities. It achieves good porosity and rapid drying of joint adhesive. Stabilized against varying humidity conditions, it reduces uneven expansion and edge wrinkling.

JOINT TREATMENT SPECIFICATIONS

Scope—All walls and ceiling surfaces are included. Furnish all labor and material necessary to reinforce and conceal joints between gypsum wallboards and cover nail heads in a first-class workmanship manner.

- Materials**—1. One-Material Treatment—Bestwall Joint System Compound or Bestwall Ready Mix Joint Compound. Both used for bedding and for spotting nail heads.
2. Two-Material Treatment—Bestwall Bedding Compound or Bestwall 1-Day Wallboard Joint Compound and Bestwall Topping Compound. Specially designed for use on large projects.

Reinforcing Tape—Bestwall Tape.

Joint Work—Apply Bestwall Joint System Compound, Ready Mix Joint Compound or Bestwall Bedding Compound to taper edge joints, end joints and nail heads.

Shear off surplus leaving no material on high edges. Allow 12 hours drying before taping, leaving uniform depth of taper for uniform shrinkage of joint finishes over and under tapes.

Apply Joint System Compound, Ready Mix Joint Compound, 1-Day Wallboard Joint Compound or Bedding Compound, and embed tape leaving uniform thickness of material under tape. If Bestwall center taper Gypsum Wallboard is used on ceilings embed tape in center taper.

When Joint System Compound, Bedding Compound or Ready Mix Joint Compound has dried completely, cover taped joint with Joint System Compound, Ready Mix or Topping Compound. (When 1-Day Wallboard Joint Compound is used, the taped joint can be covered as soon as initial coat is set and before it is dry.) Shear off surplus leaving uniform coverage over tape with edges well feathered.

When preceding coats are completely dry (where 1-Day is used it is only necessary for it to be hardened, not completely dry) cover joints second time with Joint System Compound, Ready Mix Joint Compound, or Topping Compound. Shear off surplus leaving smooth, well feathered joint.

For best results and more uniform suction, apply skim coat of Joint System Compound, Ready Mix Joint Compound or Topping Compound over entire surface shearing off excess material tightly. (See Joint Treatment Product Sheet BW-62360.)

Decorating—Gypsum Wallboard properly prepared can be decorated with any treatment ordinarily used for walls or ceilings. Surface shall be sealed with vinyl or pigmented varnish primer before decoration, including texture. Where skim coat has been used, a one coat paint application may be satisfactory.

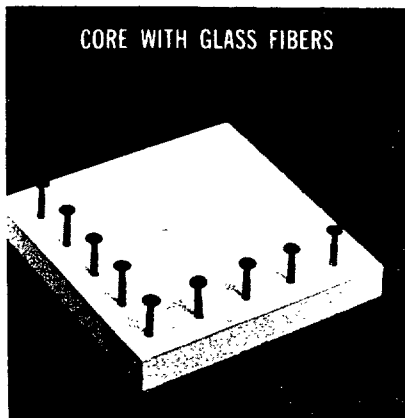
Laminating Compound—Bestwall Laminating Compound is a casein base dry powder product requiring addition of water only. Add 25 lbs. of Laminating Compound to 4½ to 5 gal. of water. Consistency of the mixed materials should be such that when spread over gypsum board with a 12" serrated sheet metal blade having notches ¼" wide, ¾" high, ¾" o.c., it will not self-level. Ribbons of glue may be applied with serrated knife or mechanical glue spreader. Coverage is approximately 30 lbs. per one thousand sq. ft. glue line. (See Laminating Compound Product Sheet BW-62355.)

Bestwall Grabit—Grabit is an adhesive developed by Bestwall, which permits direct attachment of Gypsum Wallboard to interior masonry walls. It may be used on poured concrete, or block walls which are reasonably straight and true and are free from surface decoration or protrusions. The adhesive fills in all normal irregularities in the masonry. In 3 to 4 hours Grabit sets hard, and joint taping and finish operations may then be started.

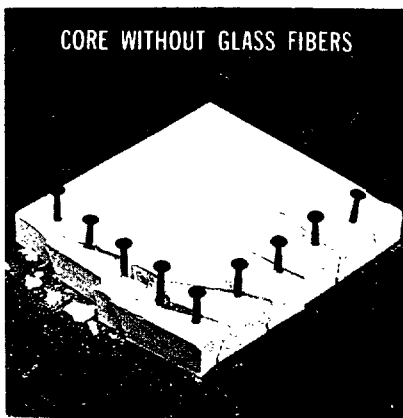
BESTWALL GYPSUM WALLBOARD

NOW WITH GREATER GLASS FIBER REINFORCEMENT THAN EVER BEFORE

CORE WITH GLASS FIBERS

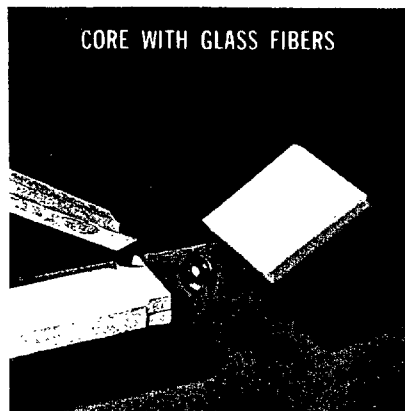


CORE WITHOUT GLASS FIBERS

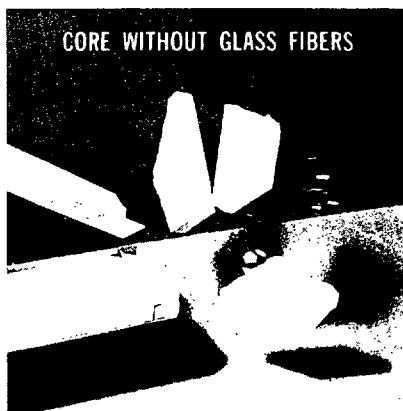


GLASS FIBERS PROVIDE STRONGER CORES

CORE WITH GLASS FIBERS

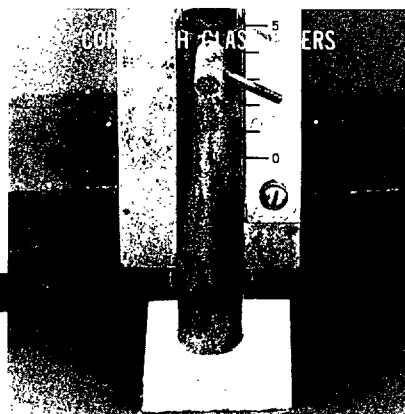


CORE WITHOUT GLASS FIBERS

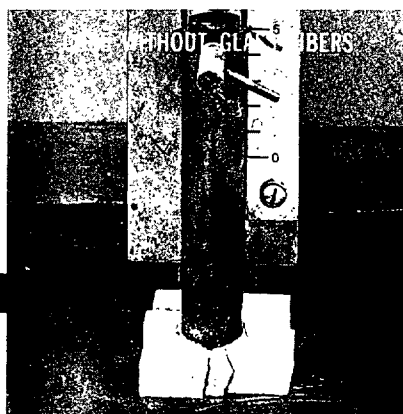


GLASS FIBERS PROVIDE GREATER RESISTANCE TO SHOCK

CORE WITH GLASS FIBERS



CORE WITHOUT GLASS FIBERS



GLASS FIBERS PROVIDE GREATER IMPACT RESISTANCE

BESTWALL GYPSUM WALLBOARD

THE ORIGINAL WALLBOARD WITH GLASS FIBER REINFORCEMENT



BESTWALL GYPSUM COMPANY
PAOLI, PENNSYLVANIA

SALES OFFICES

ATLANTA

801 Peachtree 25th Building
1720 Peachtree Street, N.
Atlanta, Georgia 30309

BRUNSWICK

P. O. Box 1379
Brunswick, Georgia 31521

CHICAGO

6544 W. St. Charles Road
P.O. Box 607
Berkeley, Illinois 60162

CLEVELAND

P. O. Box 845
Cleveland, Ohio 44122

DALLAS

600 Exchange Bank Building
Dallas 35, Texas

DETROIT

15500 W. Van Nicholas Road
Suite 227, Oakman Bldg.
Detroit 45, Michigan

HOUSTON

P. O. Box 13397
Bayou Bldg., Allen Parkway
Houston, Texas 77019

KANSAS CITY

3234 Blue Ridge Boulevard
Kansas City, Missouri 64133

NEW ORLEANS

P. O. Drawer 26278
Chas. Marteau Station
7800 Almonaster Drive
New Orleans, Louisiana 70160

SAN FRANCISCO

305 15th Avenue
El Cerrito, California 94532

WESTERN

1934 2nd Street
San Jose, Calif. 95101

WILMINGTON

Wilmington, Delaware Building
P. O. Box 310
Wilmington, Delaware 19809

GYPSUM WALLBOARD

GYPSUM
ASSOCIATION



Gypsum wallboard is a sheet or slab material having a noncombustible core, essentially gypsum, and surfaced with paper or other sheet materials. It is available with predecorated finishes, with a surface suitable for decoration, or with a surface specially designed for use as a base in multi-layer construction.



GYPSUM ASSOCIATION

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Noncombustible Framing.....	9
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FUNCTION AND UTILITY

NONCOMBUSTIBLE

Gypsum wallboard resists fire because its core is essentially gypsum—a mineral which will not burn. It is classed as noncombustible by building and fire insurance authorities throughout the country. Gypsum wallboard qualifies for 0-15 flame spread rating.

PRECISION MADE

Gypsum wallboard panels are made to close dimensional tolerances. Uniform appearance, quality and performance are characteristic.

ENGINEERED JOINT CONCEALMENT

The high degree of dimensional stability of gypsum wallboard makes possible the permanent concealment of joints. For this treatment, the long edges of gypsum wallboard are tapered. Thus the two edges of adjacent boards form a shallow channel to receive a reinforcing tape and joint compound to make possible a smooth, seamless surface.

CRACK RESISTANT—LONG LIFE

Temperature and humidity changes have little or no effect on the panels or the joint concealment. Except where subjected to unusual structural movements, gypsum wallboard systems are designed to provide excellent surface integrity to last the lifetime of the building.

LOW MOISTURE CONTENT

Gypsum wallboard is dried in the manufacturing process. It introduces a minimum of moisture into the building.

DECORATION

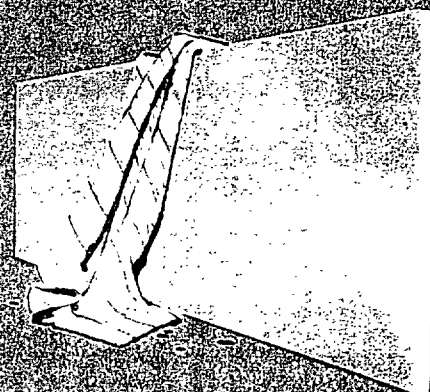
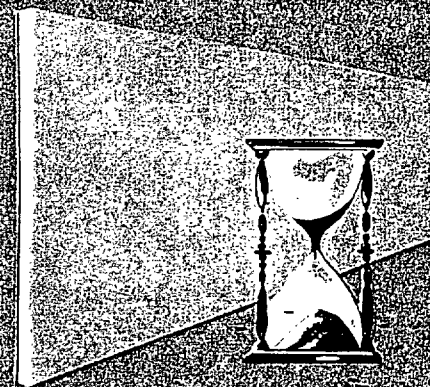
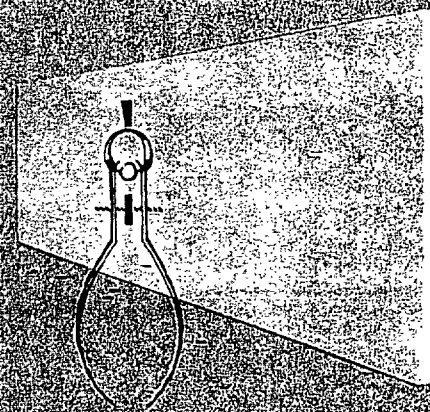
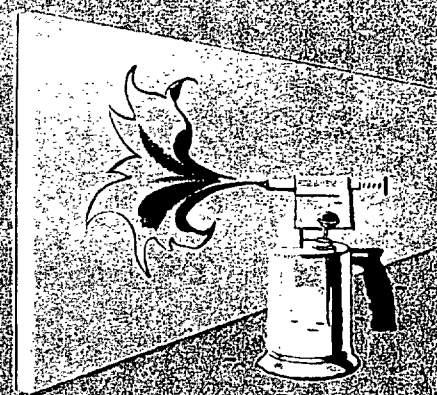
Gypsum wallboard is designed to receive any decoration—paint, texture, wallpaper or fabric, and permits early decorating, thus reducing construction time.

SPEED AND ECONOMY

The large gypsum panels are readily cut to fit and go up fast. Depending upon conditions, between 500 and 800 square feet of completed wall surface per man day may be expected. Low material costs contribute to the economy of the wall.

LIMITATIONS OF USE

1. Not recommended for use where extreme or frequent exposure to water is expected, unless adequately protected.
2. Not recommended as a base to receive plaster, or where excessive abrasion or impact is expected.
3. The $\frac{1}{4}$ -inch thick gypsum wallboard should be used only over solid surfaces.
4. The $\frac{3}{8}$ -inch thick gypsum wallboard in single-ply application is not recommended for new construction on framing members spaced more than 16" o.c.
5. The $\frac{1}{2}$ -inch and $\frac{5}{8}$ -inch thick gypsum wallboard should not be used on framing members spaced more than 24" o.c.



SGP 0028520

	TYPE	THICKNESS	EDGES
	Regular	$\frac{1}{4}$ " $\frac{3}{8}$ " $\frac{1}{2}$ " $\frac{5}{8}$ "	Tapered Square Tapered Bevel
	Type "X"	$\frac{1}{2}$ " $\frac{5}{8}$ "	Square Tapered Bevel
	Insulating (Aluminum Foil on Back Surface)	$\frac{3}{8}$ " $\frac{1}{2}$ " $\frac{5}{8}$ "	Square T & G Tapered Round
	Backing Board	$\frac{3}{8}$ " $\frac{1}{2}$ " $\frac{5}{8}$ "	Round Square Square T & G Round
	Type "X" Backing Board	$\frac{1}{2}$ " $\frac{5}{8}$ "	Round T & G Square
	Coreboard (Laminated Partitions)	1"	Square T & G
	Predecorated	$\frac{3}{8}$ " $\frac{1}{2}$ " $\frac{5}{8}$ "	Bevel Round Square Bevel Square

OF GYPSUM WALLBOARD

With the joints and fastener depressions properly treated, interior walls may be decorated in any of the popular variety of finishes—such as texture or stipple, smooth finish, flat or flat gloss paint or wallpaper.

PAINTING

Good grades of interior paint are recommended over wallboard. To obtain uniformity of color and texture

the entire surface should be primed and sealed as required to receive subsequent finish.

PAPERING

A coat of latex base paint, a good wall primer or a coat of varnish size should be used to completely seal the surface before applying wallpaper. This will permit the later removal of the wallpaper without damage to the wallboard surface.

OF JOINTS

A bedding coat of joint compound should be spread into the channel depression formed by the tapered edges of the board and over all butt joints, using a 4" or 5" steel joint finishing knife or suitable tools especially designed for joint treatment. Center the reinforcing tape over the joint and smooth to avoid wrinkling or buckling. Press tape into compound by drawing knife along the joint and over the tape with enough pressure to remove any excess compound.

After the embedding coat is completely dry, a second coat is applied with the edges feathered out slightly beyond the edges of the first coat.

After the second coat is completely dry, a third coat is applied with the edges feathered out an inch or two beyond the second coat. When dry, sand lightly if needed. Joints may be treated in similar manner by machine application of tape and joint compound.

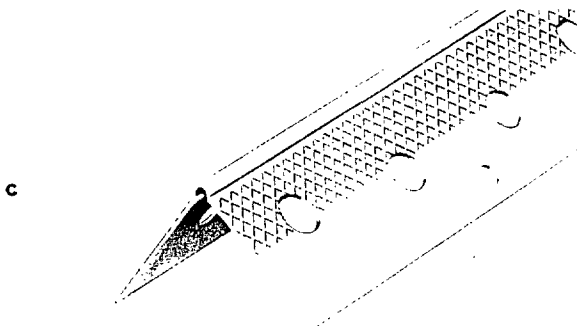
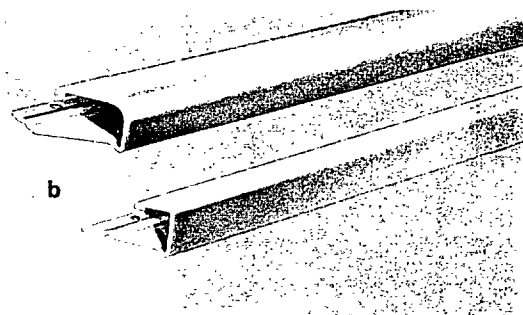
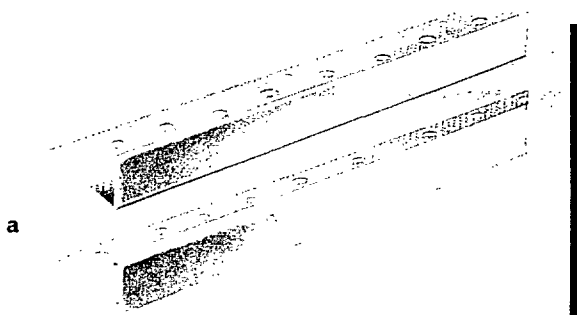
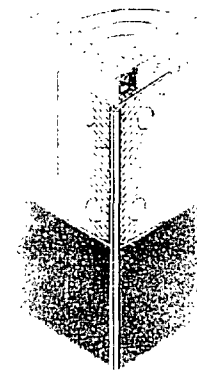
After making sure that all fastener heads are properly dimpled, they should be concealed with three coats of joint compound, allowing ample drying time between coats.

In lieu of a third coat, joint compound may be applied over the entire wall and ceiling surface, then sheared off or smoothed to a tight application.

Exterior Corners: Exterior corners should be reinforced with an all metal corner bead fastened to the framing through the gypsum wallboard, or with a metal reinforcing corner bead with paper flanges. Both

should be concealed with joint compound as described above.

Interior Corners: Where reinforcing tape is used, a bedding coat of joint compound should be applied to both sides of the interior angle. The tape is folded along the center crease to form a right angle and then embedded in the interior corner. Excess compound is removed and the surfaces are subsequently finished as described for treatment of joints.



WALLBOARD METAL TRIM

- a. Metal trim for window and door openings.
- b. Metal channel trim for edge protection around openings or as a molding.
- c. All-metal corner bead for exterior angles.

NAILS

To Wood: Nails for single-ply attachment of gypsum wallboard shall be as required herein and shall comply with the "Recommended Performance Standards for Nails" as published by the Gypsum Association (see nail chart page 19).

All wallboard must be drawn tightly against the framing so there can be no movement of board on the nail shank. In the area adjacent to the point of nailing, the board must be held firmly against the framing when the nail is driven home. All nails shall be driven so that the nailhead rests in a slight dimple formed by the crowned head of the driving tool without breaking the paper.

Double Nailing: The double nailing method of attachment provides the maximum insurance for firm contact with framing, thereby minimizing the incidence of board movement on the nail shank.

The wallboard is applied as required for conventional nailing, except that nails in field of board are spaced 12" o.c. After the panel is secured, another nail, spaced approximately 2" from the first, is driven and dimpled. If necessary, the first nail should receive another blow to assure snug contact of board with framing.

To Metal: Special nails are used for attaching wall-

board to metal nailing members. The nails and their spacing shall be as recommended by the manufacturer of the gypsum wallboard.

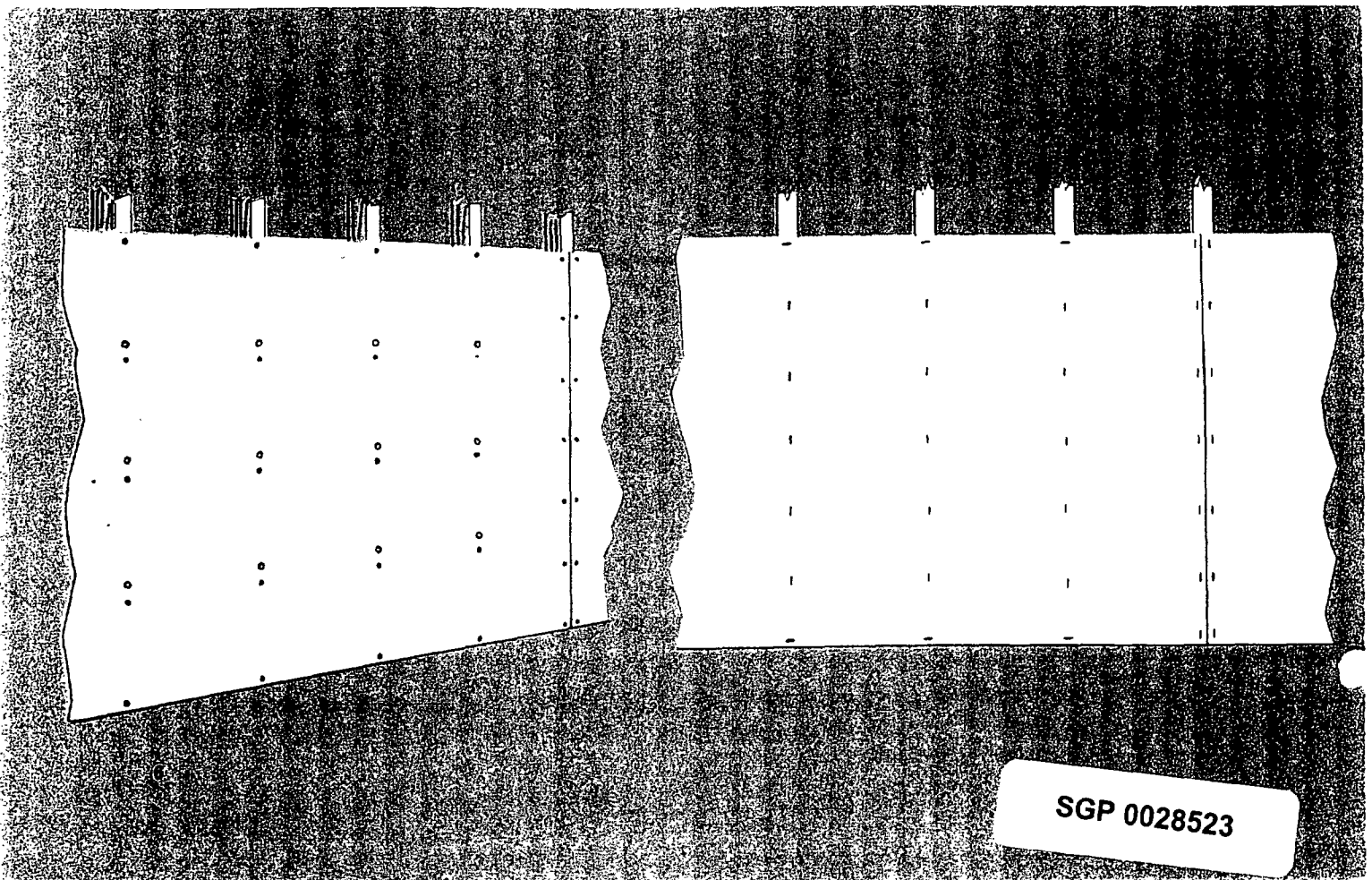
STAPLES

Power driven wire staples may be used to secure:

1. The first ply of the two-ply system.
2. Backing board as a base for acoustical tiles, etc.

To Wood: Staple wire shall be U.S.S. 16 gauge, flattened and galvanized. The staple crown shall be flat and $\frac{7}{16}$ " long, outside measure. Staple legs shall have divergent points and provide a minimum penetration of $\frac{5}{8}$ ". Spacing of staples shall be not more than 7" o.c. for ceilings nor 8" o.c. for walls and at least $\frac{3}{8}$ " from edges of the board. Staples shall be driven with the crown at right angles to the long dimension of the wallboard, except at the edges when the staple crown shall parallel the edges. They shall be driven so that the crowns bear tightly against the wallboard without cutting the paper surfacing.

To Metal: Staples used for attaching gypsum wallboard to metal framing members and the staple spacing shall be as recommended by the gypsum wallboard manufacturer.



This system of application provides for the adhesive application of wallboard to wood framing with supplemental nailing.

In addition to those qualities provided by conventional nailing, the adhesive nail-on method:

- Reduces nailing approximately 50%, reduces the incidence of loose boards and reduces nail-head concealment.
- Because it provides a continuous area of contact between framing and the wallboard, sturdier walls and more resistance to impact sound are to be expected.

A continuous bead of adhesive shall be applied to the center of the face of all studs, joists, furring, etc. Where two adjacent pieces of wallboard join (ends

or edges) on a framing member, a serpentine or zig-zag bead of adhesive shall be applied to provide proper bond. The size of the adhesive bead shall be approximately $\frac{1}{4}$ " by $\frac{3}{8}$ " to cover at least 80% of the framing member with $\frac{1}{16}$ " thickness after the wallboard is in place. For predecorated wallboard, parallel beads of adhesive shall be applied along each edge of the face of the framing member where wallboard joints occur.

Nails should be spaced no farther than 16" o.c. on ceilings and 24" o.c. on sidewalls. Field nailing and edge nailing may be omitted on sidewalls if appropriate means (such as bracing or temporary nailing) are used to insure full contact of the wallboard until the adhesive develops required bond strength.

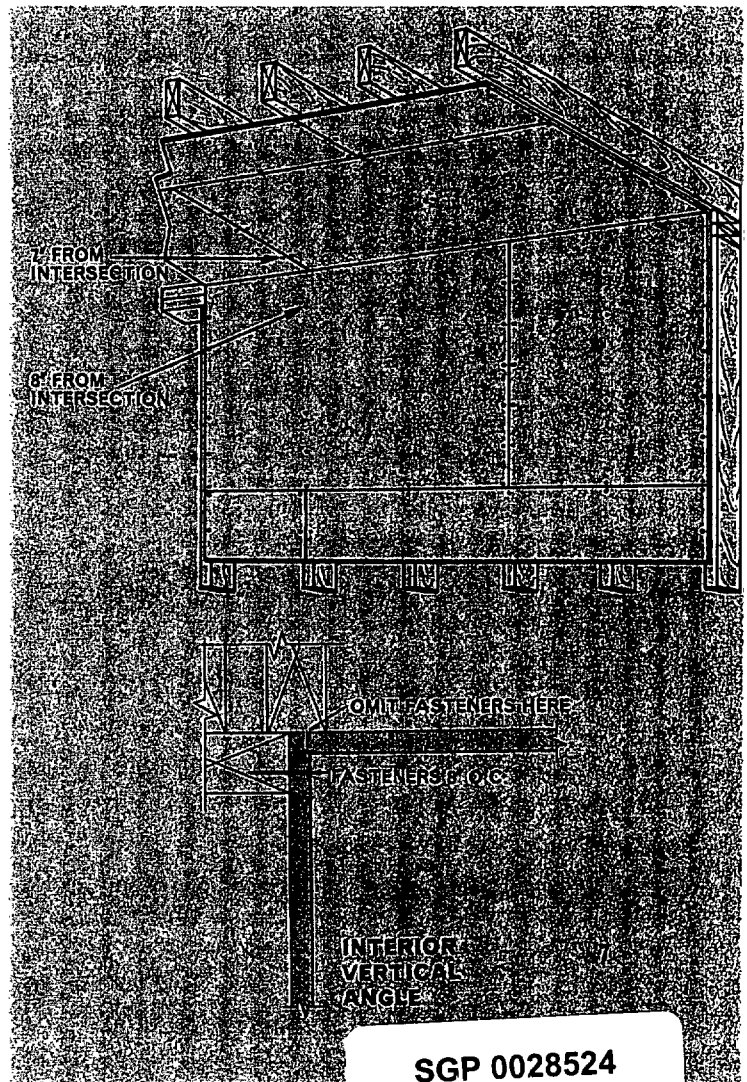
GYP-SUM ASSOCIATION



INTERIOR CORNERS

Rigid securement of wallboard to framing may be omitted in interior corners, where movement of framing members is critical, to provide relief from the resulting stresses. Thus, the wallboard "floats" in the angles regardless of how the wallboard is fastened to framing.

In horizontal angles, the corner fastener is omitted in both the ceiling and sidewall. The nearest fastener to the angle then is approximately 7" along the ceiling and 8" along the wall. For interior vertical angles, the corner fasteners of the board whose edge abuts the framing of the opposing wall are omitted. The edges of the overlapping wallboard panel are secured in the usual manner, thus providing a semi-floating angle.



SGP 0028524

TO WOOD OR METAL FRAMING

GENERAL

Single-ply application involves the use of $\frac{3}{8}$ ", $\frac{1}{2}$ " or $\frac{5}{8}$ " gypsum wallboard applied directly to wood or metal framing by any of the attachment methods described herein. The wallboard is first applied to ceilings and then to sidewalls. Long boards are used to reduce the incidence of butt joints, preferably those that span from wall to wall. The joints may be concealed with reinforcing tape and joint compound (see page 5) or accented as desired.

HORIZONTAL AND VERTICAL APPLICATION

Gypsum wallboard may be applied by the horizontal

method with the long edges of board perpendicular to framing members or by the vertical method with long edges of board parallel to framing. For recommended framing spacing, refer to table on page 19.

The horizontal method offers the following advantages:

- the strongest dimension of the wallboard runs across the framing members.
- it minimizes footage of joint treatment.
- the joints are more accessible for treatment.



GYPSUM ASSOCIATION

APPLICATION TO WOOD OR METAL

Two-ply construction offers more strength, fire resistance and sound insulation and virtually eliminates popping and beading.

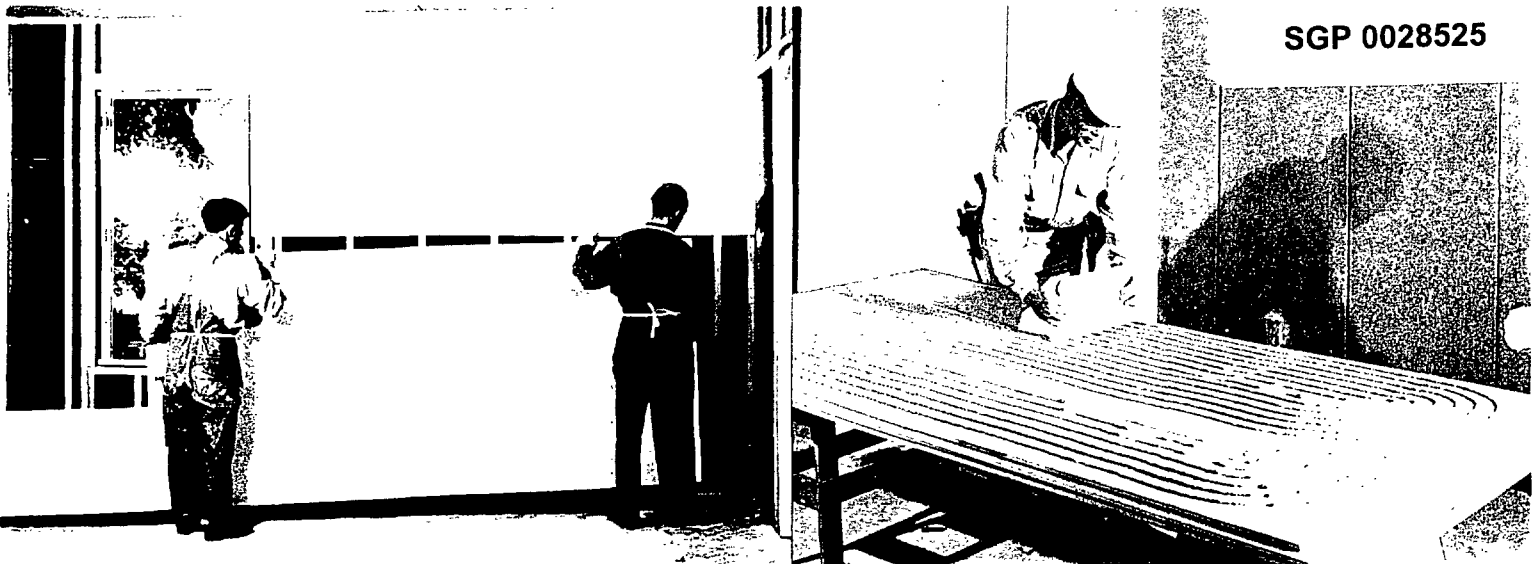
Two-ply construction consists of two plies of gypsum wallboard, the base layer of which should be not less than $\frac{3}{8}$ " thick, with a total thickness of not less than $\frac{3}{4}$ ". The two plies should be laminated with the compound used for tape embedment in concealment of joints or other adhesives as recommended by the gypsum wallboard manufacturer.

The first ply may be gypsum backing board or gypsum wallboard and is nailed or stapled as recommended on page 6. The wallboards are arranged so that the joints of the second ply will be staggered with respect to those of the first ply.

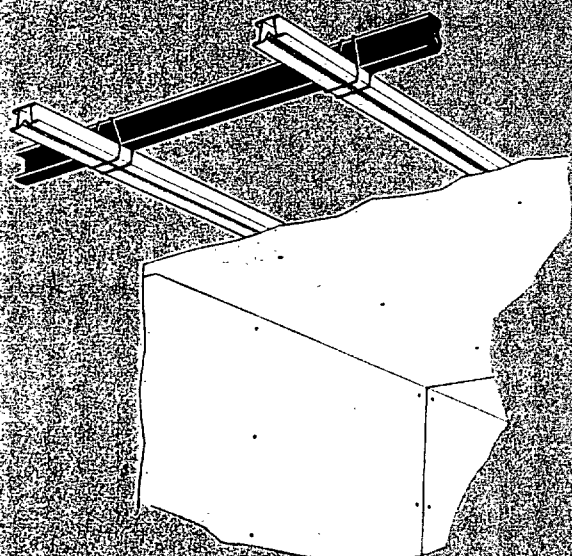
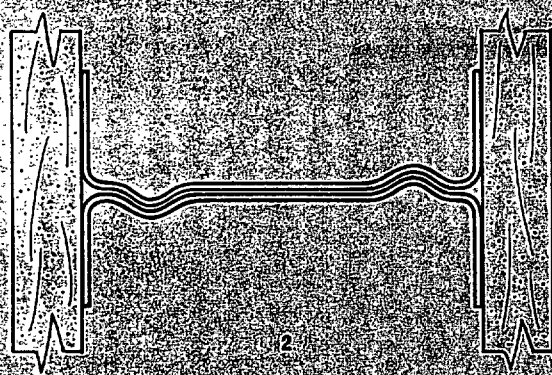
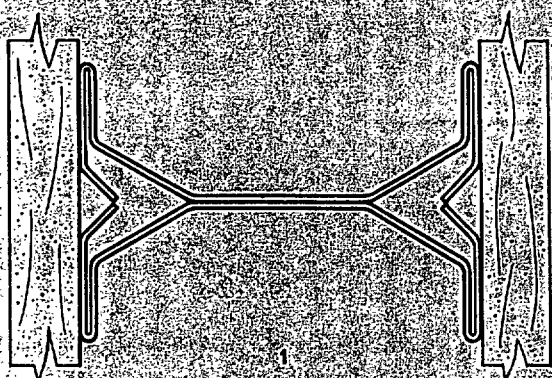
The second ply is laminated to the first, using sup-

plementary support or temporary nailing to maintain its position until adequate bond has developed. When joint compound is used, it should be applied to the entire back surface of the second ply with a notched trowel to provide $\frac{1}{4}$ " x $\frac{3}{8}$ " ribbons 2" o.c. For other types of adhesives, follow wallboard manufacturers' recommendations.

In lieu of temporary nailing, permanent nails in the second ply may be used if they provide a minimum penetration of $\frac{3}{4}$ " in the framing and their heads are dimpled and concealed with joint compound. When the two-ply wallboard system is used to provide fire resistive partitions, nail sizes and spacing must be comparable to those in the tested assembly. For maximum spacing of framing members see table on page 19.



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Because gypsum wallboard is noncombustible, it may be used to provide fire resistance ratings of up to and including two hours when secured to metal framing members.

METAL STUDS

There are two basic types of metal studs designed to receive gypsum wallboard:

1. Those that provide a means of engaging the deformations of a ringed shank nail. Nails must be as recommended by the manufacturer of the gypsum wallboard and spaced and dimpled as required for wood stud application.
2. Those that provide friction resistance to withdrawal of nails. In general, nails are driven between parallel sheets of metal, usually deformed by convolutions to provide greater holding power. Nails must be as recommended by the manufacturer of the gypsum wallboard and spaced and dimpled as required for wood stud application.

METAL RUNNERS

Metal runners for application of wallboard to ceilings or sidewalls are available for nail attachment. They are secured to primary framing or to masonry and spaced not more than 24" o.c.

GYPSUM WALLBOARD

PARTITIONS

DESCRIPTION

Gypsum wallboard solid partitions are thin, nonload-bearing partitions consisting of gypsum wallboard face panels laminated to a solid gypsum wallboard core. The partitions are secured to floor and ceiling runners.

The recommended minimum thickness is 2 inches, consisting of a 1 inch thick wallboard core (solid or laminated) faced on both sides with $\frac{1}{2}$ inch gypsum wallboard face panels.

FUNCTION AND UTILITY

Strong: Solid gypsum wallboard partitions have satisfactorily withstood the repeated impact of a 60 lb. sandbag applied in accordance with ASTM E72.

Noncombustible: Since gypsum wallboard is noncombustible, 2" solid wallboard partitions qualify for noncombustible construction when metal floor and ceiling runners are used.

Low Flame Spread Rating: The flame spread rating of gypsum wallboard as tested in accordance with ASTM E84 is 0-15.

Space Saving: 2" solid gypsum wallboard partitions save more than two square feet of usable floor space for each ten lineal feet as compared with conventional wood stud partitions.

Economical: With floor area free of framing, ceilings may be erected without interruption and the full size partition panels are erected fast. Permanent nailing in field is eliminated.

Limitations of Use: For use as nonload-bearing partitions only. Where stiffness is a governing design factor, the following limitations are recommended:

- 12' partition height—12' maximum length
- 11' partition height—18' maximum length
- 10' partition height—over 18' length

For partitions greater than 12' in height, consult gypsum wallboard manufacturers for independent test data on assembly particulars and materials.

DESIGN DATA

Weight: 2" solid gypsum wallboard partitions weigh approximately 8.5 lbs. per square foot.

Sound Transmission: Solid gypsum wallboard partitions have an average sound transmission loss rating of 36-38 db.

Fire Resistance: 2" solid gypsum wallboard partitions have been assigned two hour fire resistance ratings as tested in accordance with ASTM E119.

MATERIALS

All gypsum wallboard shall comply with the requirements of ASTM C36.

Face Panels: $\frac{1}{2}$ ", $\frac{5}{8}$ " or multiple laminations of regular or type "X" gypsum wallboard of 4' widths.

Core: 1" thick gypsum coreboard either single or multiple layers of 2' or 4' widths.

Runners: 20 to 26 gauge metal or construction-grade wood.

Laminating Adhesive: Gypsum wallboard joint compound for tape embedment, complying with ASTM C475, or as recommended by wallboard manufacturer.

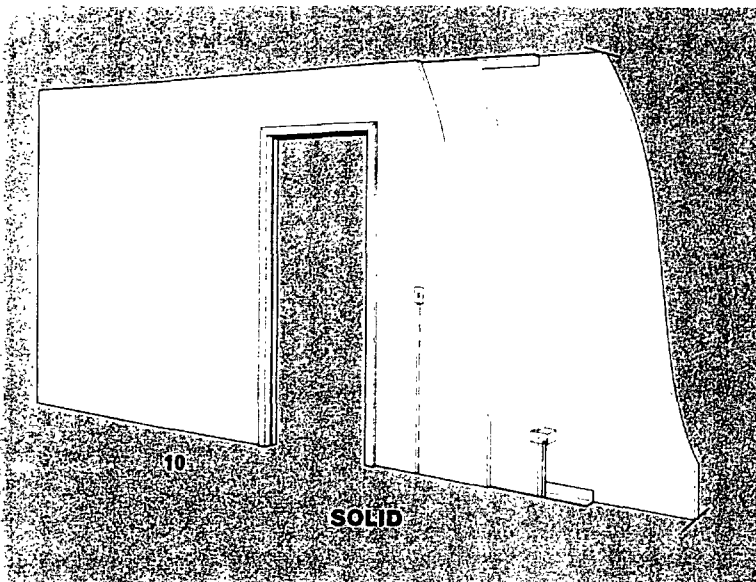
ERECTION SPECIFICATIONS

All work shall be performed in a workmanlike manner and, unless otherwise required herein, in strict accordance with ASA A97.1.

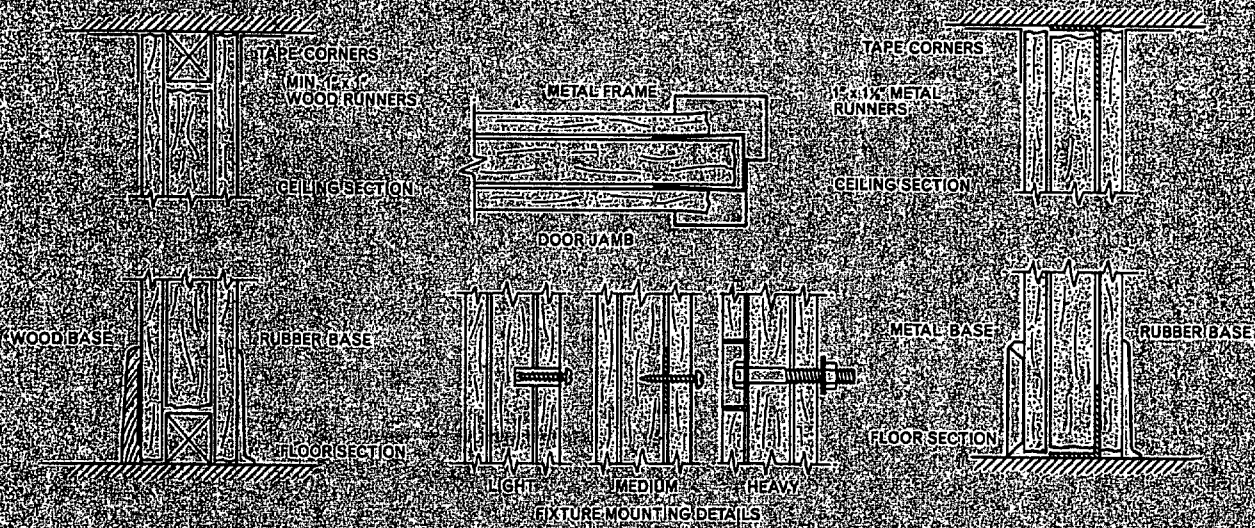
For partitions located parallel to and between ceiling members, headers not more than 24" o.c. must be provided to fasten ceiling runners prior to erection of ceiling.

Floor and ceiling runners shall be installed according to partition layout and secured not more than 24" o.c. or as recommended by gypsum wallboard manufacturer. Install vertical runners if required at such locations as exterior walls, exterior corners and door frames. All openings for door and electrical boxes shall be cut prior to erection of face panels. Door openings shall be cut during the erection of face panels or such openings may be cut after erection has been completed.

When joint compound is used as the laminating adhesive, it shall be applied to the back surface of the face panels as required for two-ply wallboard construction. (See page 3.) For other types of adhesives, the directions of the wallboard manufacturer should be followed. The face panels shall be laminated to the core with sufficient pressure to insure good bond. Joints of face panels and core shall be staggered. To insure intimate and continuous bond between face panels and core, temporary nailing may be used at vertical third points at joints and center of boards. Drive 8d form nails downward at approximately 45° into core on both sides of partition. Face of wallboard may be protected with blocks of wallboard approximately 3" square. Remove form nails after laminating



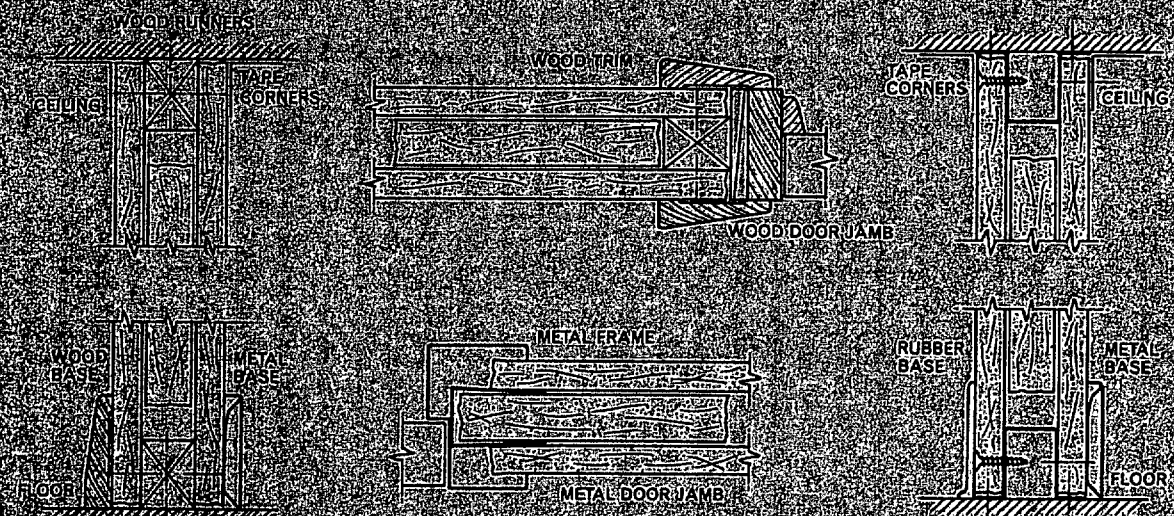
DETAILS - SOLID PARTITIONS



GYPSUM ASSOCIATION



DETAILS - HOLLOW PARTITIONS



SGP 0028528

compound is thoroughly dry and prior to conventional treating of joints. Preparation for decoration shall be in accordance with ASA A97.1.

ELECTRICAL LEADS AND DROPS

Electrical drops for switches and outlets shall be installed after floor and ceiling runners are in place and prior to erection of partitions. As erection of partition progresses, core should be cut to accommodate conduit or cable and outlet and switch openings shall be neatly cut in face panels. Drops shall be pulled through openings and electrical work finished by electrician after completion of partition.

GYPSON WALLBOARD

PARTITIONS

DESCRIPTION

Gypsum wallboard hollow partitions are thin, nonload-bearing partitions. They consist of gypsum wallboard face panels laminated to gypsum ribs and secured to floor and ceiling runners.

Two combinations are recommended:

1" thick gypsum ribs laminated to $\frac{5}{8}$ " thick face panels for a minimum partition thickness of $2\frac{1}{4}$ ".

$1\frac{5}{8}$ " thick gypsum ribs laminated to $\frac{1}{2}$ " thick face panels for a minimum partition thickness of $2\frac{3}{4}$ ".

FUNCTION AND UTILITY

Space Saving: The $2\frac{1}{4}$ " partitions save approximately two square feet of usable floor space for each ten lineal feet as compared with conventional wood stud partitions.

Economical: Large wallboard panels are erected fast. With the entire floor area free of framing, time for handling and erection is greatly reduced. Reduces nailhead treatment.

Strong: Comparable to conventional walls of 2" x 3" studs at 16" o.c. with $\frac{1}{2}$ " wallboard on both sides since laminated construction makes use of strength of wallboard face panels which nailed connections alone cannot develop.

Noncombustible: Since gypsum wallboard is noncombustible, gypsum wallboard hollow partitions qualify for noncombustible construction when metal floor and ceiling runners are used.

Low Flame Spread Rating: The flame spread rating of gypsum wallboard as tested in accordance with ASTM E84 is 0-15 (Class I).

Limitations of Use: For use as nonload-bearing partitions only, with a height limit of 12' for $2\frac{1}{4}$ " hollow partitions and 14' for $2\frac{3}{4}$ " hollow partitions.

DESIGN DATA

Structural: Recent tests to evaluate the relative rigidity of gypsum wallboard hollow partitions and wood stud partitions show the following:

	Partition Thickness	Racking Strength		Load Deflection El Factor (lb./sq. in., ft. of width) (Relative Stiffness)
		Ultimate (lbs.)	Rate (lbs./in.)	
Partition #1	$2\frac{1}{4}$ "	5700	29000	3.76×10^6
Partition #2	$3\frac{3}{8}$ "	7300	39000	7.36×10^6
Partition #3	2"	5600	22000	5.27×10^6
Partition #4	$2\frac{3}{8}$ "	9500	12000	7.42×10^6

Partition #1—4" x 2" studs at 16" o.c. with $\frac{1}{2}$ " wallboard both sides.

Partition #2—2" x 3" studs at 16" o.c. with $\frac{1}{2}$ " wallboard both sides.

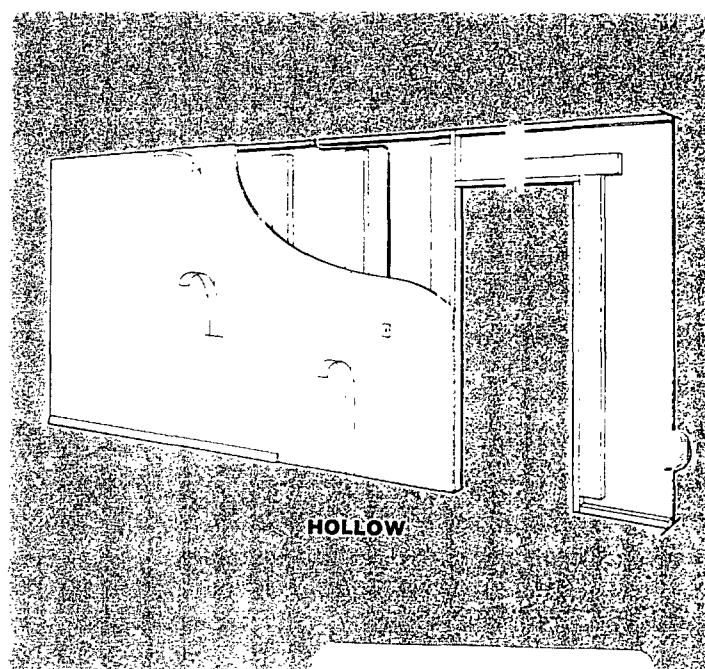
Partition #3—Hollow wallboard partition with 1" thick gypsum ribs at 24" o.c. and $\frac{5}{8}$ " face panels.

Partition #4—Hollow wallboard partition with $1\frac{5}{8}$ " thick gypsum ribs at 24" o.c. and $\frac{1}{2}$ " face panels.

Sound Transmission Loss: Rating for hollow wallboard partitions averages 34-35 db.

Weight: Hollow partitions weigh approximately $6\frac{1}{2}$ pounds per square foot.

Fire Resistance: $2\frac{1}{4}$ " gypsum wallboard hollow partitions with type "X" face panels have been assigned one hour fire resistance ratings as tested in accordance with ASTM E119.



MATERIALS

All gypsum wallboard shall comply with the requirements of ASTM C36.

Face Panels: $\frac{1}{2}$ " , $\frac{5}{8}$ " or multiple thicknesses of regular or type "X" gypsum wallboard of 4' widths.

Gypsum Ribs: 1" thick gypsum coreboard, or multiple layers of $\frac{1}{2}$ " , $\frac{5}{8}$ " or 1" thicknesses laminated to the required core thickness, in 6" or 8" widths and lengths of approximately 6" less than ceiling height.

Runners: Construction-grade lumber of thickness equal to partition core or 20 to 26 gauge metal runners.

Laminating Compound: Gypsum wallboard joint compound for tape embedment, complying with ASTM C475, or as otherwise recommended by wallboard manufacturer.

ERECTION

All work shall be performed in a workmanlike manner and, unless otherwise required herein, in strict accordance with ASA A97.1.

Provide nailing blocks not over 24" o.c. to secure ceiling runners for partitions located parallel to and between joists or trusses before erecting ceiling.

Floor runners are to be secured to the floor construction according to partition layout. Securely anchor runners to floor not more than 24" o.c. Erect ceiling runners in a like manner, directly and accurately above the floor runners.

Erect vertical runners at required locations such as exterior walls, external corners and door bucks.

Wallboard face panels are separated and bonded together by laminating gypsum ribs at the center of each face panel and at each vertical joint. Thus, 6" or 8" wide gypsum ribs are laminated between face panels not more than 24" o.c.

Ribs may be laminated to face panels prior to erection or as erection of partition proceeds. Erect a starter face panel vertically at an exterior wall. The starter panel must be plumb and secured to floor, ceiling and vertical runners.

Erect next face panel adjacent to starter panel, butting its edge and end firmly to starter panel and ceiling. Continue erection of face panels, laminating exposed faces of ribs as work progresses.

Openings in partitions, for doors, electrical outlets, etc., shall be carefully and accurately marked and cut.

Laminating compound should be of a consistency and volume that will cover approximately three-fourths of the rib surface after lamination. It should be applied to wood door bucks and headers as required for ribs.

To insure intimate and continuous bond between face panels and ribs, they may be drawn up tight and true by temporary nailing at the vertical third points. Drive 8d form nails downward at about 45° through face panel into all ribs. Face of panels may be protected from nailheads by face blocks of wallboard approximately 3" square. Remove form nails after laminating compound is thoroughly dry and prior to conventional treating of joints. Preparation for decoration shall be in accordance with ASA A97.1.

ADDITIONAL RIBS

To further reinforce openings or changes in direction of partition, additional ribs may be laminated in place at the following locations:

External Corners: Between the face panels in the corner opposite the vertical runners.

Abutting Walls: Between the face panels of a partition to reinforce junction of an abutting wall.

Door Openings: A vertical rib should be located within 3" of door frame for reinforcement, and a rib should be placed horizontally over the door head when door bucks are continuous from floor runner to door head.

Fasteners: Erect ribs whenever additional reinforcement is required, such as at clothes pole hangers, closet shelves, etc.

ELECTRICAL LEADS AND DROPS

Electrical drops for switches and outlets shall be installed after floor and ceiling runners are in place and prior to erection of partitions. As erection of partition progresses, outlet and switch openings shall be neatly cut in face panels. Drops shall be pulled through openings and electrical work finished by electrician after completion of partition.

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GYPSUM WALLBOARD IN BATH-SHOWER AREAS

FIXTURE PLACEMENT

The tub, shower receptor or pan should be positioned with respect to studs so that its lip is flush with the outside face of the wallboard. Furring out the studs behind the fixture is sometimes necessary. Provide blocking as required for other fixtures.

WALLBOARD INSTALLATION

Use full size sheets of wallboard to eliminate butt joints. The wallboard should be applied horizontally with the paperbound edge down over the tub, receptor or pan.

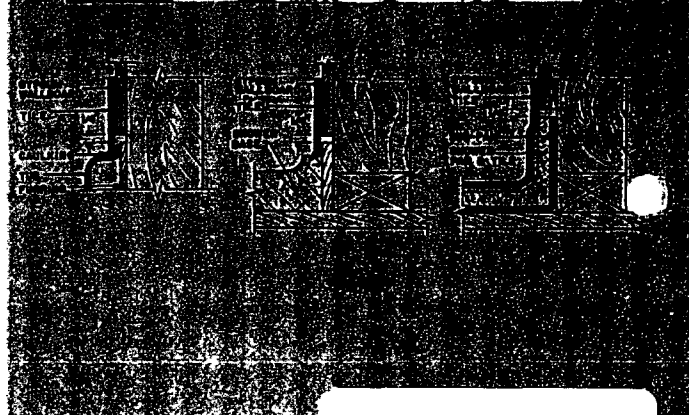
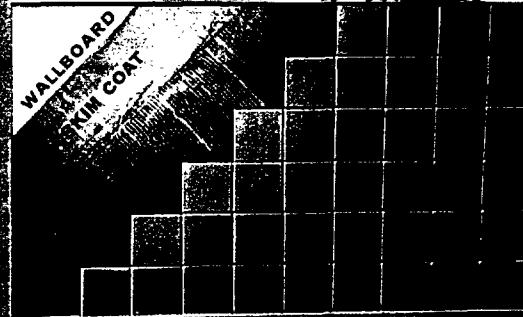
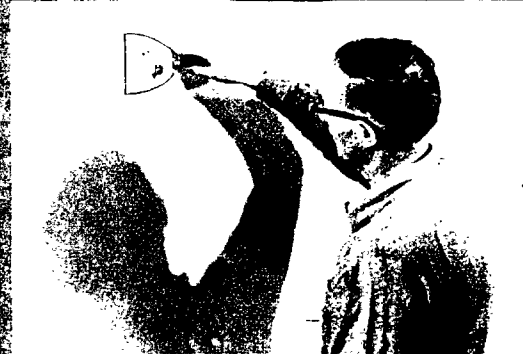
A $\frac{1}{4}$ inch minimum clearance between the paper-bound edge of the wallboard and the tub, receptor or pan must be allowed to prevent capillary migration of water. A $\frac{1}{4}$ inch thick temporary wood spacer or nails driven $\frac{1}{4}$ inch above the fixture may be used to assure this space above the lip of the tub, receptor or pan. All fasteners and joints should be treated with a minimum of two coats of joint compound.

- Use full sheets of wallboard to eliminate butt joints.
- Allow $\frac{1}{4}$ inch space between wallboard and the lip of the fixture.
- Treat all fastener heads and joints.

WATERPROOFING OF WALLBOARD

This may be accomplished by two methods:

1. With the flat edge of a trowel, apply a full $\frac{1}{16}$ -inch skim coat of a good grade of tile adhesive to the entire surface to receive tile. Apply to bottom edge of wallboard and fill the cut-out spaces around pipes, etc. Allow to stand well beyond the normal "take-up" time, preferably 24 hours. Then apply the bedding coat of adhesive to receive the tile. The ceramic tile adhesive must comply with the requirements of Commercial Standard 181-52. See list approved by the Tile Contractors Association of America.
2. A waterproof sealer may be used in lieu of the skim coat of tile adhesive. A water-resistive rubber base sealer, exterior grade spar varnish, acrylic latex, or chlorinated rubber paint, compatible with the adhesive to be used for bedding the tile, are acceptable sealers. All openings or cuts in the wallboard should also be so treated.



GYPSUM WALLBOARD ON

INTERIOR LOCATIONS

MATERIALS AND APPLICATION

Gypsum wallboard ($\frac{1}{2}$ or $\frac{5}{8}$ inches thick) may be used for carport and open porch ceilings and the soffits of eaves that are horizontal or incline downward away from the building.

Materials and application shall be in strict conformance with the requirements of American Standards Association Specifications for Gypsum Wallboard Interior Finishes A97.1, except as modified below:

- Suitable drips and moldings shall be provided around the perimeter to protect from direct exposure to water. The edges of the board shall be placed not less than $\frac{1}{4}$ inch from masonry.
- The wallboard should be applied horizontally on nailing members spaced not to exceed 24" o.c.
- Joints may be covered with battens or finished with joint treatment.

VENTILATION

Adequate ventilation shall be provided for the space immediately above such installations. The minimum acceptable ventilation shall be as required in the current Minimum Property Standards of the Federal Housing Administration.

PAINTING

The exposed surface of the board shall be painted with not less than two coats of exterior paint.

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ELECTRIC HEATING SYSTEM

Gypsum wallboard ceilings may be used for embedment of electric radiant heating cables providing that under no operating conditions shall the gypsum wallboard core exceed a temperature of 125°F. Except as herein indicated, the requirements for two-ply wallboard application (see page 8) shall be observed.

APPLICATION:

1. Electric heating cables shall be securely attached to the base layer of gypsum wallboard in accordance with cable manufacturer's recommendations—with cables parallel to and between framing members. Cables shall be positioned at least $1\frac{1}{4}$ " from center of framing member so that at least $2\frac{1}{2}$ " of nailing space is unobstructed by cables. Cables shall cross nailing members only at ends of ceiling 4" to 6" from wall. There shall be a space of at least 4" completely around the perimeter of each ceiling that is clear of cables. Cables shall be kept clear of all openings by at least 8".

2. All inspections and testing of electric heating cables shall be completed before application of face layer of gypsum wallboard.

Complete embedment of the heating cables is neces-

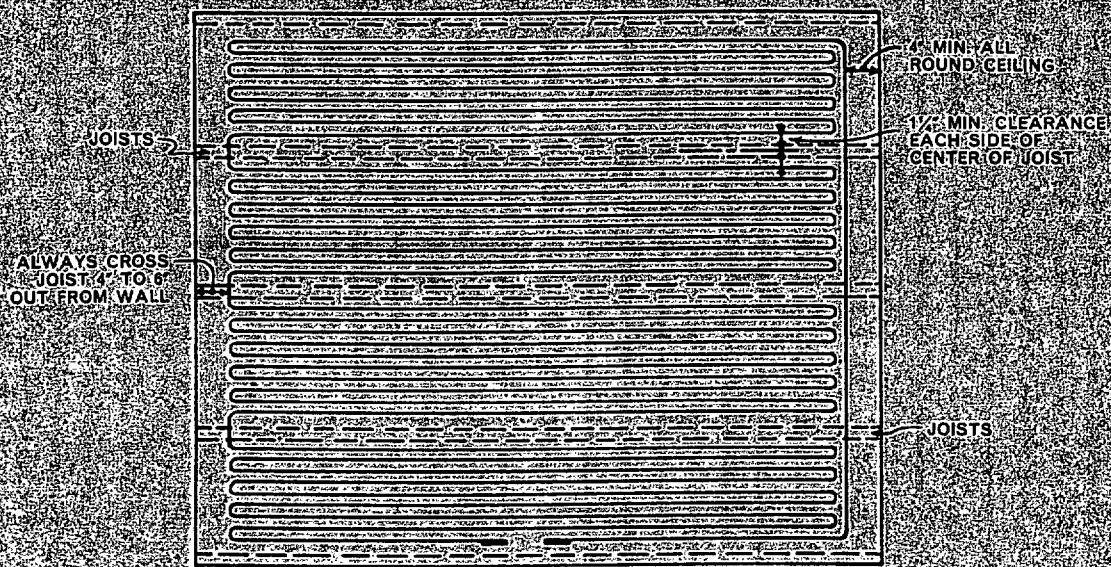
sary. The area between heating elements shall be filled and leveled with a filler to provide continuous contact between the face layer and the back layer of gypsum wallboard. Where the filler serves as an adhesive to hold the face layer, nail spacing may be 7" o.c. for the first layer and 16" o.c. for the face layer. Where the filler does not serve as an adhesive, nails shall be spaced as required for single layer application.

When required to produce a uniform thickness of the filler and to provide a firm base for nailing, furring strips of a thickness equal to that of the filler may be attached over the base layer to the ceiling joists at parallel relationship. The face layer shall be erected immediately after the filler has been spread.

Nails for the second ply shall be of a length that will penetrate $\frac{5}{8}$ " into the nailing members. The last nails around the perimeter of the ceiling shall be spaced 8" to 10" away from the wall to prevent contact with electric cables across the framing members. All joints and nailheads shall be finished as recommended on page 5.

Allow a minimum of one week under good drying conditions and two weeks in the cold season for drying of the filler before turning on the heating system.

TYPICAL RADIANT SYSTEM



TYPICAL CEILING LAYOUT PATTERN

HOT WATER HEATING SYSTEM

Apply insulating gypsum wallboard for the first layer parallel to the joists with the aluminum foil facing downward to act as a reflector behind the heating elements. Nails shall be spaced not more than 8" o.c. They shall be driven flush with surrounding wallboard surfaces. Nail 2" x 2" furring strips 16" o.c. over the insulating gypsum wallboard and at right angles to the joists.

The heating element shall be suspended from and supported by the framing members.

All inspections and testing of the heating system shall be completed before application of the face layer. Under no operating conditions shall the gypsum wallboard core exceed a temperature of 125°F.

Apply the final or face layer in the normal manner at right angles to the furring strips. Nails shall be as recommended on page 6 and shall be spaced not more than 7" o.c. Do not use insulating or foil-backed wallboard for face layer.

All joints and nailheads shall be finished according to the recommendations on page 5. Allow a minimum of one week with good drying conditions and two weeks

in the cold season before turning on the heating system.

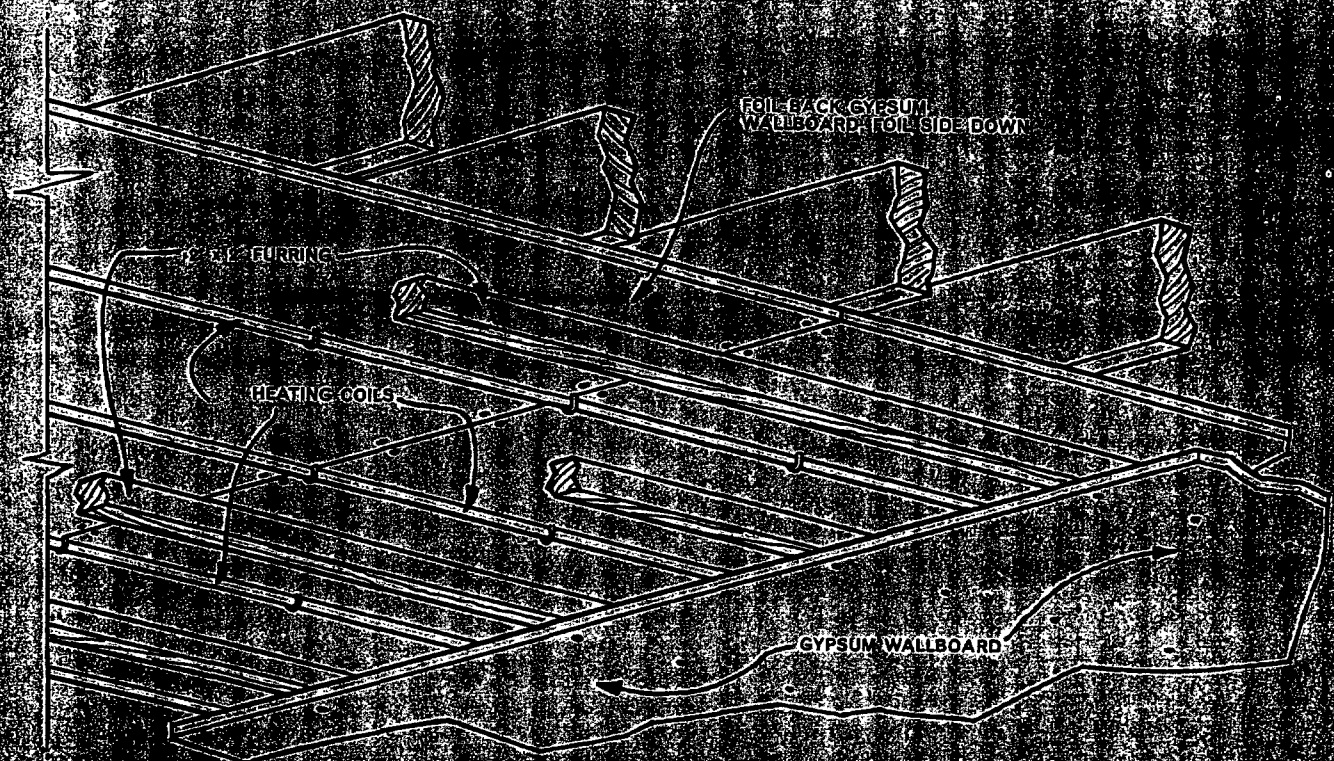
DECORATING:

Decoration of the finished work of either radiant heating system, including sizing or sealing, shall not proceed until the heating system has been test operated for a minimum of 24 hours. The system should then be turned off and construction allowed to cool before decorating the gypsum wallboard. Do not decorate the wallboard while the heating system is being tested or is in operation. It is also recommended that where texture finishes are used, such finishes be allowed to thoroughly set or dry prior to the operation of the heating system.

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TYPICAL HOT WATER SYSTEM



SGP 0028534

FIRE RESISTANCE RATINGS

PARTITIONS

TYPE	TOTAL THICKNESS	CONSTRUCTION DETAILS	REFERENCE AND TEST NO.	RATING
Wood Stud	4 $\frac{3}{8}$ "	$\frac{1}{2}$ " type "X" gypsum wallboard nailed both sides 2x4 wood studs 16" o.c. with 5d nails 7" o.c.	U.L. R3501-10	45 min.
Studless	2 $\frac{1}{4}$ "	$\frac{3}{8}$ " type "X" gypsum wallboard face panels, 1" x 6" vertical gypsum ribs, 20 ga. sheet metal channel runners	Univ. of Calif. 5-18-60	1 hr.
Studless	2 $\frac{1}{4}$ "	$\frac{3}{8}$ " type "X" gypsum wallboard face panels, 1" x 6" core-board ribs 24" o.c., 1" x 1 $\frac{1}{8}$ " wood runners	Univ. of Calif. 7-24-59	1 hr.
Steel Stud	4 $\frac{3}{8}$ "	$\frac{3}{8}$ " type "X" gypsum wallboard nailed both sides 3 $\frac{1}{2}$ " nailable steel studs, 6d nails 8" o.c. (load bearing)	Ohio State Univ. T-209	1 hr.
Wood Stud	4 $\frac{3}{8}$ "	$\frac{3}{8}$ " type "X" gypsum wallboard nailed both sides, 6d nails 7" o.c. (load bearing)	U.L.	1 hr.
Wood Stud	5 $\frac{1}{8}$ "	Two layers $\frac{3}{8}$ " regular gypsum wallboard nailed both sides, 4d nails 8" o.c. first layer, 5d nails 8" o.c. second layer (load bearing)	Ohio State Univ. T-118	1 hr.
Wood Stud	4 $\frac{3}{8}$ "	$\frac{1}{2}$ " regular gypsum wallboard nailed both sides, 5d nails 5" o.c., mineral wool batts nailed to studs (load bearing)	BMS92	1 hr.
Wood Stud	5 $\frac{3}{8}$ "	Two layers $\frac{1}{2}$ " regular gypsum wallboard nailed both sides, 5d nails 8" o.c. first layer, 8d nails 8" o.c. second layer (load bearing)	227 & 228 (unpub.) [†]	1 $\frac{1}{2}$ hr.
Solid	2"	1" gypsum wallboard core (solid or laminated), $\frac{1}{2}$ " gypsum wallboard face panels, 20 ga. sheet metal runners	U.L. R3564	2 hr.
Solid	2"	1" gypsum wallboard core (solid or laminated), $\frac{1}{2}$ " type "X" gypsum wallboard face panels, metal runners	Ohio State Univ. T-1339	2 hr.
Wood Stud	6 $\frac{1}{8}$ "	Two layers $\frac{3}{4}$ " type "X" gypsum wallboard nailed both sides (load bearing)	U.L.	2 hr.

FLOOR-CEILING ASSEMBLIES

TYPE OF CONSTRUCTION	CONSTRUCTION DETAILS	REFERENCE AND TEST NO.	RATING
Wood Joist	Wood floor, $\frac{3}{4}$ " sub and finish T & G flooring with building paper between, ceiling of $\frac{1}{2}$ " type "X" gypsum wallboard attached to 2x10 wood joists 16" o.c. with 5d nails 6" o.c.	U.L. R2717	45 min.
Wood Joist	Wood floor, $\frac{3}{4}$ " sub and finish T & G flooring with building paper between, ceiling of one layer $\frac{3}{8}$ " type "X" gypsum wallboard, 1 $\frac{1}{2}$ " nails 6" o.c.	U.L.	1 hr.
Wood Joist	Wood floor, $\frac{3}{4}$ " sub and finish T & G flooring with building paper between, ceiling of two layers $\frac{1}{2}$ " regular gypsum wallboard, first layer nailed 1 $\frac{1}{4}$ " nails 18" o.c., 1" 20 ga. galv. hex. mesh with 8d box nails 7" o.c., second layer nailed with 8d box nails 7" o.c.	250 (unpub.) [†]	1 hr.
Steel Joist	2" concrete floor, one layer $\frac{3}{8}$ " type "X" gypsum wallboard nailed to $\frac{1}{4}$ " nailing channels, 1 $\frac{1}{4}$ " barbed nails 7" o.c.	U.L. R1319-14 R3501-18	1 $\frac{1}{2}$ hr.

COLUMNS

THICKNESS (FROM COLUMN FACE)	CONSTRUCTION DETAILS	REFERENCE AND TEST NO.	RATING
1	Two layers $\frac{1}{2}$ " regular gypsum wallboard adhesively attached together and to column. First layer wire tied to column.	303 (unpub.) [†]	1 hr.
1 $\frac{1}{2}$ "	Three layers $\frac{1}{2}$ " regular gypsum wallboard adhesively attached together and to column. Second layer wire tied to column.	304 (unpub.) [†]	1 $\frac{1}{2}$ hr.
2"	Four layers $\frac{1}{2}$ " regular gypsum wallboard adhesively attached to column and to preceding layers. First layer wire tied to column.	315 (unpub.) [†]	2 hr.

NOTE: Consult gypsum wallboard manufacturer for independent test data on assembly in regular, moisture-resistant and moisture-resistant type II construction.

[†] Unpublished test report for recognized laboratory.

DESIGN DATA

GYPSUM WALLBOARD APPLICATION DATA

THICKNESS	APPROX. WEIGHT LBS./SQ. FT.	SIZE	LOCATION	APPLICATION METHOD	MAX. SPACING OF FRAMING MEMBERS
1/4"	1.1	4' x 8' to 12'	Over Existing Walls & Ceilings	Horizontal or Vertical	
3/8"	1.5	4' x 8' to 14'	Ceilings	Horizontal	16"
3/8"	1.5	4' x 8' to 14'	Sidewalls	Horizontal or Vertical	16"
1/2"	2.0	4' x 8' to 14'	Ceilings	Vertical Horizontal	16" 24"
1/2"	2.0	4' x 8' to 14'	Sidewalls	Horizontal or Vertical	24"
5/8"	2.5	4' x 8' to 14'	Ceilings	Vertical Horizontal	16" 24"
5/8"	2.5	4' x 8' to 14'	Sidewalls	Horizontal or Vertical	24"
1"	4.0	2' x 8' to 12'		For Laminated Partitions	

GYPSUM WALLBOARD NAILS

Nails*	Wallboard Thickness	Nail	Spacing* Walls	Ceilings
GWB-54 Annular Ring Nails—1/4" head—.098" Dia.—ASTM C380 1 1/2" long	3/8"	1 1/2" GWB-54	8"	7"
	1/2"	1 1/2" GWB-54	8"	7"
	5/8"	1 1/2" GWB-54	8"	7"
1 1/2" long	3/8" Backing Bd. 1/2" Backing Bd.	1 1/2" GWB-54	8"	7"
Cooler Type Nails	1/4"	1" penetration	8"	7"
4d—1 1/4" long—7/32" head—14 ga.	3/8"	4d Cooler	8"	7"
5d—1 1/4" long—1 1/8" head—13 1/2 ga.	1/2" Type "X"	5d Cooler	7"	6"
6d—1 1/4" long—1/2" head—13 ga.	5/8" Type "X"	6d Cooler	7"	6"

MAXIMUM SPACING OF FRAMING MEMBERS FOR 2-PLY APPLICATION

Thickness of Base Layer	Location	Application Method	Maximum Spacing of Nailing Members
3/8"	Ceilings	Horizontal	16" o.c.
3/8"	Sidewalls	Horizontal or Vertical	24" o.c.
1/2" & 3/8"	Sidewalls	Horizontal	24" o.c.
1/2" & 3/8"	Ceilings	Horizontal or Vertical	24" o.c.

*For nail sizes and spacing in fire-rated assemblies see fire resistance table page 18.

THERMAL CONDUCTIVITY VALUES

MATERIAL	CONDUCTANCE "C"	RESISTANCE "R"
3/8" Gypsum Wallboard	3.10	0.32
1/2" Gypsum Wallboard	2.25	0.45
5/8" Gypsum Wallboard	1.80	0.56
Air Spaces	Vert. 1.03 *Bounded by ordinary materials Hor.—Heat Flow Up 1.18 Hor.—Heat Flow Down 0.80	0.97 0.85 1.25
*One air space faced with aluminum foil:	Heat Flow Hor. 0.38 Heat Flow Up 0.54 Heat Flow Down 0.18	2.64 1.84 5.56

*3/4" or more in width.

(NOTE: Foil back gypsum wallboard is an efficient vapor barrier—less than 0.50 perms.)

SPECIFICATIONS

MATERIAL

Gypsum Wallboard	ASTM C36
Gypsum Backing Board	ASTM C442
Methods of Testing	ASTM C473
Definitions	ASTM C11
Annular Ring (GWB-54) Nails	ASTM C380
Joint Treatment	ASTM C475

APPLICATION

American Standard Specifications for Gypsum Wallboard Finishes ASA A97.1

SOUND TRANSMISSION LOSS TABLE

DATE OF TEST	DESCRIPTION OF ASSEMBLY	LABORATORY REPORT NO.	AVERAGE SOUND TRANSMISSION LOSS
1948	One layer $\frac{1}{2}$ " gypsum wallboard each side 2x4 wood studs 16" o.c., joints taped and filled	BMS 144 Panel 224	35
5/21/57	One layer $\frac{1}{2}$ " gypsum wallboard each side staggered 2x3 wood studs 16" o.c., joints taped and filled	242 (unpub.) [†]	42
5/21/57	One layer $\frac{1}{2}$ " type "X" gypsum wallboard each side 2x4 wood studs 16" o.c., joints taped and filled	240 (unpub.) [†]	37
2/22/56	One layer $\frac{3}{8}$ " (same as above—staggered studs)	Riverbank TR56-14	43
1948	Two layers $\frac{3}{8}$ " gypsum wallboard cemented together each side 2x4 wood studs 16" o.c., outer joints taped and filled	BMS 144 Panel 225	38
1953	Two layers $\frac{1}{2}$ " gypsum wallboard cemented together each side 2x4 staggered wood studs 16" o.c., outer joints taped and filled	BMS 144 Panel 235	43
5/21/57	Two layers $\frac{1}{2}$ " type "X" wallboard each side 2x4 wood studs 16" o.c., joints taped and filled	241 (unpub.) [†]	40
5/21/57	Two layers $\frac{3}{8}$ " (same as above—2x3 staggered studs)	244 (unpub.) [†]	45
2/22/56	Two-Inch solid laminated partition—four layers $\frac{1}{2}$ " gypsum wallboard	Riverbank TR56-15	39
5/21/57	Two layers $\frac{3}{8}$ " gypsum wallboard ceiling on 2x10 wood joists 16" o.c., 1x4 fir finish floor and 1x6 sub-floor	713 (unpub.) [†]	40
5/21/57	One layer $\frac{3}{8}$ " type "X" gypsum wallboard ceiling nailed to $\frac{3}{4}$ " nailing channels on Type S.U. 124 open web steel joists. Floor of 2" reinforced concrete	806 (unpub.) [†]	47

[†]Unpublished test report of recognized laboratory.

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Gypsum Wallboard Finishes



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A97.1-1958

UDC 691.31

STANDARD SPECIFICATIONS

for

GYPSUM WALLBOARD FINISHES

Approved as

AMERICAN STANDARD

by The American Standards Association

October 29, 1958

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and the

GYPSUM ASSOCIATION

SGP 0028539

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SPECIFICATIONS FOR GYPSUM WALLBOARD FINISHES**

ASA Project A97

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ASA No. A97.1-1958: UDC 691.31

October 29, 1958

AMERICAN STANDARD SPECIFICATIONS for GYPSUM WALLBOARD FINISHES

NOTE:—These specifications are intended to describe minimum requirements for application over wood nailing members. See Appendix for general information and recommendations pertaining to related work.

1.00 GENERAL PROVISIONS

- 1.10 The work includes all labor, materials, services, equipment, scaffolding and all operations required to complete the gypsum wallboard finishes in accordance with the drawings and these specifications.
- 1.20 Scaffolding shall be constructed and maintained in strict conformity with applicable laws and ordinances, and so as to avoid interfering with the work of others.
- 1.30 The work shall be properly coordinated with the work of other trades.
- 1.40 Whenever joint treatment adhesive is being mixed or used for applying tape or for laminating one layer of board to another, the temperature in the building shall be maintained at not less than 45 degrees Fahrenheit.

2.00 DEFINITIONS

- 2.10 **Gypsum Wallboard:** Where the term "Gypsum Wallboard" is used it refers to gypsum wallboard as defined in A.S.T.M. Specification C11-58.
- 2.12 **Type "X" (Special Fire Retardant) Gypsum Wallboard:** Wallboard which provides greater fire resistance as defined in A.S.T.M. Specification C36-58.
- 2.14 **Insulating Gypsum Wallboard:** Either Regular or Type "X" Gypsum Wallboard, with foil laminated to the back surface, as defined in A.S.T.M. Specification C36-58.
- 2.20 **Edges:** Where the term "edges" is used, it refers only to the paper-bound edges, usually the long dimension of the gypsum wallboard.
- 2.30 **Ends:** Where the term "ends" is used, it refers to the mill-cut or field-cut ends. At such cuts, the gypsum core is left exposed.
- 2.40 **Nailing Members:** Where the term "nailing members" is used, it refers to those portions of the framing, furring, blocking, etc., which serve as a nailing base to receive the gypsum wallboard. Unless otherwise specified herein, the nailing surface shall be not less than 2 inch nominal width. (See also Section A1.00 of Appendix)

2.50 **Horizontal Application:** Where the term "horizontal application" is used, it refers to gypsum wallboard application where the paper-bound edges are applied at right angles to the nailing members.

2.60 **Vertical Application:** Where the term "vertical application" is used, it refers to gypsum wallboard application where the paper-bound edges are applied parallel to the nailing members.

2.70 **Treated Joints:** Where the term "treated joints" is used, it refers to joints between gypsum wallboards which are reinforced and concealed with joint treatment.

2.80 **Untreated Joints:** Where the term "untreated joints" is used, it refers to joints which are left exposed in the finished work, or which may be covered by strips or mouldings.

2.90 **Joint Treatment Adhesive:** Where the term "adhesive" is used, in conjunction with joint treatment, it refers to "joint cement, an adhesive."

3.00 MATERIALS

The materials shall conform to the applicable requirements of the following specifications:

3.10 **Gypsum Wallboard:** A.S.T.M. Designation C36-58.

3.20 **Joint Treatment:** Joint reinforcing and adhesive materials shall be as recommended by the manufacturer of the gypsum wallboard.

3.30 **Laminating Adhesive:** Laminating adhesive material shall be as recommended by the manufacturer of the gypsum wallboard.

3.40 **Water:** Shall be clean, fresh and suitable for domestic consumption.

3.50 **Steel Nails:**

3.52 **GWB-54 (Gypsum Wallboard):** Annular ringed nails complying with the requirements of A.S.T.M. Specification C380-58T.

3.54 **4d** 14 gage, 1-3/8 in. long, 7/32 in. flat head, diamond point.

5d 13-1/2 gage, 1-5/8 in. long, 15/64 in. flat head, diamond point.

6d 13 gage, 1-7/8 in. long, 1/4 in. flat head, diamond point.

3.60 Nails for single layer application:

Gypsum Wallboard (Thickness)	Nails (To framing or furring of 2 in. or greater nominal thickness)	Nails (To 1 in. nominal thick furring over concrete or masonry)
1/4 in. (for application over existing surfaces)	Flat head, diamond point nail of such length as to give not less than 1 in. penetration into the nailing members.	
3/8 in. Regular or Insulating	1-1/8 in. or 1-1/4 in. GWB-54 or 4d	1-1/8 in. GWB-54 or 4d
1/2 in. Regular or Insulating	1-1/4 in. GWB-54 or 5d	1-1/4 in. GWB-54 or 4d
5/8 in. Regular or Insulating	1-3/8 in. GWB-54 or 6d	1-3/8 in. GWB-54 or 5d
1/2 in. Type "X" and Insulating Type "X"	5d	
5/8 in. Type "X" and Insulating Type "X"	6d	

3.70 Nails for Multiple Layer Installation: (See Section 5.40)

4.00 DELIVERY, HANDLING AND STORAGE

- 4.10 All materials shall be delivered in the original packages, container or bundles bearing the brand name and the name of the manufacturer or the supplier for whom the product is manufactured.
- 4.20 All materials shall be kept dry, preferably by being stored inside the building under roof. Where necessary to store gypsum wallboard outside, it shall be stacked off the ground, properly supported on a strong level platform and fully protected from the weather.
- 4.30 Gypsum wallboard shall be neatly stacked (flat), with care taken to avoid damage to edges, ends and surfaces.

5.00 APPLICATION OF GYPSUM WALLBOARD

- 5.10 General: Note: For framing requirements see Appendix, Section A1.00.
- 5.11 Gypsum wallboard shall be cut by scoring and breaking or by sawing, working from the face side. When cutting by scoring, the face paper shall be cut with a knife or other suitable tool. The gypsum wallboard shall then be snapped back away from the cut face. The back paper can be broken by snapping the gypsum wallboard in the reverse direction or the back paper can be cut. All cut edges and ends of the gypsum wallboard shall be sandpapered, where necessary, in order to obtain neat jointing when the wallboard is erected. Cut-outs for pipes,

fixtures, or other small openings shall be scored in outline before knocking out or shall be cut out with a saw or other suitable tool. Where gypsum wallboard meets projecting surfaces, it shall be scribed neatly.

- 5.13 In single layer installations, all ends and edges of all gypsum wallboard shall occur over nailing members, except that this is not required for treated joints at right angles to framing members in horizontal applications.
- 5.15 Gypsum wallboard shall be applied first to the ceiling and then to the walls. Wallboards of maximum practical lengths shall be used to minimize number of end joints. Boards shall be brought into contact, but shall not be forced into place. Where ends or edges abut, they shall be neatly fitted.
- 5.16 Nails shall be spaced not less than 3/8 inch from edges and ends of wallboard. Nails shall be spaced and driven a maximum of 7 inches on centers on ceilings, and a maximum of 8 inches on centers on walls (See Figure No. 1a) except as shown for "Double Nailing" procedure in Figure No. 1b. Perimeter nailing at the top and bottom is not required. Nails shall not be staggered on adjoining edges or ends. While the nails are being driven, the wallboard shall be held in firm contact with the underlying support. Nailing preferably should proceed from central portion of the wallboard toward ends and edges. The tool used for driving nails shall have a crowned face. The nails shall be driven home with the heads slightly below the surface of the gypsum wallboard, in a dimple formed by the crowned face of the driving tool striking the last blow. A nail set shall not be used and care shall be taken to avoid breaking the paper face.

SINGLE NAILING

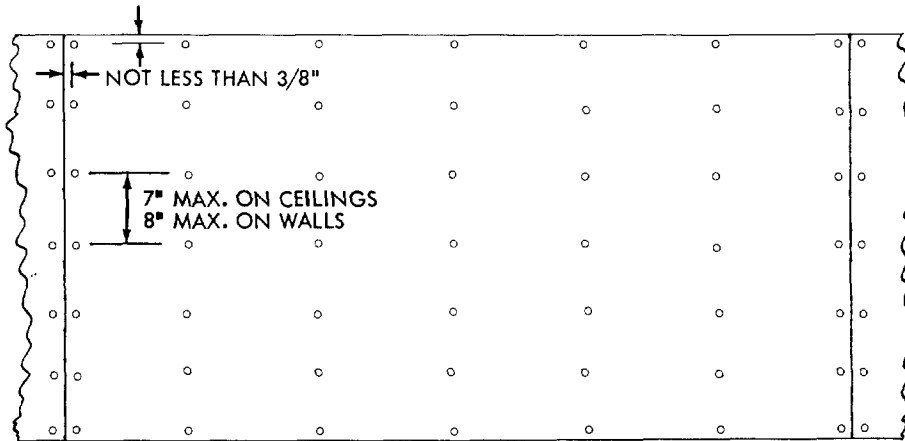


Fig. 1a

NAILS: Nails shall be in accordance with requirements of Paragraph 3.60.

“SINGLE NAILING” SYSTEM PROCEDURE: The wallboard shall be held in firm contact with the nailing member while the nails are being driven. Nailing preferably should proceed from the central portion of each piece of wallboard towards ends and edges. Nails shall not be staggered on adjoining edges or ends. Perimeter nailing at the top and bottom is not required.

DOUBLE NAILING

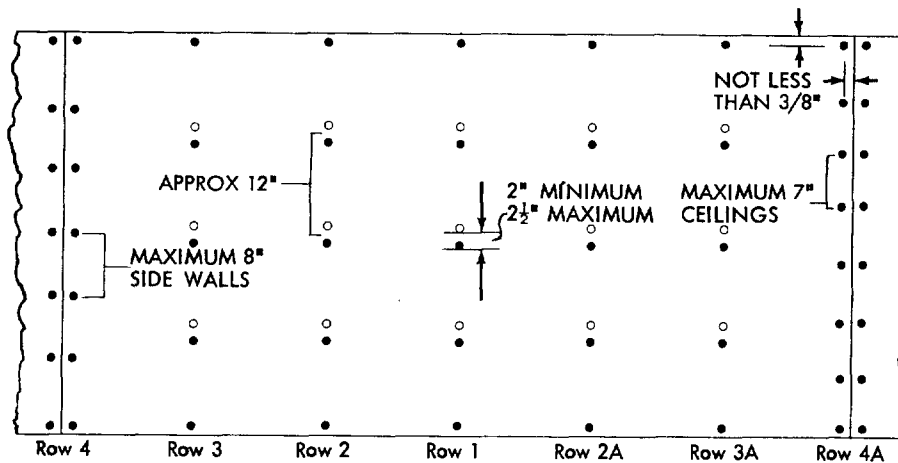


Fig. 1b

NAILS: Nails shall be in accordance with requirements of Paragraph 3.60.

“DOUBLE NAILING” SYSTEM PROCEDURE:

1. Two men are required to nail one ceiling board — one man nails rows 1, 2, 3 and 4; the other nails rows 2A, 3A and 4A.
2. Starting at center of board, nails shown by dot ● are applied in row 1, then rows 2 and 2A, 3 and 3A, 4 and 4A, etc., always nailing from center to edges of sheet.
3. Apply “double” nails shown by circle ○ in the same manner as first nails, also starting at row 1.
4. As alternate procedure, “double” nails may be applied immediately after nailing of first nails in each row is completed according to step “2” above.
5. Use single nails on perimeter of board.

IMPORTANT: All three field (first) nails in each row should be applied before the “double” (second) nails are applied. It may be necessary to “hit” the first nails in each row after the second nail is applied.

- 5.17 The maximum spacings for nailing members to receive gypsum wallboard constructions shall not exceed those shown in the following tables:

NAILING ONLY

Wallboard Construction	Use	Application	Maximum Spacing Nailing Members
3/8" (Single or two-ply)	Ceilings	Horizontal	16" o.c.
	Sidewalls	Horizontal or vertical	16" o.c.
1/2" single	Ceilings	Vertical	16" o.c.
1/2" single	Ceilings	Horizontal	24" o.c.
1/2" single	Sidewalls	Vertical or horizontal	24" o.c.
1/2" two-ply	Ceilings	Horizontal	24" o.c.
1/2" two-ply	Sidewalls	Vertical or horizontal	24" o.c.
5/8" single	Ceilings	Vertical	16" o.c.
5/8" single	Ceilings	Horizontal	24" o.c.
5/8" single	Sidewalls	Vertical or horizontal	24" o.c.
5/8" two-ply	Ceilings	Horizontal	24" o.c.
5/8" two-ply	Sidewalls	Vertical or horizontal	24" o.c.

TWO-PLY NAILING WITH ADHESIVE BETWEEN LAYERS

Wallboard Construction	Use	Application	Maximum Spacing Nailing Members
Two-ply (3/8")	Ceilings	Base layer horizontal	16" o.c.
Two-ply 1/2" base layer	Ceilings	Horizontal	24" o.c.
3/8" face layer	Ceilings	Vertical or horizontal	24" o.c.
Two-ply 1/2" or 5/8"	Ceilings	Base layer horizontal	24" o.c.
Two-ply 3/8", 1/2" or 5/8"	Sidewalls	Horizontal or vertical	24" o.c.

5.20 Application direct to framing members or furring strips:

5.22 Joints Treated:

- 5.222 End joints shall be staggered and joints on opposite sides of a partition shall be arranged to occur on different studs.

5.24 Joints Untreated:

- 5.242 Unless otherwise specified, square edge, beveled edge and predecorated gypsum wallboard shall be applied vertically. Where the nail heads are to be treated, they shall be driven as specified in Paragraph 5.16. Where they are to be left with no further treatment, they shall be driven flush with the face of the wallboard surface without breaking the paper.

- 5.244 Wood grained and other predecorated gypsum wallboards shall be applied using a nail with a suitably colored head. These nails shall be driven with a hard rubber mallet or plastic head hammer.

5.26 Ceiling application over wood furring construction:

When gypsum wallboard is nailed to wood cross furring on ceilings these members shall have a minimum cross section of 2" x 2" (nominal) and be spaced in accordance with the requirements of Paragraph 5.17.

5.30 Application over existing plaster or gypsum wallboard surfaces:

- 5.32 Where gypsum wallboard is used over uneven existing plaster or gypsum wallboard surfaces and joints are to be treated, the wallboard shall be nailed to furring strips as specified in Paragraph 3.60.

- 5.34 Where existing plaster or gypsum wallboard surfaces are in suitably sound condition and of such nature as to permit proper nailing, the gypsum wallboard may be applied direct. Nails shall be so located and of such length as to penetrate into framing members not less than one inch. They shall be spaced and driven as specified in Paragraph 5.16.

5.40 Two-Ply Gypsum Wallboard Application:

5.42 Adhesive Used Between Layers:

5.422 The two layers may be applied in opposite directions or in parallel direction. Joints in the exposed layer need not occur over supports. If the face layer is to be permanently held in place by adhesive only, the first layer shall be applied as specified for single layer application, except that the nails shall be driven so that their top faces are flush with the surrounding wallboard surface. The adhesive to be used between the two layers of gypsum wallboard shall be spread evenly over the back surface of the face layer of the wallboard before it is erected, using a spreader of design approved by the manufacturer of the gypsum wallboard. Immediately after the adhesive has been spread, the wallboard shall be placed in position and nailed with a sufficient number of nails to hold the wallboard in place until the adhesive develops adequate bond. In lieu of nailing, the second ply of gypsum wallboard may be held in position by shoring with props and headers or other temporary supports to insure adequate pressure for bonding.

5.424 When adequate bond has developed between the wallboards, the temporary supports shall be removed, or, if temporary nailing is used, such nails shall either be: (a) driven home so that their heads are below the surrounding surface of the gypsum wallboard, in a dimple formed by the final blow of the driving tool, or (b) removed, or (c) driven with a nail set so that heads of the nail are well below the surface of the exposed face of the gypsum wallboard. The resulting holes shall be filled flush with joint adhesive.

5.44 No Adhesive Used Between Layers:

Nails for the first layer shall be spaced a maximum of 14" on centers, and shall be of the size and type required for the particular thickness of board when used in single layer application. The face layer shall be nailed with the number of nails required for normal single layer application. Nails used for the face layer shall be long enough to penetrate at least 1-1/8 inches into nailing members. The two layers may be applied in opposite directions or in parallel directions. The nails in the first layer shall be driven home so that their heads are below the surrounding surface of the gypsum wallboard. Nails for the face layer shall be driven as specified in Paragraph 5.16.

5.50 Insulating Gypsum Wallboard:

5.51 The application of insulating gypsum wallboard shall conform to the foregoing specifications for the application of gypsum wallboard. The reflective surface shall be placed against the inside face of the nailing members.

5.52 Insulating gypsum wallboard shall not be used as the backing material in shower stalls or tub enclos-

ures to receive ceramic, plastic, or metal tile, or plastic finished wall panels.

NOTE: To obtain full efficiency as an insulating material, a minimum of 3/4 inch air space shall be provided next to the foil.

6.00 JOINT TREATMENT FOR FIELD JOINTS AND CORNERS

6.20 Treatment for field joints and corners shall be applied in strict accordance with the printed instructions of the manufacturer of the gypsum wallboard. Ample drying time shall be allowed between coats of adhesive and between finish coats and decoration. Before joint treatment is applied the installation shall be inspected to insure that (1) gypsum wallboard is properly nailed and is held tight against the nailing members, and (2) nail heads in the field of the board are slightly below the surrounding surface in dimples formed by the driving tool.

6.30 External Corners: External corners shall be protected and finished with reinforcing joint tape and adhesive or with an approved metal or other type corner protection.

6.40 Arches: Where gypsum wallboard is to be applied to the soffit of arches it shall be carefully bent into place. If necessary, it first shall either be dampened or be kerfed approximately one-inch on centers on the back side. In the latter case, after the core has been broken at each cut, the wallboard shall be applied to the curved contour and nailed in place. At the arrises of the arch, joint adhesive and reinforcing shall be applied in the manner specified for corners, except that the tape shall be snipped at intervals along one side to permit it to conform to the curved contour. Approved metal or other corner protection may be used at these locations.

7.00 STUDLESS SOLID GYPSUM WALLBOARD PARTITIONS

7.10 Solid gypsum wallboard partitions consisting of multiple layers of gypsum wallboard shall be erected in accordance with the printed directions of the manufacturer of the gypsum wallboard.

8.00 TOUCHING UP PRIOR TO DECORATION

8.10 After trim has been applied, and prior to decoration, surface damage and defects shall be corrected (See Appendix, Section A2.00).

9.00 VENTILATION ABOVE GYPSUM WALLBOARD CEILINGS

9.10 Proper ventilation shall be provided (See Appendix, Section A4.00).

APPENDIX A

A0.00 APPENDIX

This Appendix gives general information and also suggestions for inclusion to be made elsewhere by specifier. It is not part of these specifications.

A1.00 FRAMING REQUIREMENTS

The work of framing and furring is not part of these specifications. However, certain requirements covering framing, nailing members, spacing, etc., are essential to provide a proper base to receive the gypsum wallboard. The following requirements should be included in the project specifications for wood framing and furring.

- A1.10 All nailing members should be straight and true and spaced not to exceed the maximum spacings shown in Paragraph 5.17. Framing and bridging members should be adequate to carry the design or code loading. The deflection of horizontal members supporting gypsum wallboard shall not exceed 1/360 of the span. The nailing surface of any framing or furring member should not vary more than 1/8 inch from the plane of the faces of adjacent framing or furring members. Headers should be provided as necessary for the support of fixtures. Nailing surfaces shall have a minimum width of 1-1/8 inches.
- A1.30 Headers are not required to receive joints at right angles to supports in horizontal application that are to be treated with a joint reinforcing system.
- A1.50 All concrete or masonry surfaces that are to receive gypsum wallboard finish should be furred with at least 1" x 2" nominal nailing members.
- A1.70 Nailing flanges of insulating materials should not be attached to the face of the nailing member.

A2.00 DECORATION

- A2.10 It is extremely important that the difference in absorption between the field of the gypsum wallboard and the adhesive over joints or nailheads be equalized to assure uniformity of color and texture over the entire wall. After the gypsum wallboard application has been completed, the surfaces should be sealed and primed as required for subsequent finish.
- A2.20 **Wallpaper and similar materials applied adhesively:** Wallpaper, or similar materials adhesively applied, should never be applied to gypsum wallboard without first sealing the surface. Sealing provides protection where wetting of the gypsum wallboard may occur. In general, latex or oleo-resinous type sealers, recommended by the gypsum wallboard manufacturer, can be used. Use of a sealer provides protection for the wallboard when removal of the wallpaper becomes necessary.

A3.00 SPECIFICATIONS FOR APPLICATION OF GYPSUM WALLBOARD TO RECEIVE CERAMIC, PLASTIC, METAL TILE, AND PLASTIC FINISHED WALL PANELS BY ADHESIVE APPLICATION

- A3.10 **General:** The work to be done in application of gypsum wallboard under this specification shall be performed in accordance with the requirements of American Standards Association, Standard Specification for Gypsum Wallboard Finishes A97.1, except as otherwise specified herein.

A3.20 Framing: (See figures A1, A2, and A3)

- A3.21 Framing members shall be plumb and true.

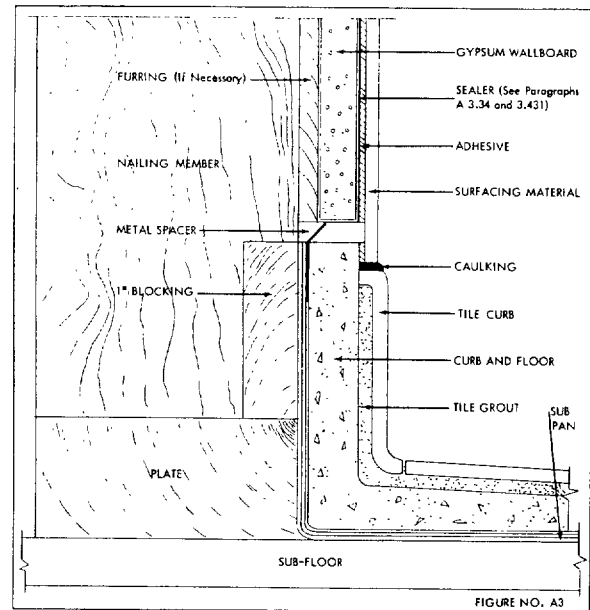
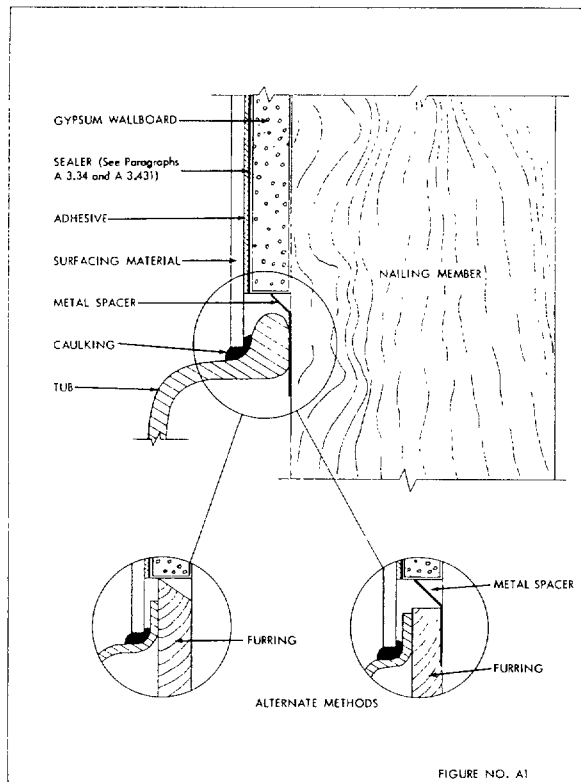
- A3.22 All framing around tub enclosures and shower stalls shall allow sufficient room so that the inside lip of the tub, prefabricated receptor or hot mopped sub-pan shall be even with the face of the gypsum wallboard. This will necessitate furring out from the studs the thickness of the gypsum wallboard to be used (3/8", 1/2", 5/8") less the thickness of the lip, on each wall abutting a tub, receptor or sub-pan.

- A3.23 Furring of the proper thickness shall be applied as required parallel to the lip of receptor, pan or tub. The top of square cut furring, or if beveled, the start of bevel shall be flush with the upper edge of receptor, sub-pan or tub. (See Figures A1, A2 and A3).

- A3.24 A continuous metal spacer strip as specified under Paragraph A3.33 shall be applied with the 3/4" leg behind the furring with the apex of the angle abutting the top surface of the furring and the 3/8" leg protruding away from the stud face. If a metal spacer strip is not used, the wood furring must be beveled. (See Figures A1, A2, and A3).

- A3.25 For walls to be surfaced with ceramic tiles over 1/4" thick: When 3/8" gypsum wallboard is to be used on studs spaced 16" o.c. or 1/2" or 5/8" gypsum wallboard on studs spaced more than 16" o.c., suitable blocking shall be installed between all studs. One row of blocking shall be located approximately 1" above the top of the tub or receptor and another row at the mid point between the tub and ceiling. Blocking is not required for 3/8" gypsum wallboard on studs spaced 12" o.c. or less, or for 1/2" or 5/8" gypsum wallboard on studs spaced 16" o.c. or less.

- A3.26 Appropriate blocking, headers or supports shall be provided to support tub, other plumbing fixtures, and to receive soap dishes, grab bars, towel racks and similar items as may be required.



A3.30 Materials:

A3.31 Gypsum wallboard shall be $\frac{3}{8}$ ", $\frac{1}{2}$ " or $\frac{5}{8}$ " in thickness and shall comply with the requirements of ASTM Designation C36 for Gypsum Wallboard.

NOTE: Insulating (foil-backed) gypsum wallboard shall not be used as a backing material in shower stalls or tub enclosures.

A3.32 Materials for treating joints and concealing nail-heads shall be as recommended by the manufacturer of the gypsum wallboard.

A3.33 The metal spacer strip shall be fabricated of 16 gage galvanized steel, with one leg $\frac{3}{4}$ " wide and one leg $\frac{3}{8}$ " wide bent at a 45° angle.

A3.34 The surface sealer shall be either a water resistant adhesive recommended by the manufacturer of the surfacing material or a water resistant sealer as recommended by the manufacturer of the gypsum wallboard. The sealer shall not be applied until after the joints are treated. Shellac shall not be used.

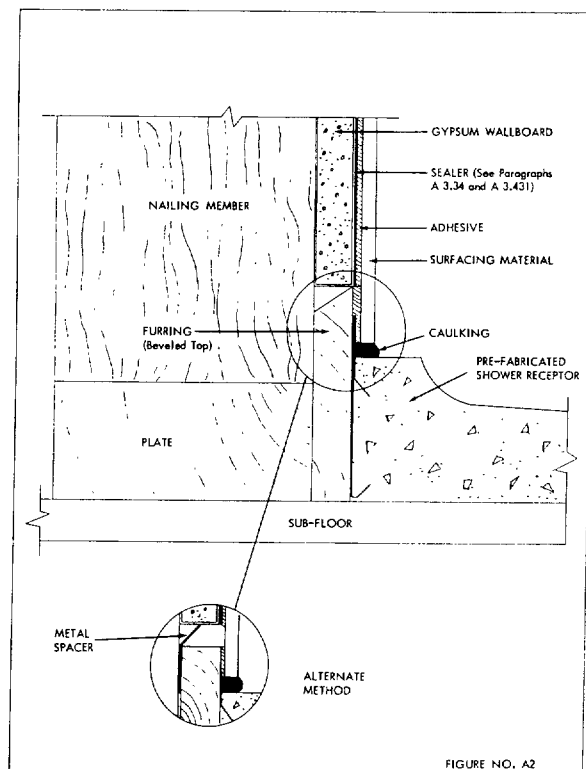
A3.35 The adhesive used for application of the surfacing material shall be approved by the manufacturer of the surfacing material for use over gypsum wallboard.

A3.36 The surfacing material shall provide a durable surface and prevent the passage of free water to the backing material; also, it shall prevent the passage of water vapor which may lead to condensation within or on the surface of the backing material or framing members.

A3.37 Waterproof receptors, pans or sub-pans shall have an upstanding lip or flange which shall be a minimum of 1" higher than the water dam or threshold contained in the entry way to the shower.

A3.40 Application:

A3.41 Shower pans, receptors or tubs shall be installed prior to the erection of the gypsum wallboard. They shall be properly furred away from the framing members as specified in Paragraph A3.22, and installed so that the inside surface of the lip or



upstanding leg of the receptor or pan shall be in alignment with the surface of the gypsum wallboard.

A3.42 Gypsum Wallboard:

A3.421 Gypsum wallboard, 3/8", 1/2", or 5/8" shall be applied horizontally with the factory edge (paper bound) abutting the top edge of the metal spacer strip or beveled furring, which shall allow a minimum of 1/4" space between the lip of the receptor, tub or sub-pan and the gypsum wallboard.

A3.422 Gypsum wallboard shall be nailed as required in the foregoing specification. Where gypsum wallboard is to receive ceramic tile over 1/4" thick, the nails used to attach the gypsum wallboard shall be spaced a maximum of 4" o.c.

A3.423 All joints between adjoining pieces of wallboard, including those at all angle intersections, shall be treated. (See Paragraph 2.70).

A3.43 Application of surfacing material:

A3.431 Prior to the erection of surfacing materials, the approved type of sealer shall be applied to all gypsum wallboard areas including treated joints and angles which are to receive such surfacing materials. When the adhesive is used as a sealer, it shall be applied as a separate operation, independently of the application used to adhere the surfacing material, spreading it in a continuous coating approximately 1/16" thick. All edges of cut-outs made in the gypsum wallboard for pipes, fixtures, etc., shall be sealed in a like manner.

A3.432 Prior to the erection of surfacing materials, all openings around pipes, fixtures, etc., shall be caulked flush with waterproof, non-hardening caulking compound.

A3.433 The surfacing material shall then be applied down to the top surface or edge of the finished shower floor, return, or tub and installed so as to overlap the top lip of receptor, sub-pan or tub.

A3.434 The surfacing material shall be applied so as to completely cover the following areas:

- (a) over tubs without shower heads—6" above the rim of the tub.
- (b) over tubs where showers occur—a minimum of 5 feet above the rim or 6" above the height of the shower head, whichever is higher.
- (c) Shower stalls—a minimum of 6 feet above the shower dam or 6" above the shower head, whichever is higher.
- (d) All jambs in shower stalls shall be covered to a like height.
- (e) The surfacing material shall be carried to the full specified height for a distance of at least 4" beyond the external face of the tub or receptor. Areas beyond an exterior corner are excluded.

A3.435 Where plastic finished wall panels are used as a surfacing material, the following precautions shall be taken:

- (a) Only the type and shape of mouldings recommended by the manufacturer of the surfacing material shall be used. All interior and exterior angles shall be treated with mouldings containing a flange projecting behind the surfacing material on each leg of the angle. Only recommended tub mouldings shall be used at the base where the surfacing materials abut the tub, shower floor, or curb. Such mouldings shall be set in caulking compound.
- (b) A bead of caulking compound shall be applied at the angle formed by the gypsum wallboard backing and the moulding used around the top edge of the surfacing material to prevent leakage of water behind the moulding.

A3.436 Where other types of surfacing materials are used, the following precautions shall be taken:

- (a) All joints shall be filled in such manner as to leave no voids for water penetration.
- (b) Nonsetting caulking compound shall be applied between the wall surfacing materials and the floor of the shower or rim of the tub.
- (c) The angle between the edge and the surfacing material shall likewise be caulked.

A4.00 VENTILATION ABOVE GYPSUM WALLBOARD CEILINGS

A4.10 Attics or similar unheated spaces above gypsum wallboard ceilings shall be adequately ventilated as follows: Provide effective cross ventilation for all spaces between roof and top floor ceilings by screened louvers or other approved and acceptable means. Net ventilating area for each separate space shall be not less than:

A4.20 Roofs with slope 2 in 12 or greater:

A4.21 1/300 of the horizontal projection of the roof area over each space, provided that at least 1/2 of the required ventilating area is in the upper part of the ventilated space, as near the high point of roof as practicable.

A4.22 1/150 of the horizontal projection of the roof area over each space if not in compliance with Paragraph 4.21.

A4.30 Roofs with slope less than 2 in 12:

A4.31 1/300 of the horizontal projection of the roof area if a completely continuous vapor-barrier is provided.

A4.32 1/150 of the horizontal projection of the roof area if such a vapor-barrier is not provided.

NOTE: A vapor-barrier is a material having a vapor permeability not exceeding one (1) perm.



**GYPSUM
ASSOCIATION**

SIMPLIFIED PRACTICE RECOMMENDATION R-266-63

GYPSUM BOARD PRODUCTS

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SGP 0028549



**GYPSUM
ASSOCIATION**

Simplified Practice Recommendation R-266-63 Gypsum Board Products

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History of Recommendation

In a letter dated June 13, 1962, the Gypsum Association requested the cooperation of the Commodity Standards Division in the establishment of a Simplified Practice Recommendation for gypsum board products, and submitted as a basis a tentative standard of the Simplified Practice Committee of that organization.

The Commodity Standards Division (now the Office of Commodity Standards) circulated copies of the Proposed Simplified Practice Recommendation SP-4675, to a sampling of the industry for preliminary comment and approval. All comments and suggestions received were carefully considered and adjustments were made to the proposal to satisfy the comment wherever practicable. The Recommended Simplified Practice Recommendation, SP-4682, was circulated to the trade on April 22, 1963. On August 2, 1963, the Office of Commodity Standards announced that acceptances had been received representing a satisfactory majority of the industry and the Simplified Practice Recommendation, to be designated R-266-63, would be effective September 9, 1963.

Project Manager: D. R. Stevenson, Office of Commodity Standards,
National Bureau of Standards.

Technical Adviser: E. T. Carlson, Building Research Division,
National Bureau of Standards.

Standing Committee

The following individuals comprise the membership of the Standing Committee, which is to review, prior to circulation for acceptance, revisions proposed to keep the standard abreast of progress. Comment concerning the standard and suggestions for revision may be addressed to any member of the committee or to the Office of Commodity Standards, National Bureau of Standards, U. S. Department of Commerce, which acts as secretary for the committee.

O. H. Storey , The Flintkote Co., (Chairman) 1101 South Front St., Camden, N.J.	A. L. Meyer , Bestwall Gypsum Co., 120 Lancaster Ave., Ardmore, Pa.
R. P. Faust , United States Gypsum Co., 101 S. Wacker Dr., Chicago, Ill.	G. Erwin , Contracting Plasterers' and Lathers' International Assn., 1343 H St., N. W., Washington, D.C.
R. M. Glazier , National Gypsum Co., Gold Bond Bldg., Buffalo 2, N.Y.	W. R. Nellis , Home Manufacturers Assn., 910 17th St., N. W., Washington, D.C.
G. B. Kirk , Kaiser Gypsum Co., Inc., 300 Lakeside Dr., Oakland, Calif.	L. H. Yeager , Gypsum Association, 201 North Wells Street, Chicago, Ill.
M. W. Smithman , National Association of Home Builders, 1625 L St., N. W., Washington, D.C.	T. T. Sneddon , National Lumber and Building Material Dealers Association, 302 Ring Building, Washington 6, D.C.

SGP 0028551

GYPSUM ASSOCIATION

GYPSUM BOARD PRODUCTS

(Effective Sept. 9, 1963)

1. PURPOSE

1.1 The purpose of this recommendation is to establish a standard of simplified practice for the various types and sizes of gypsum wallboard and lath products. It is intended to serve as a guide in the manufacture, selection and utilization of these products by listing the kinds, types and sizes in greatest demand and in most general use. The use of simplified sizes enables producers and distributors to improve their service to the customer, reduce inventories and to maintain a current stock.

2. SCOPE

2.1 This standard lists six varieties of gypsum board and lath products and the various types and sizes of each in greatest demand. It further indicates the sizes for which demands are decreasing but which are not sufficiently low to warrant their deletion from the standard at this time. These are not recommended for regular stock, but may be obtained "on order," subject to delay in delivery.

3. DEFINITIONS

3.1 For information and ease in identifying the various gypsum board products the following definitions are provided:

Gypsum Board Products: Gypsum board products are mill fabricated boards consisting of a non-combustible core, essentially gypsum. The core is surfaced on the front and back faces and along the longitudinal edges with a paper covering specifically designed for various uses with respect to performance, application, use and appearance.

(1) Gypsum Wallboard:

- (a) **Regular Type:** Regular gypsum wallboard is surfaced on the front or face that is exposed to the room interior, and along the longitudinal edges, with a calendered manila paper to provide a smooth, even finish, suitable as a base for decoration. The back, or unexposed face, is surfaced with a gray liner paper.
- (b) **Insulating Type:** Insulating gypsum wallboard is regular wallboard with a pure bright finished aluminum foil bonded to the gray liner paper on the back or unexposed face, which serves as a vapor barrier and a reflective thermal insulator.

(2) Gypsum Backing Board:

- (a) **Regular Type:** Regular gypsum backing board differs from regular wallboard in that both the front and back faces and the longitudinal edges are surfaced with a gray liner paper. It is used as a base layer for multi-ply constructions.
- (b) **Insulating Type:** Insulating gypsum backing board is regular backing board with a pure bright finished aluminum foil bonded to its back face, which serves as a vapor barrier and a reflective thermal insulator.

(3) Gypsum Lath: Gypsum lath is a plaster base in sheet form. It is surfaced on both faces and along the longitudinal edges with a special fibrous paper suitable for the application of plaster.

- (a) **Plain Type:** Plain gypsum lath is a plaster base in sheet form. It is surfaced on both faces and along the longitudinal edges with a special fibrous paper suitable for the application of plaster.
- (b) **Perforated Type:** Perforated gypsum lath is regular gypsum lath with not less than $\frac{3}{4}$ in. diameter holes through the lath, approximately 4 in. on center.
- (c) **Insulating Type:** Insulating gypsum lath is regular gypsum lath with a pure bright finished aluminum foil bonded to the gray liner paper on the back or unexposed face, which serves as a vapor barrier and a reflective thermal insulator.

(4) Type "X" Designation: Type "X" gypsum wallboard, type "X" gypsum backing board and type "X" gypsum lath are mill fabricated board products, similar in all respects to regular gypsum wallboard, backing board and lath, respectively, except that the core has been made extra fire resistive.

(5) Gypsum Formboard: Gypsum formboard is a permanent form for gypsum-concrete roof decking. Formboard is surfaced on the exposed undersurface face and longitudinal edges with a calendered manila paper specially treated to resist fungus growth. The back face is surfaced with gray liner paper.

- (6) **Gypsum Sheathing Board:** Gypsum Sheathing board is surfaced with a firmly bonded water-repellent paper on both faces and longitudinal edges.

- (a) **Core-Treated Sheathing Board:** Core-treated gypsum sheathing board is gypsum sheathing board with a water-repellent core.

3.2 Additional details of definitions, dimensional tolerances, quality requirements and test methods for these products are covered in the latest editions of the following specifications:

American Society for Testing and Materials:

- C22. Gypsum
- C36. Gypsum Wallboard
- C37. Gypsum Lath
- C79. Gypsum Sheathing Board
- C318. Gypsum Formboard
- C442. Gypsum Backing Board
- C473. Physical Testing of Gypsum Board Products and Gypsum Partition Tile or Block

These data are available from the American Society for Testing and Materials, 1916 Race Street, Philadelphia 3, Pa.

Federal Specifications:

- SS-L-30b—7/9/63—Lath, Sheathing and Wallboard, Gypsum
- SS-P-402 Gypsum Plaster

These data are available from the Business Service Center, General Services Administration, 7th and D Streets, S.W., Washington 25, D.C.

4. RECOMMENDATION

4.1 The Gypsum board products and sizes identified by the symbol v in Tables 1 through 5 are recommended for regular stock. Those identified by the symbol * are not recommended for regular stock but may be obtained "on special order" from manufacturers and distributors, subject to possible delay in delivery.

Table 1. GYPSUM WALLBOARD

Type	Thickness in inches	Width in inches	Length in feet										Edge Detail		
			7	8	9	10	11	12	13	14	15	16	Tapered	Sq.	Bev.
Regular	1/4	48		v		v		v					v		
	3/8	48	v	v	v	v		v		*		*	v	*	*
		24	*	*	*	*		*							*
	1/2	48	v	v	v	v	*	v	*	v	*	*	v	*	*
		24		*	*	*		*							*
	5/8	48		v	*	v		v					v		
Insulating	3/8	48	*	v	*	v		v		*			v		
	1/2	48	*	v	v	v	*	v		*		*	v		
	5/8	48		*	*	*		*					*		

Table 2. GYPSUM BACKING BOARD

Type	Thickness in inches	Width in inches	Length in feet					Edge Detail	
			7	8	9	10	11	12	Sq. T and G
Regular	3/8	24		*					*
		48		v				*	v
	1/2	24		v					*
		48		*				*	*
	1 1/2	24		*	*	*	*	*	*
Insulating	3/8	24		*					*
		48		v					v
	1/2	24		*					*

- v—Recommended stock items.
- *—Special order items.
- ‡—Also known as "Coreboard."

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Table 3. TYPE "X" GYPSUM WALLBOARD AND BACKING BOARD

Type "X"	Thickness in inches	Width in inches	Length in feet					Edge Detail		
			8	9	10	11	12	Tapered	T and G	Bev.
Regular Wallboard	1/2	48	v	v	v		v	v		
	5/8	24	*	*	*		*			*
		48	v	v	v	*	v	v		
Insulating Wallboard	5/8	48	*	*	*		*	*		
Regular Backing Board	1/2	24	*						*	
	5/8	24	v						v	
Insulating Backing Board	5/8	24	*						*	

Table 4. GYPSUM LATH

Type	Thickness in inches	Width in inches	Length in feet							Edge Detail		
			4	7	8	9	10	11	12	Sq.	Round	T and G
Perforated	1/8	16†	v		*						v	
	1/2	16†	v								v	
Plain	1/8	16†	v		v						v	
	1/2	24	*		*					*		
		16†	v								v	
		24	*	*	*	*	*			*		*
Insulating	1/8	16†	v		v						v	
		24	*	*	*	*	*	*	*	*		
	1/2	16†	v								v	
		24	*	*	*	*	*	*	*	*		*
Type "X"	1/8	16†	v		v						v	

Table 5. OTHER GYPSUM BOARDS

Type	Thickness in inches	Width in inches	Length in feet			Edge Detail	
			8	9	10	Sq.	T and G
Gypsum Formboard	1/2	32	v		v	v	
		48	*		*	*	
Gypsum Sheathing	1/2	24	v				v
		48	v	v		v	

v—Recommended stock items.

*—Special order items.

†—Standard width for lath in Arizona, California, Nevada, Montana, Washington, Oregon and Idaho is 15-1/5 inches.

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ACCEPTORS

The manufacturers, distributors, users and others listed below indicated in writing their acceptance of this Simplified Practice Recommendation prior to its publication.

Associations

American Institute of Architects, Washington, D.C.
 American Specification Institute, Chicago, Ill.
 Associated General Contractors of America, Wash. D.C.
 Carolina Lumber & Building Supply Assn., Charlotte, N.C.
 (General Support)
 Contracting Plasterers' and Lathers' International
 Association, Inc., Washington, D.C. (General Support)
 Gypsum Association, Chicago, Ill. (General Support)
 Gypsum Roof Deck Foundation, Glenview, Ill.
 Home Manufacturers Assn., Washington, D.C. (General
 Support)
 National Association of Home Builders, Washington, D.C.

Government

Army, Dept. of, Chief of Engineers, Washington, D.C.
 (General Support)
 Army, U.S., Materials Research Agency, Watertown, Mass.
 GSA, FSS, Standardization Division, Washington, D.C.
 (General Support)
 Health, Education and Welfare, Dept. of, Wash. D.C.
 Interior, Dept. of, Division of Property Management,
 Washington, D.C.
 Post Office Dept., Procurement Division, Bureau of
 Facilities, Washington, D.C.
 Veterans Administration, Washington, D.C.

Firms

Albert Brothers Construction Co., Lincoln, Ill.
 Allen Brothers & O'Hara, Inc., Memphis, Tenn.
 Altfillisch, Olson, Gray & Thompson, Decorah, Iowa
 American Gypsum Co., Albuquerque, New Mexico
 Auch, Geo. W., Co., Detroit, Mich.
 Austin Building Co., Dallas, Tex.
 Barrett Division, Allied Chemical Corp., New York, N.Y.
 Barry and Kay, Architects, Chicago, Ill.
 Basche Sage Hardware Co., Baker, Ore.
 Bateson, J. W., Construction Co., Inc., Dallas, Tex.
 Baumer, Herbert, Architect, Columbus, Ohio
 Belli & Belli, Architects, Chicago, Ill.
 Bestwall Gypsum Co., Ardmore, Pa.
 Big Horn Gypsum Co., Salt Lake City, Utah
 Blue Diamond Company, Division of
 The Flintkote Co., Los Angeles, Calif.
 Bornstein, Ale, Inc., Louisville, Ky.
 Brust & Brust, Architects, Milwaukee, Wis.
 Camlet, J. Thomas, Architect-Engineer, Garfield, N.J.
 Cannon & Mullen, Architects, Salt Lake City, Utah
 Capital Construction Co., Atlanta, Ga.
 Celotex Corp., Chicago, Ill.
 City Hardware, Jasper, Ala.
 Community Builders, Inc., Washington, D.C.
 Conrad & Cummings, Associated Architects, Binghamton,
 N.Y.
 Dale Bellamah Enterprises, Albuquerque, New Mexico
 Daniel, Carroll, Construction Co., Gainesville, Ga.

Davis Wick, Rosengarten Co., Inc., Arlington, Va.
 Dayton Home Builders, Inc., Dayton, Ohio
 Demers, J. L., Ltd., Levis, Quebec, Canada
 DeWitt, Furnell & Spicer, Inc., St. Petersburg, Fla.
 Duer, John, & Sons, Inc., Baltimore, Md.
 Dunham-Hanson Co., Bangor, Me.
 Ellerbe and Co., St. Paul, Minn.
 F & S Construction Co., Inc., Roselle, Ill.
 Fellheimer & Wagner, Architects & Engineers, New York
 Ferguson, H. K., Co., Cleveland, Ohio
 Fibreboard Paper Products Corp., San Francisco, Calif.
 Field Home Builders, Chicago, Ill.
 Flintkote Co., New York, N.Y.
 Gadsden Hardware Co., Gadsden, Ala.
 Grand Rapids Gypsum Co., Grand Rapids, Mich.
 Grellinger-Rose Associates, Inc., Milwaukee, Wis.
 Hardin, Ira H., Co., Atlanta, Ga.
 Helf, Marvin, Inc., Cleveland, Ohio
 Hogner, P. R. L., Architect, Ft. Lauderdale, Fla.
 Holdstein, Milo S., A.I.A., Cleveland, Ohio
 Hope, Frank L., & Associates, San Diego, Calif.
 Hunsicker, L. W., Co., Allentown, Pa.
 Hunt, David M., Construction Co., Philadelphia, Pa.
 Jacobs, S. D., Co., Jacksonville, Fla.
 Kaiser Gypsum Co., Inc., Oakland, Calif.
 Latenser, John, & Sons, Architects, Omaha, Neb.
 Lee Hardware Co., Salina, Kans.
 Loeb, Laurence M., Architect, White Plains, N.Y.
 Lummus Co., Newark, N.J.
 Madway Main Line Homes, Inc., Wayne, Pa.
 McKee, Robert E., General Contractor, Inc., Los Angeles
 McPherson Co., Greenville, S.C. (General Support)
 Messer, Frank, & Sons, Inc., Cincinnati, Ohio
 Miller, Miller & Associates, Architects, Terre Haute, Ind.
 Monroe Light & Higgins, Architects & Engineers,
 El Paso, Tex.
 Montgomery Construction Co., Grove City, Pa.
 National Gypsum Co., Buffalo, N.Y.
 New England Builders Supply, Inc., Braintree, Mass.
 Norton Hardware Co., Norton, Va.
 Olsen Construction Co., Santa Rosa, Calif.
 Patzig Testing Laboratories, Inc., Des Moines, Iowa
 Pearce & Pearce Co., Inc., Buffalo, N.Y.
 Phalen Construction Co., Mendota, Ill.
 Phillips, I. W., and Co., Tampa, Fla.
 Post, Geo. B., & Sons, Architects, New York, N.Y.
 Price, Beryl, Philadelphia, Pa.
 Rowley, Fred C., & Sons, Inc., Hammond, Indiana
 Ruberoid Co., Caledonia, N.Y.
 Ryan Contracting Corp., New York, N.Y.
 Santa Fe Builders Supply Co., Albuquerque, N. Mexico
 Turner Construction Co., New York, N.Y.
 United States Gypsum Co., Chicago, Ill.
 University of Virginia, Charlottesville, Va.
 Vogel, Willis A., A.I.A., Toledo, Ohio
 Vulcan-Cincinnati, Inc., Cincinnati, Ohio
 Wagoner, Harold E., A.I.A. & Associates, Philadelphia, Pa.
 Welch, Carroll E., Huntington, N.Y.
 Woolbright Construction Co., Inc., Delray Beach, Fla.

GYPSUM ASSOCIATION

201 N. WELLS STREET
CHICAGO, ILLINOIS 60606

1350 N. HIGHLAND AVENUE
HOLLYWOOD, CALIFORNIA 90028



SGP 0028556

B. KEGUAT
Opsam Board

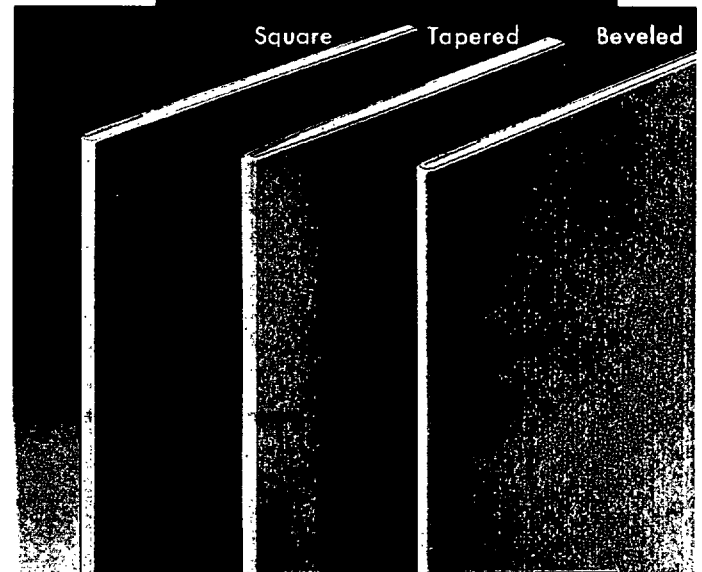
SGP 0028557

REGULAR GYPSUM WALLBOARD

DESCRIPTION

Bestwall Regular Gypsum Wallboard consists of a glass fiber reinforced core of gypsum rock enclosed between two layers of tough paper. The glass fibers result in a reinforcing network that adds to the board's flexural strength, and gives Bestwall Gypsum Wallboard better nailing qualities and increased resistance to cracking. Since it is a "dry" material, Regular Gypsum Wallboard, as well as all other Bestwall Wallboard Products, allow painting and other decoration shortly after application of Joint Treatment.

Regular Gypsum Wallboard is manufactured with either Square or Tapered Edges. Square Edges are recommended for use where no joint treatment is required. $\frac{1}{2}$ " and $\frac{5}{8}$ " wallboard with Tapered Edges is recommended for single layer application in new construction. Tapered Edges are designed to be reinforced by the Bestwall Joint Systems for smooth, seamless surfaces.



BESTWALL®

ADVANTAGES

- The core of gypsum wallboard is incombustible rock • Miles of glass fibers add great resilience and strength, meaning easier handling • Can be finished with any type of decoration • Large, lightweight panels go up fast • Plant fabricated gypsum wallboard eliminates extreme moisture in wall constructions

PRODUCT USE

Bestwall Regular Gypsum Wallboard can be used for walls and ceilings in both new construction and remodeling.

DATA

Thickness: 1/4", 3/8", 1/2", 5/8"

Length: 6' to 16' (in even feet)

Width: 4'

Edge: Tapered, Square, Beveled (special order only)

Packaging: Twin Mounted, end taped

Application: Horizontal application is recommended for Bestwall Regular Gypsum Wallboard. This gives a stronger wall and will reduce the number of joints to be treated. Start application in an upper corner, working across and down. Either cut openings out of full panels or plan joints to occur on the studs nearest the center of the openings. For further details refer to our application instruction folder.

Nails: GWB-54 Annular Ring Nails — 1/4" head — .098" Dia. — ASTM C380 1-1/4" long

Wallboard Thickness	Nail	Spacing	
		Walls	Ceilings
3/8"	1-1/4" GWB-54	8"	7"
1/2"	1-3/8" GWB-54	8"	7"
5/8"	1-3/8" GWB-54	8"	7"

SGP 0028558



GYPSUM ASSOCIATION

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60610, TELEPHONE 431-2000, CABLE 22, 6400

Special Recommendations

NAILING GYPSUM WALLBOARD

SINGLE AND TWO-PLY APPLICATION

(SINGLE AND DOUBLE NAILING METHODS)

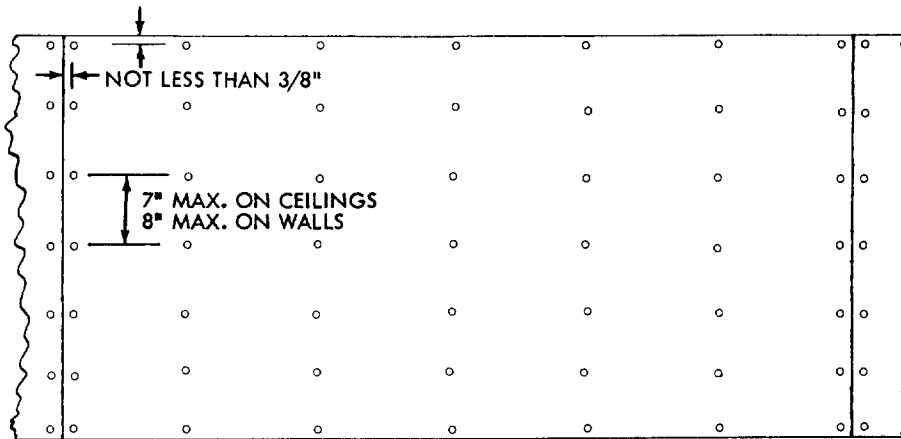
RECOMMENDED NAILS AND SPACING

THICKNESS OR TYPE	DESCRIPTION OF NAIL	NAIL SPACING
SINGLE LAYER		
1/4" thickness (for application over existing surfaces only)	Flat head, diamond point nail of such length as to give not less than 1" penetration into the framing member.	Nails spaced not less than 3/8" from ends and edges. At each support space nails a maximum of 7" for ceilings and a maximum of 9" for walls. Do not stagger nails on adjoining ends and edges. (See reverse side.)
3/8" thickness	1-1/8" or 1-1/4" long, annular ringed GWB-54 nail complying with ASTM Spec. C350-55T or 1d, 14 gauge, 1-3/5" long, 7/32" flat head, diamond point, bright finish cooler.	(A) Nails spaced not less than 3/8" from ends and edges. At each support space nails a maximum of 7" for ceilings, a maximum of 9" for walls. Do not stagger nails on adjoining ends and edges (see reverse side), or double nailing method may be used (see reverse side).
1/2" thickness	1-1/4" long, annular ringed GWB-54 nail complying with ASTM Spec. C350-55T or 5d, 13-1/2" gauge, 1-5/8" long, 15/64" flat head, diamond point, bright finish cooler. For exterior use, use GWB-54 nail only.	Same as (A) above or double nailing method may be used (see reverse side).
5/8" thickness	6d, 13 gauge, 1-7/8" long, 1/4" flat head, diamond point. (Use for fire rated constructions). 1-3/8" long, annular ringed GWB-54 nail complying with ASTM C350-55T where fire rated construction is not required. For exterior use, use GWB-54 nail only.	Same as (A) above. Double nailing method may be used (see reverse side), except for fire rated constructions.
TWO-PLY		
(1) Adhesive between layers	(1) First layer — same as for single layer application of thickness used. (2) Face layer — long enough to penetrate at least 3/4" into framing member.	(1) Same as (A) above; drive nails flush with paper surface. (2) Use only enough nails to hold wallboard in place until adhesive develops adequate bond. Suggested spacing 12" on ceilings and 16" on walls.
(2) No adhesive used between layers.	(1) First layer — same as for single layer application. (2) Face layer — long enough to penetrate at least 1-1/8" into framing member.	(1) Same as (A) above, except nails may be spaced a maximum of 14". Drive nails flush with paper surface. (2) Same as for single layer application or double nailing method may be used (see reverse side).
(3) Staple application of first-layer only. Face layer applied as per method above.	(1) Staples shall meet the following minimum requirements: Wire — 16 U. S. Standard gauge flattened galvanized wire. Staple Crown — Flat, 7/16" wide (outside measurement). Staple Leg — For 1/2" thick board — 1" long with divergent points. For 1/2" thin board — 1-1/8" long with divergent points.	(1) Staples shall be driven with the crown at right angles to the paper bound edges of the wallboard except where the paper bound edges fall on the framing members. The staples shall be driven parallel to the edges. Staples shall be driven in such a manner that the crown bears tightly against the wallboard but does not cut into the face paper. The legs of the staple shall be no less than 3/8" from the ends and edges of the wallboard. Spacing of staples shall be 7" o.c. maximum on ceilings and 9" o.c. maximum on walls.

May, 1959

SGP 0028559

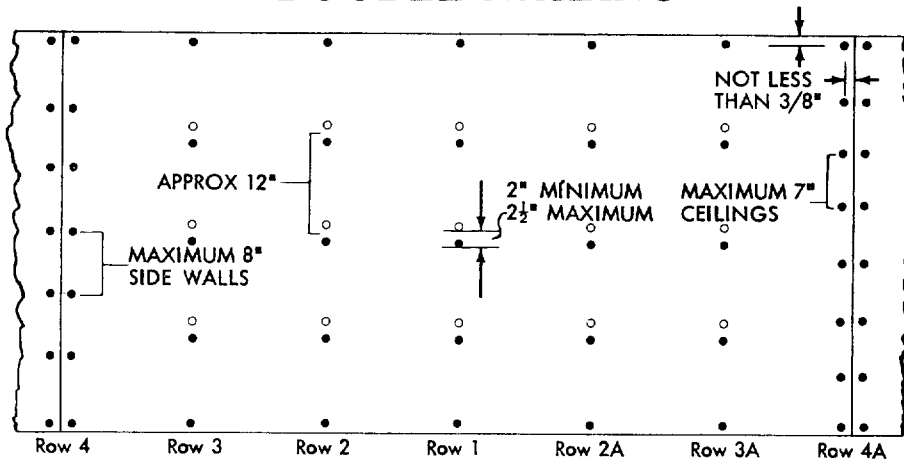
SINGLE NAILING



NAILS: (See Reverse Side)

"SINGLE NAILING" SYSTEM PROCEDURE: The wallboard shall be held in firm contact with the nailing member while the nails are being driven. Nailing preferably should proceed from the central portion of each piece of wallboard towards ends and edges. Nails shall not be staggered on adjoining edges or ends. Perimeter nailing at the top and bottom is not required.

DOUBLE NAILING



NAILS: (See Reverse Side)

"DOUBLE NAILING" SYSTEM PROCEDURE:

1. Two men are required to nail one ceiling board — one man nails rows 1, 2, 3 and 4; the other nails rows 2A, 3A and 4A.
2. Starting at center of board, nails shown by dot ● are applied in row 1, then rows 2 and 2A, 3 and 3A, 4 and 4A, etc., always nailing from center to edges of sheet.
3. Apply "double" nails shown by circle ○ in the same manner as first nails, also starting at row 1.
4. As alternate procedure, "double" nails may be applied immediately after nailing of first nails in each row is completed according to step "2" above.
5. Use single nails on perimeter of board.

IMPORTANT: All three field (first) nails in each row should be applied before the "double" (second) nails are applied. It may be necessary to "hit" the first nails in each row after the second nail is applied



GYP-SUM ASSOCIATION

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Special Recommendation

FOR RADIANT HEATING with Gypsum Wallboard

GENERAL

The purpose of these recommendations is to explain the proper use of gypsum wallboard when used with radiant heating. Gypsum wallboard or backing board can be satisfactorily used in conjunction with radiant heating installations, however, certain precautions must be taken to minimize the possibility of such things as cracking due to thermal shock, shadowing under the heating system due to unequal initial drying rates, or calcination of the gypsum wallboard due to over-heating. These recommendations are intended to provide information which should help avoid such difficulties.

TYPES OF RADIANT HEATING SYSTEMS

Electrical systems where cables are located between two layers of gypsum wallboard.

Hot water systems in which the heat conducting mediums, such as pipes, are located between two layers of gypsum wallboard.

Systems in which the heating elements are located behind the gypsum wallboard.

SPECIFICATIONS

Gypsum wallboard shall be applied in accordance with the requirements of ASA A97.1, "Standard Specifications for Gypsum Wallboard Finishes" except as herein modified.

Systems Using Two Layers of Gypsum Wallboard

The first layer of gypsum wallboard or backing board shall be applied horizontally to nailing members using nails as specified below. Nails shall be spaced a maximum of 14" o.c. for the first layer and 7" o.c. for the face layer.* Nails shall be driven flush with surrounding wallboard surfaces for application of the first ply.

*For exception see "Note", Electric Heating Systems.

Nails:

Gypsum Wallboard Thickness:	Recommended Nails
First Ply	
3/8"	1-1/8" or 1-1/4" GWB-54 or 4d, 14 gage, 1-3/8" long, 7/32" flat head, diamond point, bright finish cooler.
1/2"	1-1/4" GWB-54 or 5d, 13-1/2 gage, 1-5/8" long, 15/64" flat head, diamond point, bright finish cooler.
5/8"	1-3/8" GWB-54 or 6d, 13 gage, 1-7/8" long, 1/4" flat head, diamond point, bright finish cooler.
Second Ply	
GWB-54 Type nails providing 3/4" penetration or "Cooler" nails providing 1" penetration.	

Staples:

The first ply only of two-ply construction may be attached by power driven staples. When staples are used, the following recommendations should be employed.

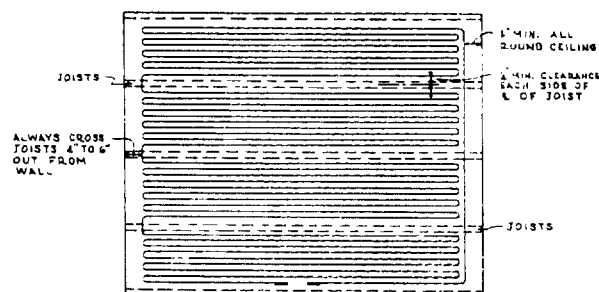
The staples shall meet the following minimum requirements: 16 U.S. Standard gage flattened galvanized wire, 7/16" wide crown, 1" long legs for 3/8" thick board, 1-1/8" long for 1/2" thick board and 1-1/4" long for 5/8" thick board, with divergent points.

The spacing of staples shall not exceed 7" on center on ceilings.

Staples shall be driven with the crown at right angles to the paper bound edges of the gypsum wallboard, except where the paper bound edges fall on the framing members, then the staples shall be driven parallel to the edges. Staples shall be driven in such a manner that the crown bears tightly against the wallboard, but does not cut into the face paper. The legs of the staples shall be no less than 3/8" from the ends and edges of the gypsum wallboard.

ELECTRIC HEATING SYSTEMS:

Electric heating cables shall be securely attached to the base or first layer of gypsum wallboard in accordance with cable manufacturer's recommendations, with cables parallel to and between nailing members. Cable shall be positioned at least 1-1/4" from center of nailing member on each side so that at least a 2-1/2" unobstructed channel is provided under each nailing member. This is necessary to prevent nails, used to subsequently attach the face layer of gypsum wallboard, from being driven into the cable. Cables shall cross nailing members only at ends of ceiling 4" to 6" from wall. There shall be at least a 4" space completely around the perimeter of each ceiling, which is clear of cables. Cables shall be kept at least 8" clear of all openings.



TYPICAL CEILING LAYOUT PATTERN

All inspections and testing of the heating system shall be completed before application of face layer of gypsum wallboard.

Heating cable spacing between joists shall be as recommended.

(OVER)

AIA FILE NUMBER 23-

AIA FILE NUMBER 23-L

SGP 0028561

commended by the heating cable manufacturer. Under no operating conditions shall the gypsum board core exceed a temperature of 125°F.

Complete embedding of the heating elements is necessary. The area between the heating elements shall be filled with a filler which shall be level so there is complete contact between the face layer and the back layer of gypsum wallboard. (Note: Where the filler serves as an adhesive to hold the face layer, nail spacing may be 7" o.c. for the first layer and 16" o.c. for the face layer.) When required to produce a uniform thickness of the filler and to provide a firm base for nailing, furring strips of a thickness equal to that of the layer of the filler, may be attached over the base layer to the ceiling joist at parallel relationship. The face layer shall be erected immediately after the filler has been spread. The last nails around the perimeter of the ceiling shall be spaced 8" to 10" away from the adjoining wall to prevent them from striking the electric cables where they cross the framing members.

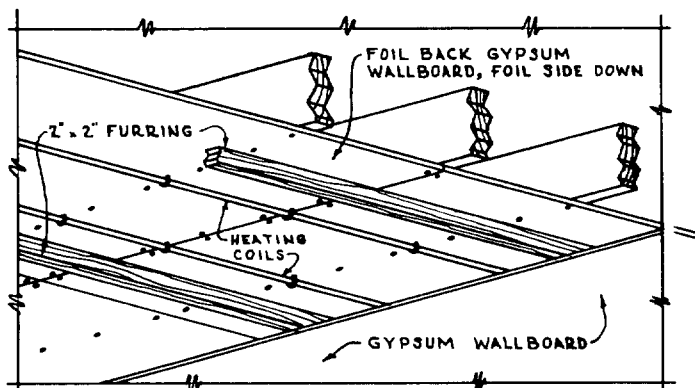
All joints and nail heads shall be finished according to the wallboard manufacturer's recommendations. Allow a minimum of one week with good drying conditions and two weeks in the cold season before turning on the heating system.

HOT WATER HEATING SYSTEMS:

Apply insulating gypsum wallboard for the first layer parallel to the joist with the aluminum foil facing downward to act as a reflector behind the heating elements. Nails shall be spaced not more than 8" o.c. They shall be driven flush with surrounding wallboard surfaces.

Nail 2" x 2" furring strips 16" o.c. over the insulating gypsum wallboard and at right angles to the joists.

The heating elements shall be suspended from and supported by the framing members and not from the gypsum wallboard.



TYPICAL HOT WATER SYSTEM

All inspections and testing of the heating system shall be completed before application of the face layer.

Under no operating conditions shall the gypsum board core exceed a temperature of 125°F.

Apply the final or face layer in the normal manner, at right angles to the furring strips. Nails shall be as specified for the first ply and shall be spaced not more than 7" o.c. Do not use insulating or foilback wallboard for face layer.

All joints and nail heads shall be finished according to the wallboard manufacturer's recommendations. Allow a minimum of one week with good drying conditions and two weeks in the cold season before turning on the heating system.

OTHER SYSTEMS:

Where the heating system is located behind the gypsum wallboard, the recommendations for the applicable system shall be complied with.

Under no operating conditions shall the gypsum board core exceed a temperature of 125°F.

All joints and nail heads shall be finished according to wallboard manufacturer's specifications. Allow a minimum of one week good drying conditions and two weeks in the cold season before turning on the heating system.

DESIGN DATA

It is the responsibility of the architect to prepare and correlate complete plans and specifications. The limitations and characteristics of the materials used for the structure shall be taken into consideration. It is the responsibility of the heating engineer to properly design the radiant heating system to work effectively with these materials.

Be certain to follow the job specifications. Substitutions in materials might change the rate of heat flow, which in turn might give results that would make the entire installation unsatisfactory.

The following design data is recommended for use in calculating the heat transmission coefficients (U) for gypsum wallboard.

Thermal Conductivity Values:

Material	Conductance "C"	Resistance "R" (1/C)
	(Thickness as stated)	
3/8" gypsum wallboard	3.73	0.27
1/2" gypsum wallboard	2.76	0.36
5/8" gypsum wallboard	2.42	0.41

DECORATION

Decoration of the finished work including sizing or sealing shall not proceed until the heating system has been test operated for a minimum of 24 hours. The system should then be turned off and decorating of the gypsum wallboard performed. Do not decorate the wallboard while the heating system is being tested, or is in operation. It is also recommended that where texture finishes are used, such finishes be allowed to thoroughly set dry prior to the operation of the heating system.

Application of GYPSUM WALLBOARD ON EXTERIOR LOCATIONS

AIA FILE NUMBER 23-L

MATERIALS AND APPLICATION:

Gypsum wallboard (1/2 or 5/8 inches thick) may be used for carport and open porch ceilings and the soffits of eaves that are horizontal or incline downward away from the building.

Materials and application shall be in strict conformance with the requirements of American Standard for Gypsum Wallboard Interior Finishes A97, except as modified below:

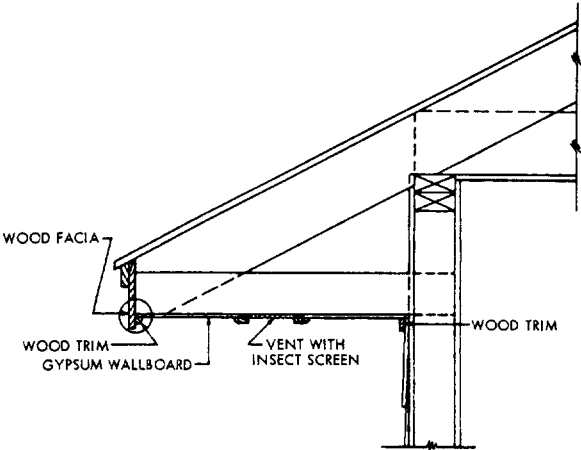
Nails for 1/2 inch board shall be the annular ringed gypsum wallboard nail GWB-54, complying with the requirements of ASTM Designation C380-58T. Nails for 5/8 inch board shall meet the same requirements except that the length shall be 1-3/8 inches.

Suitable drips and mouldings shall be provided around the perimeter to protect from direct exposure to water. The edges of the board shall be placed not less than 1/4 inch from masonry.

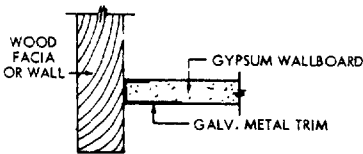
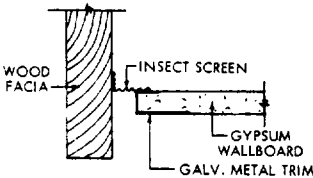
The wallboard shall be applied horizontally on nailing members spaced not to exceed 24 inches on center.

Joints may be covered with battens or finished with joint treatment.

Nailheads shall receive joint treatment in the usual manner.



FRAME WALL



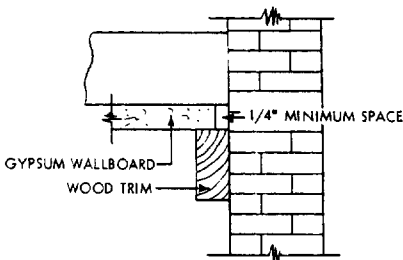
ALTERNATE FACIA DETAILS

VENTILATION:

Adequate ventilation shall be provided for the space immediately above such installations. (Note: The minimum acceptable ventilation shall be as required in the current Minimum Property Requirements of the Federal Housing Administration.)

PAINTING:

The exposed surface of the board shall be painted with not less than two coats of exterior type oleo-resinous or water-thinned emulsion paint.



MASONRY WALL

AIA FILE NUMBER 23-L



GYPSUM ASSOCIATION

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Special Recommendations

AIA FILE NUMBER 23-L

"FLOATING" INTERIOR ANGLE METHOD of Application for Gypsum Wallboard

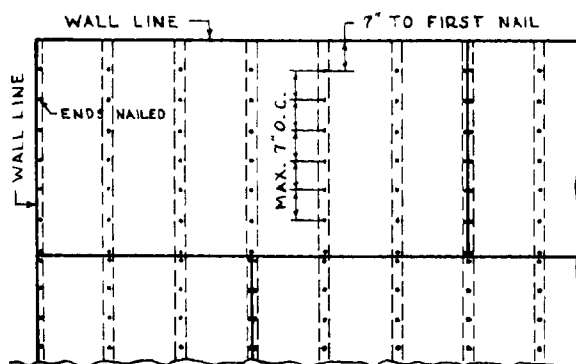
The "Floating Angle" method of application of gypsum wallboard was developed to reduce possible wallboard cracking caused by stress at intersections of framed walls and ceilings.

This method applies only to gypsum wallboard application when finished with tape and joint cement (an adhesive) treatment. Certain nails are eliminated in all interior angles, both at the horizontal angle where ceiling and sidewalls meet, and in the vertical angle where sidewalls intersect. The "Floating" interior angle application method may be used with (1) Conventional Nailing and (2) Double Nailing. The following changes apply to the above two nailing methods. When "floating" interior angles, changes apply only to nailing at angles. All other specifications remain the same. (Consult A.S.A. A97.1, 1958)

CONVENTIONAL NAILING METHOD

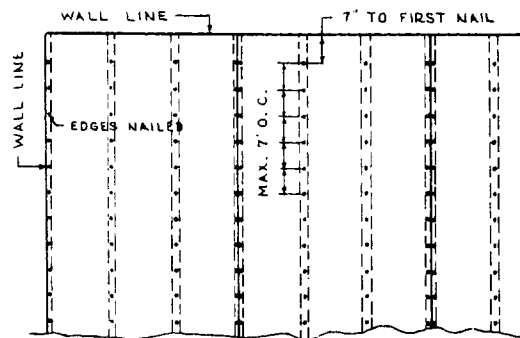
A. Ceilings—(Always apply ceilings first)

Horizontal Application. Use recommended framing practices for corner nailing. Wallboard must fit snugly into all corners. Conventional nailing shall be used where the ends of the boards abut the wall intersection. At the wall-ceiling intersection where the long edges of the board parallel the intersection, the first nail shall be nominally 7 inches from the wall intersection. Conventional nail spacing shall be used in the remainder of the ceiling area.



CEILING—HORIZONTAL APPLICATION
(LOOKING UP)
CONVENTIONAL NAILING

Vertical Application. Conventional nailing shall be used where the long edges of the board abut the wall intersection. At the wall and ceiling intersections where the ends of the board parallel the intersections, the first nail shall be nominally 7 inches from the wall intersection. Conventional nail spacing shall be used in the remainder of the ceiling area.



CEILING—VERTICAL APPLICATION
(LOOKING UP)
CONVENTIONAL NAILING

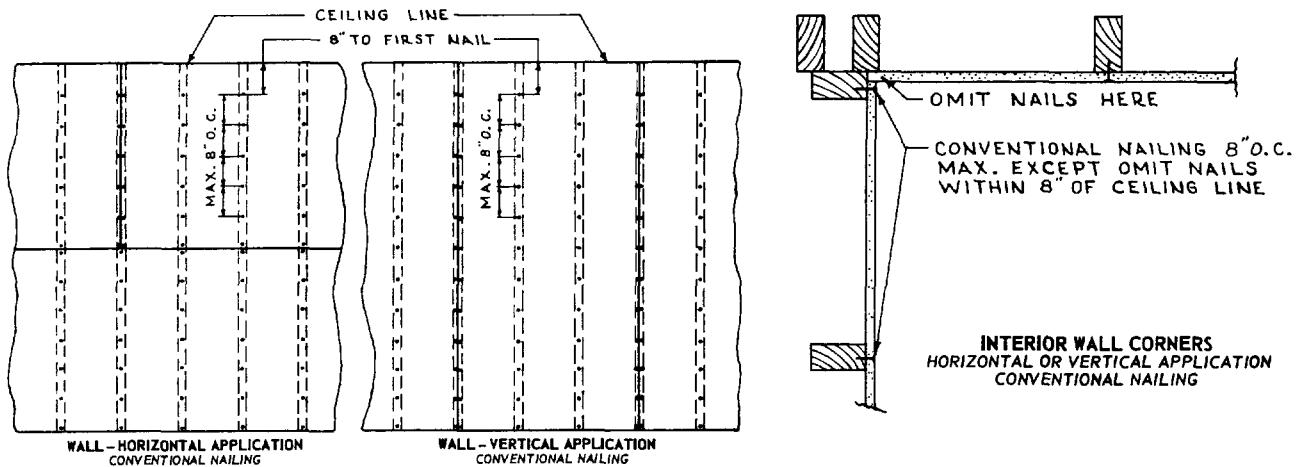
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AIA FILE NUMBER 23-L

SGP 0028564

B. Sidewalls -

All wallboard must be applied to maintain firm contact at ceiling line, in order to support the ceiling boards previously applied. Along the ceiling intersection, omit nails directly at the ceiling angle. The first nail shall be nominally 8 inches from the ceiling intersection. At all vertical interior angles, omit only the corner nailing of the board first applied and to be overlapped in the angle. The overlapping board is to be nailed in the conventional manner, 8 inches on center. Conventional nail spacing shall be used in the remainder of the wall area.



DOUBLE NAILING METHOD

Refer to standard specifications for the "Double Nailing" method. Note that the perimeter nailing is the same as the "Conventional Nailing Method", but the field of the board is nailed in pairs (1-1/2" to 2" apart) approximately 12 inches on center on both sidewalls and ceilings. To adapt this method to "Floating Corners", follow the changes listed under Conventional Nailing Method as they apply to the perimeters of the gypsum board at the interior angles.

June 22, 1959

SGP 0028565

C. Firestop

SGP 0028566

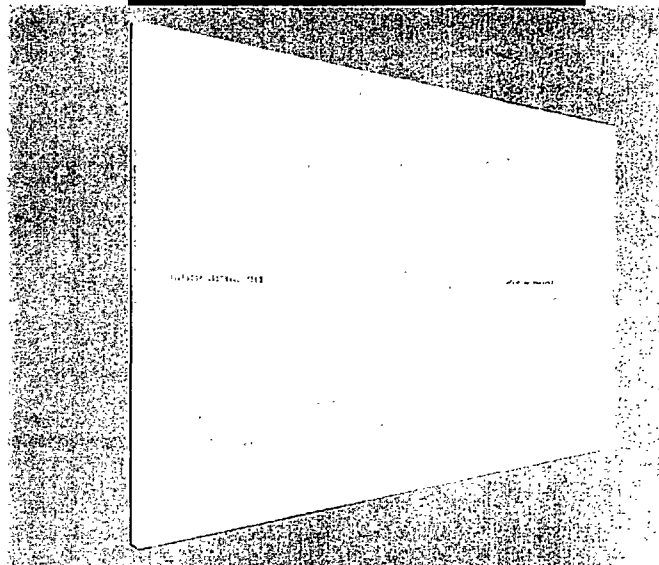
FIRESTOP

DESCRIPTION

Improved Bestwall Firestop is a gypsum wallboard reinforced with specific amounts of incombustible glass fibers and unexpanded vermiculite. Under heat this results in a thermal stabilized core which provides increased fire protection. The high glass fiber content also gives increased strength and better nailing qualities. Improved Bestwall Firestop has the highest glass fiber content of any Bestwall gypsum product.

The original Type "X" gypsum wallboard provided a full 1 hour fire retardant rating in single layer application over incombustible and combustible framed walls and partitions and under floor and ceiling assemblies. Now through greater glass fiber reinforcement, its fire resistance has been increased to permit two hours when used in single layer treatment as the ceiling below an incombustible floor and ceiling assembly.

Bestwall Firestop in various assemblies meets Building Code requirements from 45 minutes to 3 hours fire resistance for interior wall and ceiling construction in buildings of all types from highly incombustible to wood frame; and for various occupancies of residential, public and commercial character.



BESTWALL®

ADVANTAGES

- Extra glass fiber content gives greater protection, additional flexural strength to minimize breakage in handling and installation, and better nailing qualities
- Various assemblies provide 45 minutes to 3 hour fire protection
- No joint treatment of any kind is required to obtain fire resistant ratings
- Lowest cost 2 hour fire resistive incombustible floor and ceiling assembly available
- Large, lightweight panels handle easily
- Official Fire Hazard Classification by U.L. 10-15 Flamespread.

PRODUCT USE

Bestwall Firestop is recommended where fire resistance is desired and for Building Code Requirements of 45 minutes to 3 hours for interior wall and ceiling construction in residential, commercial and public buildings.

DATA

Thickness: 1/2", 5/8"

Length: 6' to 16' (in even feet)

Width: 4' (2' on order)

Edges: Tapered or Square (Tongue and Groove backer only)

Packaging: Twin Mounted, end taped

Application: Horizontal application is recommended for new improved Firestop. Start application in upper corner, working across and down. Either cut openings out of full panels or plan joints to occur on the studs nearest the center of the openings. No joint treatment or further surface treatment of any kind is required.

Nails	Wallboard Thickness	Nail	Spacings	Walls	Ceilings
5d-1 5/8" long— 15/64" head—13 1/2 ga.	1/2"	5d Cooler	7"	6"	
6d-1 7/8" long— 1/4" head—13 ga.	5/8"	6d Cooler	7"	6"	
Drywall Screws	1/2" or 5/8"	Length	12"		
		Varies			

SGP 0028567

FIRE RESISTANCE RATINGS POSSIBLE WITH BESTWALL FIRESTOP

CONSTRUCTION	THICK- NESS	WEIGHT LB/SQ.FT.	WALL SURFACE	FIRE RESISTANCE		MODEL BUILDING CODE APPROVALS 2
				RATING 1	TEST REF.	
PARTITIONS: 2" x 4" Wood Studs: 16" O.C. Load bearing except when noted "N". (N) Available Steel Stud: Load Bearing 3 5/8" 24" O.C. Screw Type Steel Stud: Non Load Bearing 1 5/8" 24" O.C. 3 5/8" 24" O.C. 3 5/8" 24" O.C. 3 5/8" 24" O.C. 1 5/8" 24" O.C. 3 5/8" 24" O.C. 3 5/8" 24" O.C. 3 5/8" 24" O.C. Semi-Solid: Gypsum Stud Non Load Bearing Solid Gypsum Board Double Solid Gypsum Board	4 3/8"	5.2	3/8" Bestwall Firestop, Both sides	30 Min.	—	—
	4 5/8"	5.9	1/2" Bestwall Firestop, Both sides	45 Min.	U.L. # 1	B C
	4 5/8"	6.0	1/2" Bestwall Firestop, Both sides, with Mineral Wool in stud space	1 Hr.	—	—
	4 7/8"	7.0	5/8" Bestwall Firestop, Both sides	1 Hr.	U.L. # 5	A B C
	5 1/2"	9.5	5/8" Bestwall Firestop, 1 layer one side, 2 layers other side	1 1/2 Hr.	EST.	—
	6 1/8"	12.0	5/8" Bestwall Firestop, 2 layers each side	2 Hr.	T-194	A B C
	5 7/8"	8.5	5/8" Bestwall Firestop, over 1/2" sound deadening board both sides	1 Hr.	T-3006	—
	—	13.4	5/8" Bestwall Firestop, 2 layers each side staggered studs	2 Hr.	EST.	—
	5 3/8"	7.1	5/8" Bestwall Firestop, 1 layer nailed one side, 1 layer on resilient furring other side	1 Hr.	EST.	—
	5 3/8"	7.2	5/8" Bestwall Firestop, 1 layer nailed one side, 1 layer on resilient furring other side plus fiber glass insulation in stud space	1 Hr.	EST.	—
	6"	9.6	5/8" Bestwall Firestop, 2 layers one side, 1 layer on resilient furring other side	1 1/2 Hr.	EST.	—
	4 7/8"	6.5	5/8" Bestwall Firestop, 1 layer each side	1 Hr.	U.L. # 3	A B C
	6 1/8"	11.5	5/8" Bestwall Firestop, 2 layers each side	2 Hr.	U.L. # 4	B C
	2 7/8"	5.7	5/8" Bestwall Firestop, 1 layer each side	1 Hr.	T-2316	—
	4 5/8"	6.0	5/8" Bestwall Firestop, 1 layer each side	1 Hr.	T-2016	A B C
	5 1/2"	8.5	5/8" Bestwall Firestop, 1 layer one side, 2 layers other side	1 1/2 Hr.	EST.	—
	5 1/2"	8.6	5/8" Bestwall Firestop, 1 layer one side, fiber glass insulation in stud space, 2 layers other side	1 1/2 Hr.	EST.	—
	3 7/8"	8.4	5/8" Bestwall Firestop, 1 layer one side, fiber glass insulation in stud space, 1 layer 3/8" Bestwall Firestop over 1" core board other side	1 1/2 Hr.	EST.	—
FLOOR & CEILING: Wood Joists 16" O.C. Finished floor on rough subfloor Steel Bar Joists 24" O.C. 2" Concrete Floor on Metal lath centering With 2 1/2" Concrete Floor STEEL COLUMN Fire Proofing	Ceiling	11.4	1/2" Bestwall Firestop	45 Min.	U.L. # 1	C
		12.0	5/8" Bestwall Firestop	1 Hr.	U.L. # 1	A B C
		14.6	2 layers of 5/8" Firestop with resilient furring channel 24" O.C. between layers	2 Hr.	U.L. # 217	—
	Ceiling	11.5	1/2" Bestwall Firestop applied to resilient metal furring 24" O.C.	1 Hr.	U.L. # 33	—
		34.2	5/8" Bestwall Firestop nailed or screwed to metal furring 16" O.C.	1 Hr.	U.L. # 2	A B C
		34.2	5/8" Bestwall Firestop Backer, nailed or screwed to metal furring 16" O.C.	1 Hr.	—	A B C
		33.9	1/2" Bestwall Firestop, metal furring 24" O.C.	1 1/2 Hr.	U.L. # 17	—
		34.1	5/8" Bestwall Firestop, metal furring 24" O.C.	1 1/2 Hr.	U.L. # 13	—
		34.6	5/8" Bestwall Firestop, metal furring 24" O.C.	2 Hr.	U.L. # 69	—
	—	—	5/8" Bestwall Firestop, 2 layers	2 Hr.	U.L. # 8	—
		—	5/8" Bestwall Firestop, 3 layers	3 Hr.	U.L. # 18	—

Fire Hazard Classification—Official Underwriters' Tests.

1/2" and 5/8" Bestwall Firestop, 10-15 (LABELED)

1. Official Underwriters' Tests have proven joint finishing is not required for the rating in assemblies of Firestop.

2. Under "Model Building Code Approvals" A, refers to International Conference of Building Officials; B, refers to Southern Building Code Congress; C, refers to Building Officials Conference of America.

SGP 0028568

BESTWALL GYPSUM COMPANY

GYPSUM WALLBOARD MANUAL

Section 5

Sub-Section C

1965 EDITION

FIRESTOP

Application Details

A single layer of 5/8" Firestop over wood studs or steel studs, Underwriters' description does not say whether the board has to be applied horizontally or vertically. On wood studs, most of the fire tests with single layer of 5/8" Firestop have been made with the board applied horizontally. On the steel studs, there have been tests both vertically and horizontally in single layer.

For the rating, the single layer of 5/8" Firestop for one hour may be applied either horizontally or vertically over wood or metal studs for wall assemblies. Bestwall has proven by test and Underwriters' have so indicated in their Listings relative to Bestwall that it is not necessary to have the paper tape and cement over the joints whether the board has been applied vertically or horizontally.

Insofar as the two layer application is concerned, the very first successful 2 hour wall test with 5/8" fire rated gypsum wallboard was made by Bestwall with Firestop at the Ohio State University back in 1952. In this test, in an effort to anticipate arguments from Building Inspectors and others concerned with installation details, the board was applied with both layers vertically, and the joint in each layer directly one over the other. This is the very weakest way structurally and fire-wise that the assembly could be erected. This assembly developed two hour fire resistance. It should be your contention, which has been accepted by Building Officials wherever approval has been requested, that regardless of how two layers of 5/8" Firestop are applied over the framing, vertically, horizontally, the two layers in opposite directions, joints directly one over the other, or staggered, that the assembly will develop 2 hours provided sufficient fasteners are included (that is the number that had been used in the fire test).

In many of the non-load bearing partition assemblies, the boards were erected vertically because essentially, with the use of ribs and other details, this was the normal way to erect it. However, insofar as the double solid and solid partitions are concerned, the face layer on each side may be erected horizontally and the partition still develop the fire resistance.

The application of the face layer in any case depends on a consideration of the floor to ceiling height, amount of joints, location of drop ceilings, items to be attached to the wall, or other matters which would indicate a preference for vertical or horizontal application.

The matter of a firestop at mid-height in partitions also comes up for some discussion. By and large, all wood stud partition fire tests, whether they are with wallboard or lath and plaster, whether they have been sponsored by Bestwall, the Gypsum Association, or some of the other competitors have generally included a firestop at mid-height insofar as wood studs are concerned. The minimum height

for an official wall fire test is 9'. Most of the tests have been made on 10' high test panels. However, under the Building Codes in many parts of the Country a firestop is not required with stud spaces 8' or less in height. In a majority of cases, in erecting fire rated assemblies, no firestop is used in such locations. This is a technicality which is now up for clarification before building code groups such as the International Conference of Building Officials. Unofficially, these people have indicated they will not require the firestop in stud spaces 8' and less. In other words, they apply the same rule of firestopping to fire rated assemblies as to nonrated assemblies. If this becomes a problem in your area, remind your building officials that the Bestwall "Summer System "B" (the Industry semi-solid) partition did not have a firestop of any type nor did the double solid partitions which have been tested for 2 and 3 hours.

In all ceiling applications, the wallboard has been applied at right angles to the nailing member.

Underwriters' have officially indicated Bestwall does not have to have the joints finished with paper tape and cement in any assemblies they have tested in order to obtain fire resistive rating shown in their listing.

D. Backer Board

SGP 0028571

original thermo-stabilized



5/8"

FIRESTOP GYPSUM BACKER

for 1-hour fire resistance
in single-layer application

Bestwall 5/8" Firestop Gypsum Backer is designed to provide up to 1-hour fire protection in a construction and is used as a backing for decorative surface treatments of acoustical plasters and tile, plywood, veneers, etc. A single-layer application of 5/8" Firestop Gypsum Backer on both sides of wood or steel framing enables load bearing or non-load bearing walls and ceilings in floor-ceiling constructions to resist up to 1700°F for 1-hour.

Firestop Gypsum Backer consists of a gypsum core with unexpanded vermiculite, reinforced with 6.3 miles of high tensile strength glass fibers, firmly bonded to a fibrous grey paper facing on both sides. The vermiculite balances gypsum shrinkage by expanding when exposed to heat while the textile glass filaments keep the core intact even after its chemically combined water has been released.

Bestwall 5/8" Firestop Gypsum Backer is available in Tongue & Groove 2'x8' panels*. The T&G edges increase the rigidity of the panels in a structure and eliminate the need for taping and joint work. Normal shipping package consists of two 2'x8' panels bound at cut-ends by a twin mounting tape, showing the Underwriters' Manifest.

*5/8" Firestop Gypsum Backer is available in 4' wide sheets, square edge, 8', 10', and 12' long.

SGP 0028572



BESTWALL FIRESTOP GYPSUM BACKER

GLASS FIBER REINFORCED FOR GREATER STRENGTH AND FLEXIBILITY

ADVANTAGES

FIRE RESISTANCE—Bestwall Firestop Gypsum Backer meets ASTM Std. C-36 and is approved under building codes throughout the United States. (See Underwriters' Manifest on twin mounting tape.)

CRACK RESISTANCE—Glass fiber reinforcement provides greater resistance to cracks caused by normal structural movement, minor settlement and vibrations.

ECONOMY—Provides up to 1-hour fire resistive wall and floor and ceiling constructions in a single-layer application. Tongue & Groove edges eliminate costly joint treatments.

DECORATION BASE—Smooth, unbroken wall and ceiling surfaces of $\frac{5}{8}$ " Firestop Gypsum Backer provide an excellent base for decorative surface treatments.

UNIFORMITY—Plant fabrication of Bestwall Firestop Gypsum Backer assures true wall and ceiling surfaces and provides uniform fire protection.

RIGIDITY—T&G joints add rigidity without joint. Bestwall Firestop Gypsum Backer has flexural strengths of 225 to 275 lbs., well exceeding ASTM Std. requirements of 145 lbs.

VERSATILITY—May be applied over load bearing or non-load bearing wood or metal framing and retains its fire resistive ratings and strength when spanned 16" o.c. or 24" o.c.

INSTALLATION SPECIFICATIONS

SCOPE—All walls and ceilings shall be covered with $\frac{5}{8}$ " Firestop Gypsum Backer as specified in the plans.

FRAMING—All framing members shall be straight and true, effectively fire-stopped and set not to exceed 16" o.c. In steel-stud wall partitions, spans shall not exceed 24" o.c. Nailing members shall be provided in both planes at all interior and exterior angles. Headers shall be provided for

all fixtures as indicated in framing details. Establish headers where necessary so that all vertical joints and ends of backerboard fall on supporting members. Proper changes shall be made in applications over steel framing.

MATERIALS—Firestop Gypsum Backer shall be $\frac{5}{8}$ " thick and manufactured by the Bestwall Gypsum Company, Ardmore, Pennsylvania. The backerboard shall comply with the American Society for Testing Materials Standard Specifications for Gypsum Wallboard, Serial Designation C-36, and Federal Specifications for Gypsum Wallboard, SS-W-51a. Panels shall be $\frac{5}{8}$ " thick, 2' wide and 8' long and/or 4' wide, square edge, 8', 10' or 12' long. Each panel shall bear the manufacturers' identity and the twin mounting tape binding the cut ends of the panels shall show the manifest of the Underwriters' Laboratories. Nails shall be 6d c.c. 13 gage flat-head nails, $1\frac{7}{8}$ " long. For metal framing, use No. 6 flat-head sheet metal screws for furring channels or $1\frac{1}{4}$ " annular nails for nailing channels.

APPLICATION—Firestop Gypsum Backer shall be installed in accordance with Bestwall Gypsum Company specifications. $\frac{5}{8}$ " Firestop Gypsum Backer shall be applied with long dimensions (edges) across framing members. (This is known as "Horizontal" application.) First apply $\frac{5}{8}$ " Firestop Gypsum Backer to ceiling areas. Then, starting at end of one wall, erect the top board first in "horizontal" position; work around the room using lengths and cuttings boards where necessary. All boards shall be in moderate contact, with none forced in place. Vertical joints shall be staggered and shall not occur on the same stud on both sides in a partition structure. Nails shall be spaced 5" to 7" apart on ceilings and 6" to 8" apart on side walls and never less than $\frac{3}{8}$ " from edges and ends of board. Drive nail-heads slightly below board's surface. Do not use nail-set or otherwise break surface paper. Do not stagger nails at adjoining edges or ends.



BESTWALL GYPSUM COMPANY, Ardmore, Penna. Plants and Offices throughout the United States

BESTWALL GYPSUM COMPANY

GYPSUM WALLBOARD MANUAL

Section 5

Sub-Section D

1965 EDITION

TILE BACKER BOARD

Bestwall Tile Backer is the name of the new product released by Bestwall to compete with U.S.G.'s W/R Board and National's vinyl faced Bathroom board. This product has a light blue face paper to distinguish it from other gypsum board products and a highly treated core which makes it even more resistant to water moisture than gypsum sheathing. It is available 4' wide x 8', 11' or 12' long, with tapered edges.

The end bundling tape will be similar to that used on Tru-Grain and Eternawall, with the size printed on a white end bundling tape and showing "Bestwall Tile Backer" pasted on the face of the end bundling tape.

Application specifications are covered in the attached material which is available from the Advertising Department in the standard manner.

Application

Please notice Bestwall Tile Backer is applied similarly to regular gypsum wallboard insofar as nailing, cutouts, and details around the tub or shower are concerned, except that a special self-adhering vinyl tape 2" wide is specified to cover the exposed core around holes for pipes and other cutouts in the board and over the corner joints or any other joints which occur in the area to be tiled. This tape is 2" wide by 216' long. Approximately 1 roll is necessary per thousand square feet of board. The nails should be driven flush with the paper surface but not in a dimple. If the paper surface is broken, a piece of the special tape should be used to cover the cut or exposed areas.

Special point application is not required for Bestwall Tile Backer Board around cut or exposed raw edges.

Application Advantages

1. Bestwall's board has an advantage in that it may be used above the area to be tiled and with the joints & nailheads in this area treated as with regular tapered edge wallboard, can then be primed and painted with the rest of the regular wallboard areas. A waterproof primer or sealer over the wallboard under the tile is not required. Tile may be applied directly to Bestwall Tile Backer with the adhesive recommended by the Tile Manufacturer.

Requirements for blocking and other bracing follow standard wallboard practice.

SGP 0028574

2. Notice that both U.S.G. and National recommend horizontal application. Bear in mind that Bestwall's board may be applied either horizontally or vertically. If it is applied horizontally, then the paper edge of the board should be applied just above the edge of the tub or shower receptacle (held up approximately $\frac{1}{4}$ " or held up by means of a Special Metal Section available with Metal Corners and Casings). If the board is applied vertically, then the special self adhering vinyl tape should be applied over the open edge of the board which is down at the tub or shower receptacle edge.

Product

Bestwall's material is fully competitive with USG's and differs entirely from that of National' . -- regular gypsum wallboard with a sheet of 2 mil clear vinyl over the face surface. If a square foot of material is cut from a full sheet of each of the three products, then put in a bucket of water, Bestwall's and USG's will perform essentially equally and float for a long period of time while National's will act as a regular gypsum wallboard, quickly absorb water and sink. The "Boat" sample widely promoted by USG has their recommended painted treatment around the edges which makes it more water resistant and able to float for a longer period of time, than a piece cut from the center of a full sheet of their material. To make an equal comparison, Bestwall's board should have the tape used for the cut edges applied around the edges of a sample which has been cut from a sheet of similar size to that used as the "Boat". In this regard, if National's board were treated in a similar manner, it would not remain floating as long as the Bestwall or U.S. G. products, since the back paper on National's is not as moisture resistant as the back paper on the other two products and with the regular wallboard core. Once the water has penetrated the back paper, it will be rapidly absorbed into the core.

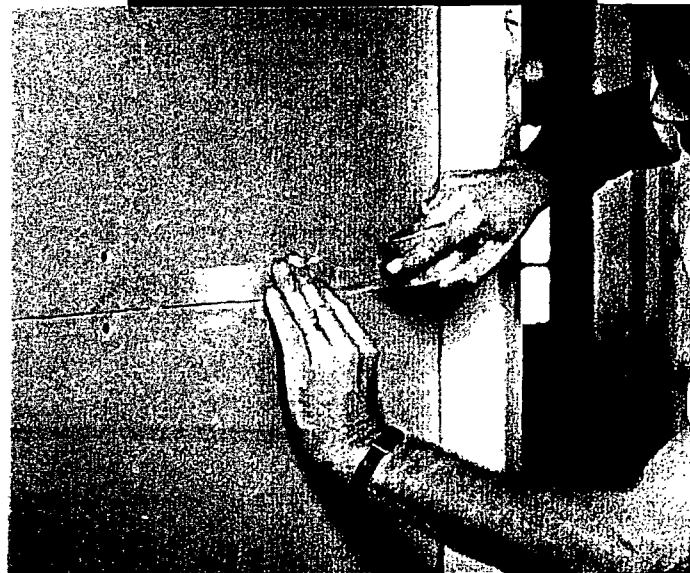
TILE BACKER BOARD

WATER RESISTANT GYPSUM WALLBOARD

DESCRIPTION

Bestwall Tile Backer Board is a water-resistant gypsum product with a blue face paper that is designed for use as a base for the adhesive application of ceramic, metal or plastic tile. The gypsum core consists of incombustible gypsum rock combined with a water resisting emulsion.

Tile Backer Board can be erected as easily as wallboard and requires no finishing of joints and nail heads with joint treatment or further waterproofing. Tile Backer Board can be sealed quickly and easily at cut edges with a special vinyl tape which is also used over joints. This tape is available in 2" wide, 108 and 216 foot rolls. Tile can be applied directly to Tile Backer Board with an adhesive. As in all Bestwall gypsum board products, Tile Backer Board is reinforced with glass fibers to provide greater resistance to shock and greater compressive strength.



BESTWALL®

ADVANTAGES

- Offers permanent tile backing in bathroom and shower areas
- Specially treated core and face paper are water resistant
- Easily erected
- Taping joints and cut edges with vinyl pressure-sensitive tape saves time and money
- Cut edges sealed neater and easier with the special vinyl tape
- Not necessary to prime with a continuous waterproof barrier
- Little waste, low cost
- Can be easily primed and painted just as regular wallboard
- Tile can be directly applied with an adhesive
- Glass fibers give added strength.

PRODUCT USE

Bestwall Tile Backer Board is the ideal tile backing for bathrooms, kitchens, powder rooms, utility rooms, and all other high moisture areas.

DATA

Tile Backer Board

Thickness: $\frac{1}{2}$ "

Length: 8', 11' and 12'

Width: 4'

Edge: Tapered

Packaging: Twin mounted, end taped

Vinyl Tape

Length: 108' and 216'

Width: 2"

APPLICATION

Framing: Framing members 16" o.c. shall be firmly secured and shall be plumb and true. Studs should be furred out as necessary around tub enclosures and shower stalls so the inside lip of the tub, pre-fabricated receptor or sub-pan will be flush with the face of the Tile Backer Board. Also, the top of such furring shall be even with the upper edge of tub or shower pan.

NOTE: Receptors and pans shall have an upstanding lip or flange 1" higher than the water dam or threshold of shower. Tubs, shower receptors or pans shall be installed prior to erection of the Tile Backer Board. A clearance of $\frac{1}{4}$ " shall be maintained between the tub lip and board. A specially designed metal section for this purpose may be used.

Appropriate blocking, as required, shall be provided for tub, plumbing fixtures, soap dishes, grab bars, towel racks, etc.

Studs spaced in excess of 16" o.c. shall require suitable blocking when surfacing walls with ceramic tiles over $\frac{1}{4}$ " thick. One row of blocking shall be located approximately 1" above the top of the tub or shower receptor and the other midway between tub and ceiling.

Board Preparation: For adequate protection, the 2" vinyl tape constitutes an integral part of the tile backing system. It must be applied to cut edges and around pipe openings cut in the board prior to erection of the Tile Backer Board.

INSTALLATION

Bestwall Tile Backer Board shall be installed in accordance with ASA specifications for application of gypsum wallboard.

1. Tile Backer Board should be applied horizontally to minimize butt joints. The paper bound edge should abutt the top edge of a temporary strip or shim which, when removed before application of tile, will allow a 1/4" clearance between the Tile Backer Board and tub or receptor lip. Make sure that any cut edges at this location have been sealed with the vinyl tape.
2. GWB #54 1 1/4" ring shank nails, 7" o.c. for ceilings and 8" o.c. for side walls, shall be used. Side walls to be faced with ceramic tile thicker than 1/4" should be nailed 4" o.c. Nails should be dimpled, with care taken not to rupture or tear the face paper. If such damage does occur, seal this area with vinyl tape before the tile is applied.

If desired, 1" long drywall screws can be used in accordance with ASA 97.

Also, where adhesive nail-on application is desired and the fasteners reduced, maintain at least 2 fasteners per board width per support.

After the Tile Backer Board is erected, the vinyl tape shall be used to cover joints and cut edges of board before applying tile.

3. Ceiling areas should be completed first and, if possible, span the entire width or length of the ceiling to eliminate end joints; otherwise stagger joints. Application of tile in ceiling areas with adhesives is not recommended.
4. Ceilings and side walls above tile area shall receive standard Bestwall joint treatment before application of tiles. In so doing, any vinyl tape extending beyond the intended tile line must be removed. The vinyl tape may be cut and peeled from the board without significant damage to the face paper.

NOTE: Do not attempt to accomplish standard joint treatment on top of the vinyl tape.

The surface of the Tile Backer Board to be faced with tile does not require use of water resistant sealants, skim coats of tile adhesive or similar waterproofing membranes prior to application of tile.

Date September 23, 1964

MATERIALS RELEASE

Data on the nonstandard product described herein have been reviewed by FHA and determination has been made that it is considered suitable from a technical standpoint for the use indicated herein. This Release does not purport to establish a comparative quality or value rating for this product as compared to standard products normally used in the same manner.

This Materials Release cannot be used as an indication of endorsement, approval or acceptance by the Federal Housing Administration of the described product, and any statement or representation, however made, indicating such approval, endorsement or acceptance by the Federal Housing Administration is unauthorized. See Code, 18, U.S.C. 709.

Any reproduction of this Release must be in its entirety.

- PRODUCT:** Tile Backer Board Water Resistant Gypsum Wallboard
- PRODUCER:** Bestwall Gypsum Company
2 Industrial Boulevard
Paoli, Pennsylvania 19301
- USE:** As a water resistant base for the direct application of adhesively applied ceramic and other wall tile primarily in bathrooms and shower stalls.
- DESCRIPTION:** Tile Backer Board consists of a core of incombustible gypsum rock combined with a water resisting emulsion to which is laminated a water resistant light blue face chip board paper with high suction coating and a breather type black paper.
- Size:** Standard thickness of 1/2 inch. (5/8" thick material may be used). Sheets are 4 feet in width, tapered edge, 8, 11 or 12 feet in length.

INSTALLATION:

Installation shall be strictly in accordance with the producer's application instructions.

1. Apply the 1/2 inch Tile Backer Board horizontally with the factory (paperbound) edge maintained a minimum of 1/4 inch above the lip of tub, receptor or sub-pan. Tile Backer Board is designed for use on framing 16 inches o.c. When framing is more than 16 inches o.c., suitable blocking shall be installed between the studs. One row of blocking shall be placed approximately 1 inch above the top of tub or receptor and another at the midpoint between the tub and ceiling. Nailing shall comply with the requirements of the Minimum Property Standards for 1/2 inch drywall.

2. All cut ends and any exposed core at openings for soap dishes, escutcheons, etc. shall be thoroughly covered with special vinyl tape.

3. The adhesive shall comply with Commercial Standard CS 181-52 "Water-Resistant Organic Adhesive for Installation of Clay Tile" or CS 168-50 "Polystyrene Plastic Wall Tiles and Adhesives for Their Application". Tile adhesive shall be approved by the manufacturer of the surfacing material for use over gypsum wallboard. Water-thinned mastics shall not be used.

4. Changes in the design composition or application instructions shall void the suitability of this product for the intended use outlined herein.

SGP 0028578

FILE NO. 0028579

RESEARCH
PROVES

GYPSUM WALLBOARD IN SHOWER AREAS

Gypsum Association

201 North Wells Street
Chicago, Illinois 60606
1350 N. Highland Avenue
Hollywood, California 90028



SGP 0028579

FILE NO. 0028579



INTERIOR OF SHOWER STALL

Rotating sprinkler (top, center) sprayed uniform flow of water on all systems simultaneously—at above-average rate of 4 gallons per minute. Note how joints between specimens were sealed with Tile Contractors' Association of America's recommended ceramic tile adhesive ... to prevent migration of water.

Gypsum Wallboard in Shower Areas

Exhaustive 59-week test—approximating 20 years of service for a family of four—by independent research laboratory proves durability of gypsum products as bases to receive ceramic tile in bath and shower areas.

PURPOSES OF TESTS

A TEST PROGRAM, conducted by the Illinois Institute of Technology's Research Institute, revealed the performance of four basic types of backing wall or base systems which receive ceramic tile in bath and shower areas.

Purposes of the test were:

1. To determine the effectiveness of gypsum products when installed in accordance with recommendations of the Gypsum Association.
2. To determine the effectiveness of gypsum wallboard construction when installed contrary to recommended specifications.

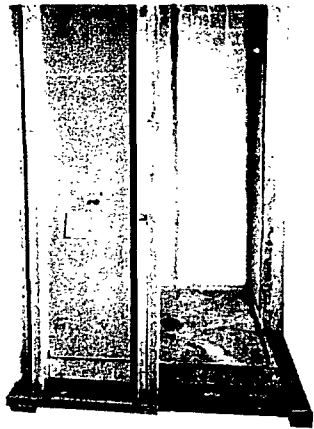
3. To evaluate the performance of gypsum wallboard constructions using adhesives that clearly show by test that they comply with CS-181-52.
4. To compare performance of the gypsum wallboard and gypsum lath and plaster constructions with Portland cement-plaster over metal lath, and asbestos cement board — all constructed with recommended procedures.

Gypsum Association recommendations for use of gypsum wallboard as a base to receive ceramic tile are:

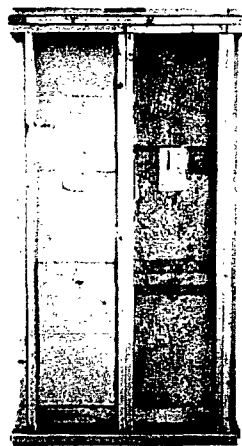
1. A $\frac{1}{4}$ in. minimum clearance between paperbound edge of gypsum wallboard and the tub.
2. Apply wallboard same as in other rooms.

TEST RESULTS

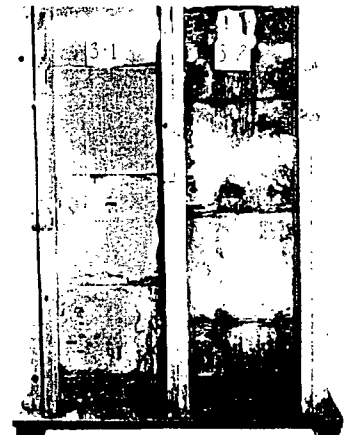
Close-up view reveals condition of backing systems after 59-week test equalling 20 years' use for a family of four. Note excellent performance of gypsum wallboard (left) installed under Gypsum Association recommended procedure. Two plaster systems (gypsum plaster over gypsum lath—specimen 2-3; Portland cement plaster over metal lath—specimen 2-2) also gave satisfactory performance. Failure is evident on gypsum wallboard (right) installed with nonrecommended procedures.



GYPSUM WALLBOARD...
installed in accordance with Gypsum Association recommendations.



GYPSUM PLASTER...
over gypsum lath (specimen 2-3) installed in accordance with Gypsum Association recommendations; Portland cement-plaster over metal lath (specimen 2-2) installed in accordance with American Standard Specification, A42.3-1946.



GYPSUM WALLBOARD...
(specimen 3-1) using cut edges, small pieces, paper-bound edge abutting edge of receptor base; gypsum wallboard (specimen 3-2) using cut edges, small pieces, skim coat omitted and paperbound edge abutting edge of receptor.

3. Two coats of recommended adhesive — skim coat and bedding coat.

WATER RESISTANCE

Three identical shower stalls were erected for the test. Each shower stall was composed of framing material, nine different base systems, a ceramic tile adhesive recommended by the Tile Contractors' Association of America, and ceramic tile. The base systems tested were:

Shower stall No. 1

Panel (1)—Regular 1/2-in. gypsum wallboard installed in accordance with Gypsum Association recommended procedure.

Panel (2)—Same as panel number one except without a skim coat of adhesive.

Panel (3)—Same as panel number one except without an adhesive dam and with the grout joint broken at the receptor line.

Shower stall No. 2

Panel (1)—Asbestos cement board installed in accordance with manufacturer's recommendations.

Panel (2)—Portland cement-plaster over metal lath in accordance with American Standard Portland Cement Plastering Specification—A42.3—1946.

Panel (3)—Gypsum lath and plaster installed in accordance with Gypsum Association recommendations.

Shower stall No. 3

Panel (1)—Regular ½-in. gypsum wallboard using cut edges and small pieces of wallboard. Paperbound edge of board abutted edge of receptor.

Panel (2)—Regular ½-in. gypsum wallboard using cut edges and small pieces. Also, paperbound edges abutted edge of receptor and skim coat omitted.

Panel (3)—Regular ½-in. gypsum wallboard with cut edge of wallboard abutting receptor base.

To insure conformance with good construction practice, personnel from the appropriate trades installed the backing materials for ceramic tile.

ENVIRONMENTAL EXPOSURE

A lawn-type, rotating sprinkler was installed in each shower stall to provide simultaneous exposure to all systems — force of the spray was deliberately much greater than that found in average shower areas. The amount, pressure and temperature of water was controlled — identical for all construction specimens. Precautionary techniques were utilized to prevent the passage of moisture from one system to another. Exhaust fans and protective polyethylene curtains on shower stall doors were also installed to prevent exposure to the rear faces of backing systems. Moisture sensing devices were installed in each specimen to determine moisture content of backing materials prior to water spray exposure.

A heavy water spray of four gallons per minute at 110°F. was applied to each specimen for 10 continuous minutes in every hour — an exposure of 40 gallons in 10 minutes. This procedure continued — 10-minute exposure, 50-minute rest period — 24 hours per day for five days. At the end of this five-day cycle, the water was shut off and data gathering functions were performed. The test continued for 59 weeks.

In addition to moisture content readings, each speci-

men was inspected for its general condition. All signs of failure, water leaks or cracks in grout lines were recorded.

CONCLUSIONS

The conclusions of the IIT Research Institute clearly support the use of gypsum products as backing materials to receive ceramic tile in bath and shower areas when installed in accordance with recommendations of the Gypsum Association. Of all systems tested . . . "Satisfactory performance of backing systems receiving ceramic tile application were obtained with the following constructions:

- a. Gypsum wallboard (½ in. thick) installed in accordance with applicable Gypsum Association recommendations.
- b. Gypsum plaster over gypsum lath, installed in accordance with applicable Gypsum Association recommendations.
- c. Portland cement-plaster over metal lath."

The following highlights of the research findings were also reported by the IIT Research Institute:

"The adverse effect of installing gypsum wallboard with either the paperbound or cut edge abutting the shower receptor base was clearly evident and should be avoided.

"... poor performance may be anticipated where numerous pieces of gypsum wallboard are used or where the skim coat has been omitted.

"Dimensional changes in the assembly containing the asbestos cement board as a result of temperature variations, produced extensive grout joint cracking early in the program."

Results of this test program support the use of gypsum wallboard and gypsum plaster over gypsum lath as backing systems to receive ceramic tile in bath and shower areas when installed in accordance with Gypsum Association recommendations and used with ceramic tile adhesives which have been proven to comply with CS-181-52.



Gypsum Association recommendations are available upon request for installation of gypsum wallboard (AIA File 23-L) in bath and shower areas and specifications for application of gypsum wallboard to receive ceramic, plastic or metal tile or plastic finished wall panels by adhesive application. For copies, contact your local gypsum representative or write

Gypsum Association

201 N. Wells St., Chicago, Illinois 60606
1350 N. Highland Avenue, Hollywood, California 90028

SGP 0028582

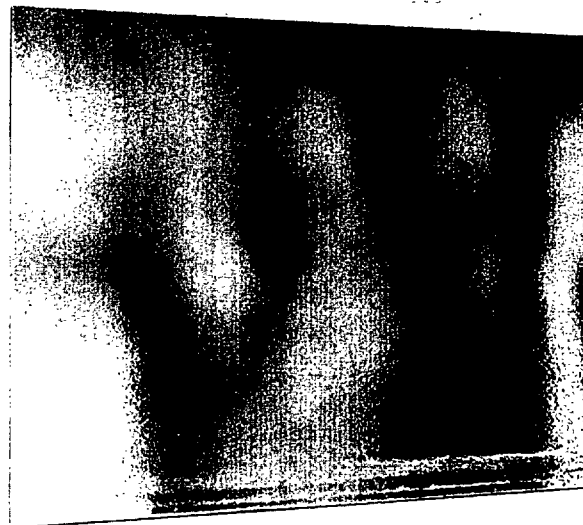
**E. Insulating
Wallboard**

SGP 0028583

INSULATING GYPSUM WALLBOARD

DESCRIPTION

Bestwall Insulating Gypsum Wallboard is regular gypsum wallboard, also reinforced with glass fibers for greater strength, with bright aluminum foil laminated to the back surface. In a single layer application it provides the advantages of regular gypsum wallboard plus giving effective insulation and an efficient vapor barrier. Without additional costs, a separate and continuous vapor barrier automatically goes up on the warm side of the wall when Bestwall Insulating Gypsum Wallboard is used. The aluminum foil reflects 90% of radiant heat, providing insulation qualities equal to 1/2" of fiberboard insulation (Test by U.S. Bureau of Standards). Insulating Gypsum Wallboard is available with square or tapered edges.



BESTWALL®

ADVANTAGES

- Miles of glass fibers are dispersed in the gypsum core to provide added resilience, strength and handling ease
- Aluminum foil stops vapor from entering the exterior wall construction, thereby reducing condensation in stud spaces
- Large, lightweight panels handle easily and can be scored and snapped to desired size
- Solid gypsum core will not burn or support combustion
- Easy to decorate with paint, wallpaper, etc.

PRODUCT USES

Bestwall Insulating Wallboard is used on interior side of exterior walls to provide thermal insulation and a vapor barrier.

DATA

Thickness: 3/8", 1/2", 5/8"

Length: 6' to 16' (in even feet)

Width: 4'

Edges: Tapered, Square

Packaging: Twin Mounted

Application: Insulating Gypsum Wallboard should be applied horizontally just as a single layer of regular gypsum wallboard. This gives a stronger wall and will reduce the number of joints to be treated. Start application in an upper corner, working across and down. Either cut openings out of full panels or plan joints to occur on the studs nearest the center of openings. Panels must be installed with foil side against the studs. To have reflective insulation value and be acceptable to FHA for insulation, the aluminum foil must face a minimum air space of 3/4". For further details refer to our application instruction folder.

Nails: GWB-54 Annular Ring Nails — 1/4" head — .098" Dia. — ASTM C380 1-1/4" long

Wallboard Thickness	Nail	Spacing	
		Walls	Ceilings
3/8"	1-1/4" GWB-54	8"	7"
1/2"	1-3/8" GWB-54	8"	7"
5/8"	1-3/8" GWB-54	8"	7"

F. Prefabricated
Wallboard

SGP 0028585

ETERNAWALL

Eternawall is a vinyl-clad gypsum wallboard by Bestwall. Available in a variety of colors and textures, it provides beauty and utility to commercial, institutional, and home interiors. The durable vinyl won't chip or peel, never needs papering or painting, and can be washed with common household cleaners. The gypsum wallboard is strong and resilient, reinforced with miles of glass fiber filaments. The solid gypsum core is incombustible. In combination with the flameproof vinyl covering, it offers excellent fire protection.

Eternawall's colors won't fade. The deep linen-textured vinyl surface can even be scrubbed without damage to color, texture or design. Because of its ability to take hard wear and to resist stains, Eternawall is ideal for restaurants, hotels, clubs, and hospitals as well for home use.

The large panels of Eternawall are easily installed, by amateur or "pro". Used on any wall, Eternawall imports extra wear-resistance as well as outstanding beauty.



ADVANTAGES

- Lasting beauty • Easy to keep clean and free from stains • Outstanding strength and resilience • Fire protection • Choice of attractive colors • Ease of application • Ready for use without painting or further treatment • High quality, washable vinyl surface unaffected by milk, coffee, juices, syrups, even alcohol and many acids • Won't fade, crack or peel • Resists scuffing and chipping • Standard Line offers choice of five decorator colors and new Woodmere Walnut (Note: The "Decorator Line of Eternawall" is available in over 200 variations of colors and textures) • Surface may be repainted to suit changes in decor.

PRODUCT USES

Designed as durable, beautifying walls for homes, offices, restaurants, hotels, clubs, hospitals.

DATA

Sizes: Thickness: 1/2" (Standard Thickness). Also available on order in these thicknesses — 3/8"; 5/8" Firestop.

Length: 8' (Other lengths available on order)

Width: 4'

Edges: Beveled

Colors: *Standard Line:* Sand, Shadow Gray, Snowdrift, Seafoam Blue, Spring Green, and Woodmere Walnut, a handsome new wood pattern.

Decorator Line of Eternawall:

With the various colors available in any of 18 textures, there is a total of more than 200 variations of color and texture.

Application: Apply vertically over studs or over existing walls with furring strips with an adhesive and/or nails. Nails of matching colors blend with the board. The board may be cut by scoring through the vinyl surface and snapping it back on a straight edge, or sawed with the vinyl face up. Complete application instructions available.

Packaging: Twin Mounted; End Taped.

BESTWALL GYPSUM COMPANY

GYPSUM WALLBOARD MANUAL

Section 5

Sub-Section F.

1965 EDITION

BESTWALL ETERNAWALL DECORATOR LINE

SGP 0028587

Changes in Colors and Textures

The Masland-Duraleather Company have been reviewing their line of Wall Decorator materials, with a view toward improving the selection available and dropping out some of the items which have apparently lost their appeal to interior decorators, as witnessed by their lack of movement. Bestwall's folder "The Decorator Line" Form BW-62645 describes the current items.

The following textures are being discontinued as a standard stock item by Masland; Nikko, Tempest, Arbor, Goldust, Matsue, Candid, Apex, Banner, Cotele, and Zircon.

Tradewind is being revised slightly with a new embossing wheel. The product will be available in 9 colors under the tradename, Malibu. Yearling, a leather type texture, is being revised with an improved roll. The new texture will be known as Delta, and will be available in 25 colors.

Of the other current patterns which remain in the line, Wood in 5 colors and Bedford in 5 colors will have no changes, but the rest will have certain colors discontinued.

Horizon will be available in 4 colors; H692, Buckram; H749, Casino; H221, Sand; and H559, Willow. Finesse will be available in 9 colors; SK611, White; SK725, Aqua; SK419, Sandalwood; SK513, Sage Green; SK654, Gray Mist; SK321, Shell Pink; SK623, Eggshell; SK249, Gold; and SK408, Greige. Revere will be available in 8 colors; 632E, Ivory; 432K, Sand; 323K, Shell; 649W, White; 783, Lagoon; 663F, Green; 951D, Yellow; and 555G, Mist.

Woodmere will be available in 2 finishes. The dull finish you have in your Decorator book will be a special finish. The new Woodmere will have the same graining but will have a smooth finish and look like a varnished or polished surface. The same 6 colors will be in the group. Bestwall's Woodmere Mahogany Eternawall will continue as per the samples being distributed as a "dull" finish.

The new textures and number of colors which will be added include; Italia, 5 colors; Silkeen Luxor, 6 colors; and Tiki, 8 colors; all of which are easily put together in panels. There are 5 additional textures which will be checked to be sure their pattern is such that they can be included in the line as a predecorated wallboard item, where it is not always possible to match edges, after a closer check of panels being made at Fort Dodge. These include; Saxon Countess, 7 colors; Camille, 12 colors; Dato Wall, 10 colors; Konoya, 7 colors, and Palette, 6 colors.

A new Bestwall decorator book showing 16 patterns with a total of 132 colors, is in preparation and should be available during January.

In the meantime, while Masland-Duraleather has made this change, existing stocks of the discontinued items may be available. If you have an order for a small quantity check availability via your Regional Office with General Sales in Paoli. Of greater importance, all the embossing rolls of these discontinued items will be kept for six months. Where there is a demand they will be kept longer. Minimum orders of 12,000 sq. ft. of any embossing pattern and any color will be available as per Price Schedule

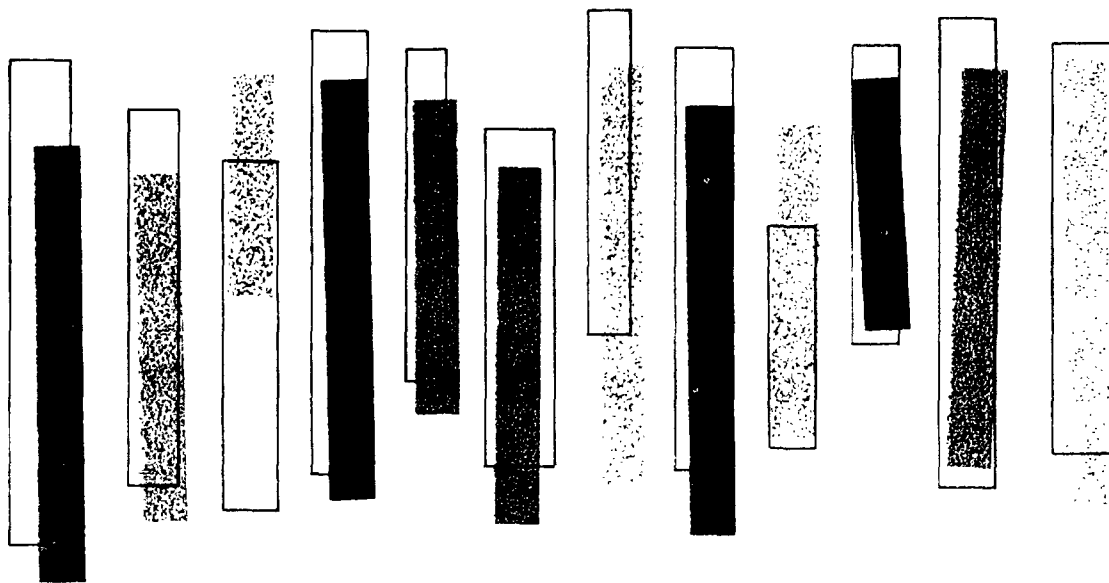
ETERNAWALL - FLAME SPREAD RATING

Eternawall has become used widely in schools, hospitals, office buildings, apartment houses, etc., & the need of an Official Flame Spread rating has become more pressing. An Official Tunnel Test at Underwriters' Laboratories in Chicago developed a Flame Spread Rating of 35 on Eternawall. Laboratory work will continue to improve this to 25 or less.

In the meantime, while some building codes list 25 as the maximum for unlimited use, please be sure you understand that very generally this limitation is only in very special areas and a very great majority of the places where Eternawall can be used, generally permit up to 50. For instance, under the Uniform Building Code followed by over 1000 communities largely on the West Coast, a Class I material having a Flame Spread rating of 0 to 25 falls under Federal Standard Test, Class A. Class I or Class A material has unlimited use. Class II, 26 to 75 in the Tunnel Test falls by Federal Standard Test in Class B or C; Class B is 26 to 50 and C, 51 to 75. Under the UBC the only limitation on Class II material is to exclude its use in "Enclosed Vertical Exitways". Notice the 3 words "enclosed", "vertical", and "exitways". Thus in a school building, where the stairs are not enclosed, Eternawall can be used throughout. If the stairs are enclosed, then some other finish in that stairwell would have to be used. In this particular instance, if a vinyl surface is necessary expensive special sheet available from Masland Duraleather with a Flame Spread of 15 could be applied to gypsum wallboard that had been erected and finished. Thus the enclosed stairwell could be finished with one or two layers of 5/8" Firestop to provide the 1 and 2 hours fire resistance necessary and the surface covered with Masland Duraleather's product or could even be painted.

Copies of Underwriters Test Report will be made available and you will be advised as to how Bestwall's product is to be marked. Where you have need for this information officially, before the Test Report is available, please advise General Sales and arrangements will be made to have Underwriters write officially to the Building Department involved.

The Decorator Line



ETERNAWALL by BESTWALL

SGP 0028589

The Decorator

CREATE NEW ELEGANCE IN WALLS!

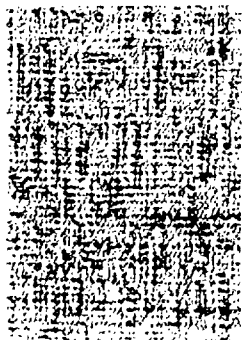
Texture and color! Now Bestwall captures them forever with Eternawall. See what happens when fire-proof gypsum wallboard joins with Masland Duran scuff-proof vinyl. This combination finds its way into any setting with luxurious ease. Now you can fill every room in your home with a delightful new warmth. Create exciting "accent" walls. Decorating ideas just come naturally. What's more, Eternawall's stunning beauty is more than skin deep . . . the fireproof gypsum core is reinforced with glass fibers. Lovely to live with, easy to care for . . . Eternawall is now available in over 200 colors and patterns. Why not let Eternawall put its lasting luxury to work for you?

SGP 0028590



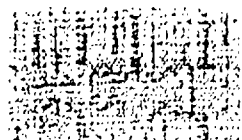
Line

ETERNAWALL by BESTWALL

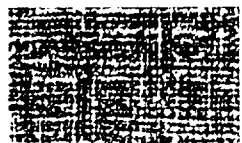


NIKKO

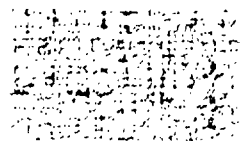
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3/8", 1/2", 5/8" thick - Bevelled



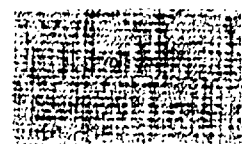
VIKING AK459 SAND



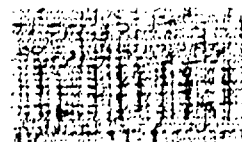
VIKING AK353 CHERRY ROSE



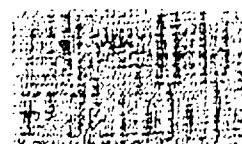
VIKING AK645 WHITE



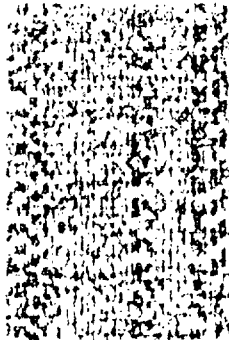
VIKING AX710 GLACIER BLUE



VIKING AK247 SUN YELLOW

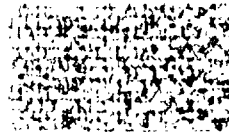


VIKING AK512 MIST GREEN

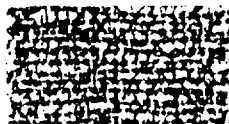


HORIZON

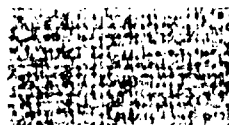
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3/8", 1/2", 5/8" thick - Bevelled



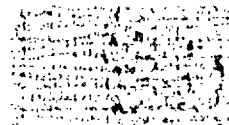
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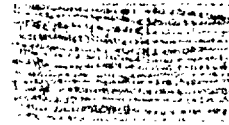
VIKING H471 COCOA



VIKING H333 BALLET



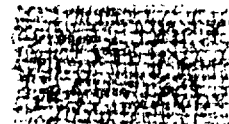
VIKING H749 CASINO



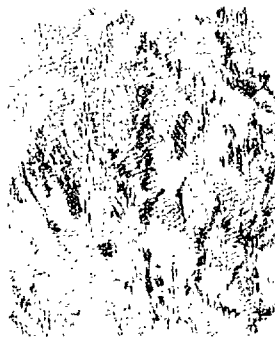
VIKING H737 DRESDEN



VIKING H221 SAND

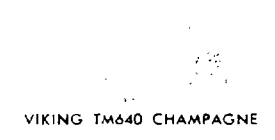


VIKING H559 WILLOW



TEMPEST

Viking Quality
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3/8", 1/2", 5/8" thick - Bevelled



VIKING TM640 CHAMPAGNE



VIKING TM317 PINK



VIKING TM209 YELLOW



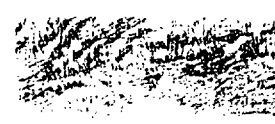
VIKING TM741 AQUA



VIKING TM526 GREEN



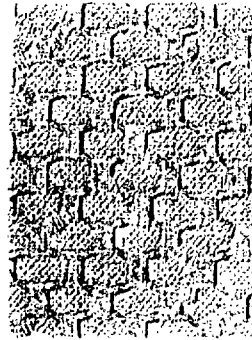
VIKING TM792 BLUE



VIKING TM410 BEIGE



VIKING TM871 MOCHA

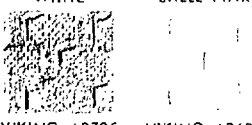


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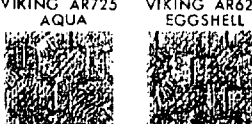
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3/8", 1/2", 5/8" thick - Bevelled



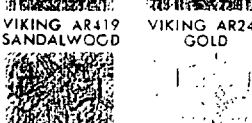
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WHITE



VIKING AR321
SHELL PINK



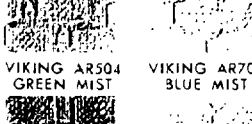
VIKING AR725
AQUA



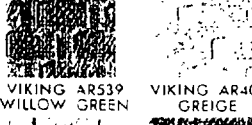
VIKING AR623
EGGSHELL



VIKING AR419
SANDALWOOD



VIKING AR249
GOLD



VIKING AR513
SAGE GREEN



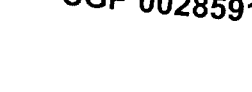
VIKING AR224
YELLOW MIST



VIKING AR504
GREEN MIST



VIKING AR701
BLUE MIST



VIKING AR539
WILLOW GREEN

VIKING AR408
GREIGE

VIKING AR654
GRAY MIST

VIKING AR485
BRONZE

VIKING AR233
BAMBOO

SGP 0028591



WHEN YOU DECORATE, D OVER 200 EXCIT'

ENDURING CHARM FOR YOUR WALLS

The beauty of Eternawall is truly long-lasting. Eternawall defies the passing of time beautifully with the most in wear and the least in upkeep. No more painting, papering or endless pampering. Eternawall is easy and inexpensive to maintain . . . it can be easily cleaned with ordinary soap and water without impairing the texture, color or design. Eternawall has other talents, too. It combines the flame resistant qualities of Masland Duran vinyl and gypsum wallboard to give you the utmost in fire protection. Beauty . . . strength . . . flame resistance . . . Eternawall is an artful combination of the qualities you need and want in a wallboard. See the Decorator Line of Eternawall at your dealer today.

SGP 0028592



DON'T SPECULATE...GET ETERNAWALL BY BESTWALL G. COLORS AND PATTERNS TO CHOOSE FROM



FINESSE

Viking Quality
4' wide - 6' to 16' long
3/8", 1/2", 5/8" thick - Bevelled

VIKING SK611
WHITE



VIKING SK725
AQUA



VIKING SK419
SANDALWOOD



VIKING SK513
SAGE GREEN



VIKING SK504
GREEN MIST



VIKING SK539
WILLOW GREEN



VIKING SK654
GRAY MIST



VIKING SK736
TURQUOISE

VIKING SK321
SHELL PINK



VIKING SK623
EGGSHELL



VIKING SK249
GOLD



VIKING SK224
YELLOW MIST



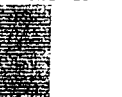
VIKING SK701
BLUE MIST



VIKING SK408
GREIGE



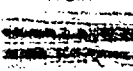
VIKING SK485
BRONZE



TRADEWIND

Viking Quality
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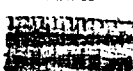
VIKING WX658
IVORY



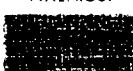
VIKING WX308
PINK



VIKING WX475
MAPLE



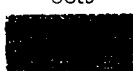
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PINEFROST



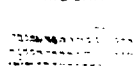
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CACTUS



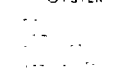
VIKING WX211
GOLD



VIKING WX870
MOCHA



VIKING WX617
OYSTER

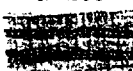


VIKING WX507
MINT

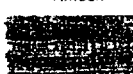


VIKING WX601
WHITE

VIKING WX419
BAMBOO



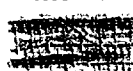
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AMBER



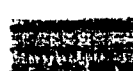
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AQUA



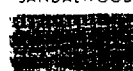
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BLUE MIST



VIKING WX569
SAGE



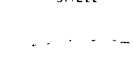
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SANDALWOOD



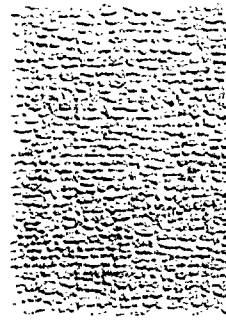
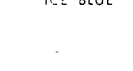
VIKING WX430
FAWN



VIKING WX629
SHELL



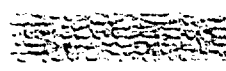
VIKING WX714
ICE BLUE



REVERE

Viking Quality
4' wide - 6' to 16' long
3/8", 1/2", 5/8" thick - Bevelled

VIK. REV. 632E IVORY



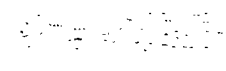
VIK. REV. 432K SAND



VIK. REV. 426K MOCHA



VIK. REV. 323K SHELL



VIK. REV. 335K PEACH



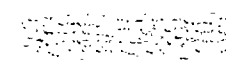
VIK. REV. 341K ROSE



VIK. REV. 649 WHITE



VIK. REV. 783G LAGOON



VIK. REV. 795K BLUE



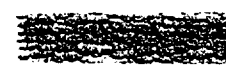
VIK. REV. 663F GREEN



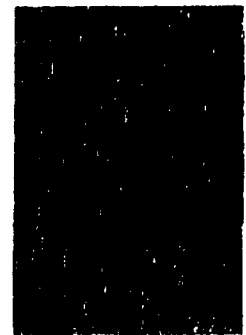
VIK. REV. 951D YELLOW



VIK. REV. 555G MIST



VIK. REV. 628F GREY



WOOD

Viking Quality
4' wide - 6' to 16' long
3/8", 1/2", 5/8" thick - Bevelled



VIKING 413J BLONDE



VIKING 483J MAPLE



VIKING 816J WALNUT



VIKING 858J RUSSET WALNUT



VIKING 847J MAHOGANY

SGP 0028593

PERFECT IN COLORS, PATTERNS, AND STYLE CREATIONS



BEDFORD

Viking Quality
4' wide - 6' to 16' long
3/8", 1/2", 3/4" thick - Bevelled



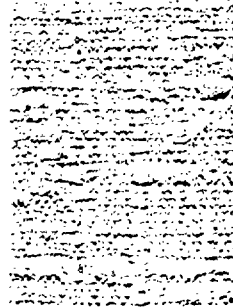
GOLDUST

Viking Quality
4' wide - 6' to 16' long
3/8", 1/2", 3/4" thick - Bevelled



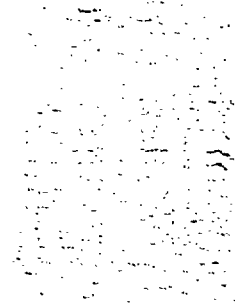
MATSUE

Viking Quality
4' wide - 6' to 16' long
3/8", 1/2", 3/4" thick - Bevelled



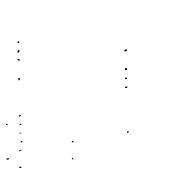
CANDID

Viking Quality
4' wide - 6' to 16' long
3/8", 1/2", 3/4" thick - Bevelled



APEX

Viking Quality
4' wide - 6' to 16' long
3/8", 1/2", 3/4" thick - Bevelled



VIKING B681 BEIGE



VIKING B644 PINK



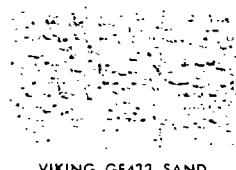
VIKING B636 BLUE



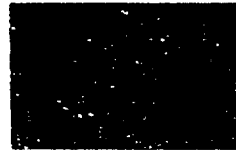
VIKING B675 GREEN



VIKING B604 YELLOW



VIKING GF432 SAND



VIKING GF341 CHERRY ROSE



VIKING GF649 WHITE



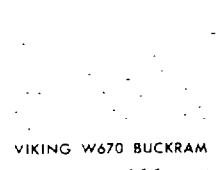
VIKING GF795 GLACIER BLUE



VIKING GF951 SUN YELLOW



VIKING GF555 MIST GREEN



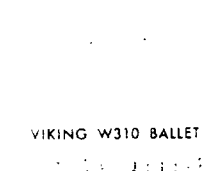
VIKING W670 BUCKRAM



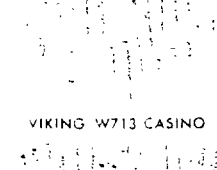
VIKING W467 COCOA



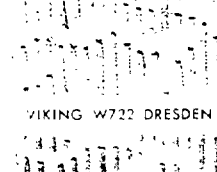
VIKING W828 MOCHA



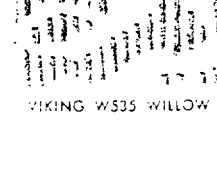
VIKING W310 BALLET



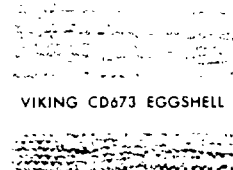
VIKING W713 CASINO



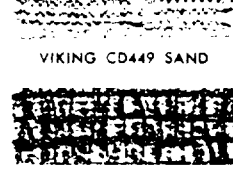
VIKING W722 DRESDEN



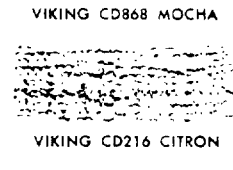
VIKING W335 WILLOW



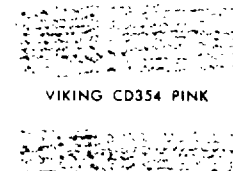
VIKING CD673 EGGSHELL



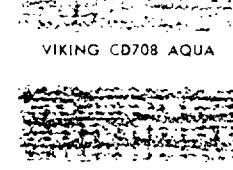
VIKING CD449 SAND



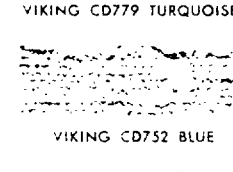
VIKING CD868 MOCHA



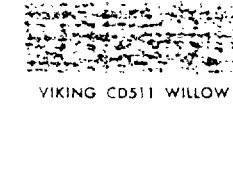
VIKING CD216 CITRON



VIKING CD354 PINK



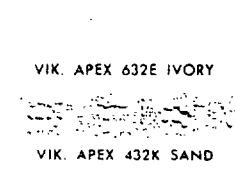
VIKING CD708 AQUA



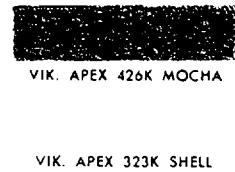
VIKING CD752 BLUE



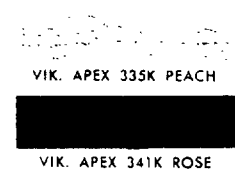
VIKING CD511 WILLOW



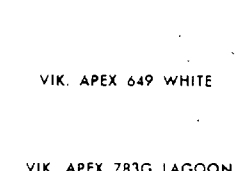
VIK. APEX 632E IVORY



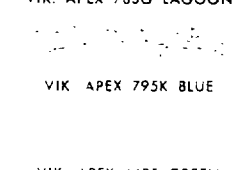
VIK. APEX 432K SAND



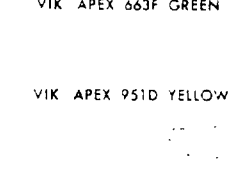
VIK. APEX 426K MOCHA



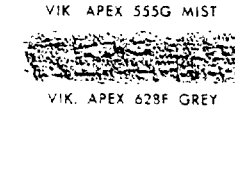
VIK. APEX 323K SHELL



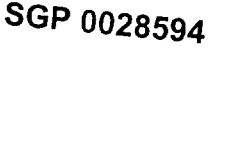
VIK. APEX 335K PEACH



VIK. APEX 341K ROSE



VIK. APEX 649 WHITE



VIK. APEX 783G LAGOON

VIK. APEX 795K BLUE

VIK. APEX 663F GREEN

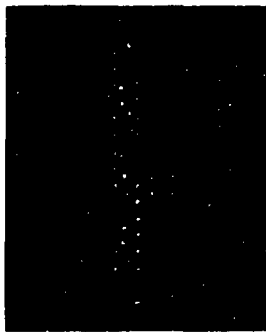
VIK. APEX 951D YELLOW

VIK. APEX 555G MIST

VIK. APEX 628F GREY

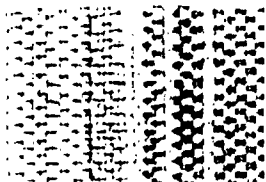
SGP 0028594

TEXTURES, THESE HIGH G'VE YOU CAREFREE WALL BEAUTY

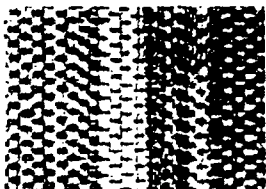


BANNER

Monitor Quality
4' wide - 6' to 16' long
3/8", 1/2", 5/8" thick - Bevelled



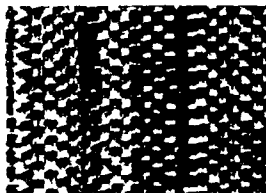
MON. BR639 BEIGE



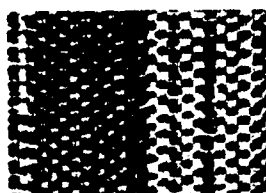
MON. BR482 MOCHA



MON. BR391 CHARCOAL BROWN



MON. BR313 TANGERINE



MON. BR704 TURQUOISE



COTELE

Monitor Quality
4' wide - 6' to 16' long
3/8", 1/2", 5/8" thick - Bevelled



MON. 428K TOAST



MON. 456K SABLE



MON. 733E TURQUOISE



MON. 790F BLUE



MON. 351J CORAL



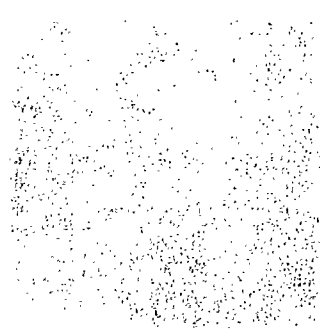
MON. 329K TANGERINE



MON. 649 WHITE

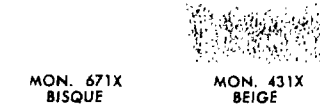


MON. 96 BLACK

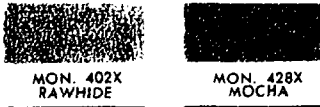


YEARLING

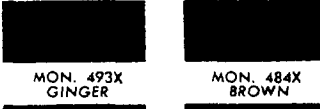
Monitor Quality
4' wide - 6' to 16' long
3/8", 1/2", 5/8" thick - Bevelled



MON. 671X
BISQUE



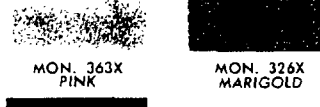
MON. 402X
RAWHIDE



MON. 493X
GINGER



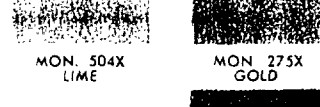
MON. 301X
MARASCHINO



MON. 363X
PINK



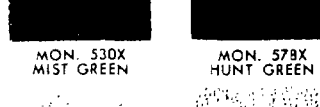
MON. 382X
TANGERINE



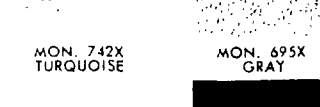
MON. 504X
LIME



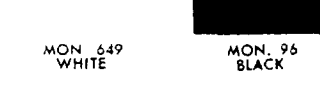
MON. 524X
MINT



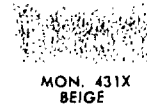
MON. 530X
MIST GREEN



MON. 742X
TURQUOISE



MON. 649
WHITE



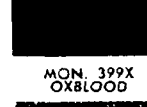
MON. 431X
BEIGE



MON. 428X
MOCHA



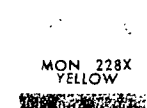
MON. 484X
BROWN



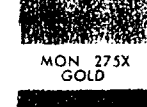
MON. 399X
OXBLOOD



MON. 326X
MARIGOLD



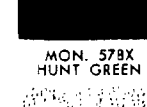
MON. 228X
YELLOW



MON. 275X
GOLD



MON. 541X
MYRTLE GREEN



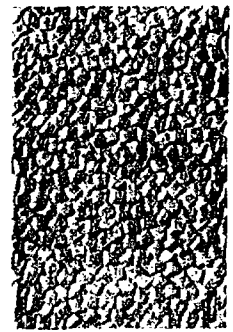
MON. 578X
HUNT GREEN



MON. 695X
GRAY



MON. 96
BLACK



ZIRCON

Monitor Quality
4' wide - 6' to 16' long
3/8", 1/2", 5/8" thick - Bevelled



MON. A409 RAWHIDE



MON. AB56 BROWN



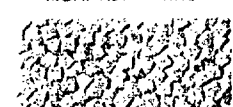
MON. A339 PINK



MON. A341 TANGERINE



MON. A614 WHITE



MON. A778 TURQUOISE



MON. A546 GREEN



MON. A915 BLACK

APPLICATION OF ETERNAWALL

A. SINGLE LAYER TO FRAMING.

Framing for Eternawall shall be straight and true. Deviation of studs or furring should not exceed $\frac{1}{8}$ " from the plane of the wall or partition. Spacing of studs or furring shall not exceed 16" on center for $\frac{3}{8}$ " Eternawall. For $\frac{1}{2}$ " or $\frac{5}{8}$ " or two layer application of $\frac{3}{8}$ ", the spacing of the supports shall not exceed 24".

Eternawall should be applied vertically. Care must be exercised in any installation to make beveled edges plumb. The areas to be treated should be planned ahead to balance panels taking openings, corners, and other room features into account.

Matching metal moldings for inside, outside, corners, and caps and battens are available. Where using mechanical fasteners at the top and bottom be sure the cove section and baseboard detail will cover them.

1. Single layer application to framing by adhesive nail-on method.

Apply Eternawall vertically using color head matching nails 6 to 8" on center along edges and across top and bottom, and approximately 18" on center in the field of the board. Use nails with sufficient length to penetrate $\frac{1}{4}$ " into framing.

2. Single layer application to wood framing by adhesive nail-on method.

a. Apply a continuous bead of adhesive to the center of the stud or furring. Where two adjacent pieces of wall-board join on a framing member, a serpentine or zig-zag bead of adhesive shall be applied. The bead shall be approximately $\frac{1}{4}$ " x $\frac{3}{4}$ ", so as to cover at least 80% of the framing member with a $\frac{1}{16}$ " thickness after the Eternawall is in place.

b. Place the Eternawall in place and attach at the ceiling and floor with gypsum wallboard nails, spaced 8" on centers.

c. Hold the remainder of the Eternawall in contact with framing until the adhesive has set; usually 24 hours is sufficient. The preferred method of doing this is to use 1" x 4" x 6" wood cleats, spaced 24" on centers. A double headed nail is driven through the cleat into the framing or furring between the edges of the Eternawall

and left in place until the adhesive sets. The cleats are then removed.

B. TWO LAYER APPLICATION TO FRAMING.

1. Where Eternawall is on only one side of the wall or partition.

a. Apply the backer board in accordance with the recommendations of ASA A97.1, using nails, screws, or staples as the case may be.

b. Apply Bestwall Laminating Compound to the back of the Eternawall and attach in place, in the same manner as described under "Adhesive Nail-on Application" Sections A.2.b and c. above.

2. Where Eternawall is on both sides of the partition.

a. Apply the backer board in accordance with the recommendations of ASA A97.1, using nails, screws, or staples as the case may be.

b. Apply contact adhesive to the face of the backer board and to the back of the Eternawall, in accordance with the recommendations of the adhesive manufacturer.

c. Drive nails or screws as the case may be, into the framing members at the floor and ceiling line spaced 8" on center.

C. SINGLE LAYER APPLICATION TO EXISTING WALLS.

For adhesion application of Eternawall or Vinyl Wallcovering be sure the existing surface is clean, firm, straight and true and free of loose paint or particles, cracks, and does not have such type decoration as calcimine or other water base paints.

1. For paneled effect Eternawall may be applied with contact adhesive as described in Sections B.2.b. and c.

2. For matching color effect and no paneling apply Masland Duran Fabric Backed Vinyl Wallcovering manufactured by Masland Dura-leather Company, Philadelphia, Penna. Follow the specifications of the wallcovering manufacturer in applying the material.

3. Where the existing wall is in such condition that Eternawall or Vinyl Wallcovering cannot be adhesively applied, furr out walls and apply Eternawall as described in "Nail-On Application", Section A.1 or in "Adhesive Nail-On Application" as described A.2.a., b., and c., as desired.

TECHNICAL DATA ON VINYL* FACE DECORATOR ETERNAWALL BY BESTWALL

1. SCOPE

This specification covers a high quality washable vinyl sheeting intended for use as a wall-surfacing material.

2. THICKNESS

.010" (± 1)

3. COMPOSITION

A vinyl compound of Polyvinyl Chloride resin combined with plasticizers, pigments and stabilizers to produce a durable and resistant surface.

4. ABRASION RESISTANCE

(ASTM D1044—500 cycles, CS-17 wheels)

a. Maximum weight loss 50 milligrams
b. Print wear off. No loss of print

5. ACCELERATED LIGHT AGING

(Fadeometer—ASTM 120 hours exposure)
No appreciable discoloration or stiffening.

*Masland Duran Fabric Backed Vinyl Wall-covering by Masland Dura-leather Company.

6. CHEMICAL RESISTANCE (1 HR. EXPOSURE)

10% Sulfuric Acid	 No change
10% Nitric Acid	 No change
10% Hydrochloric Acid	 No change
10% Sodium Hydroxide	 No change
10% Acetic Acid	 No change
Alcohol	 No change
Naphtha	 Softens but recovers after evaporation

7. STAIN RESISTANCE (1 HR. EXPOSURE)

Milk	 No stain
Coffee	 No stain
Orange Juice	 No stain
Chocolate Syrup	 No stain
Mercurchrome	 Slight stain
Tomato Paste	 Slight stain
Iodine	 Severe stain
Mustard	 Severe stain

8. WASHABILITY

Good; no effect on the surface when cleaned with mild or common household cleaners.



BESTWALL GYPSUM COMPANY • 120 E. LANCASTER AVENUE • ARDMORE, PENNSYLVANIA

TRU-GRAIN GYPSUM PANELING

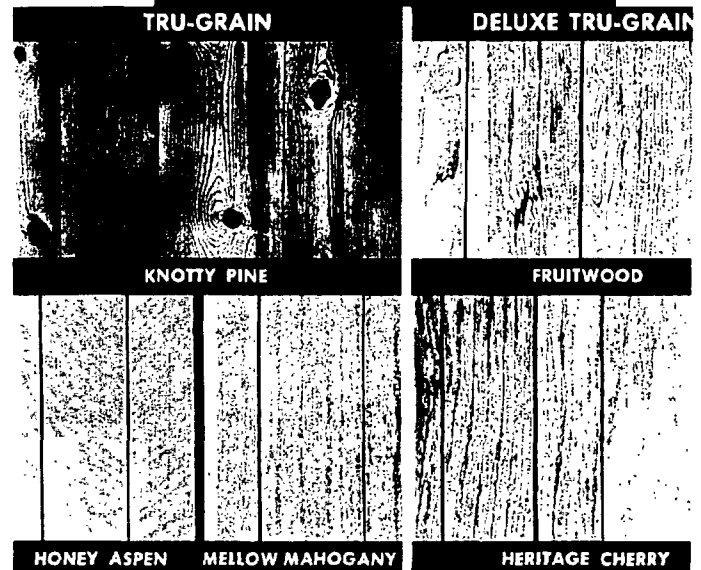
DESCRIPTION

Bestwall Tru-Grain Gypsum Paneling is regular gypsum wallboard finished with photographic reproductions of selected wood panels. These reproductions are printed on special paper and cemented to the face of the gypsum wallboard.

Bestwall Tru-Grain is available in three low-cost woodgrain patterns, Knotty Pine, Honey Aspen and Mellow Mahogany. The random plank design gives a striking true-wood look and makes joints easier to conceal. All are finished with a durable coating.

Bestwall Deluxe Tru-Grain is available in two luxurious woodgrain patterns, Fruitwood and Heritage Cherry, both in random plank design. This premium gypsum paneling offers added durability and insures classic long-lasting beauty with a 2 mil clear vinyl plastic covering.

Perfect for new construction or remodeling, Bestwall Tru-Grain Gypsum Paneling assures attractive, natural wood-like paneling for homes, offices, motels, restaurants and other commercial buildings.



BESTWALL®

ADVANTAGES

- Combines the beauty of wood panels with the cutting and handling ease, the incombustibility and economy of gypsum wallboard
- Five true-wood grains are available: Knotty Pine, Honey Aspen and Mellow Mahogany in the Tru-Grain Line and Fruitwood and Heritage Cherry in Deluxe Tru-Grain
- Random plank design gives handsome true-wood look, makes joints easier to conceal
- Incombustible fireproof gypsum core is reinforced with glass fibers, providing up to 80% greater resistance to shock
- Deluxe Tru-Grain has a 2 mil clear vinyl covering for extra scuff resistance
- Walls can be kept clean with an occasional wipe with a damp cloth
- Large panels go up fast, no heavy handling
- Ideal product for "Do It Yourselfer."

PRODUCT USES

Wood grained highlights give beautiful, durable walls in homes, offices, restaurants, hotels, clubs, hospitals.

DATA (Tru-Grain and Deluxe Tru-Grain)

Thickness: $\frac{3}{8}$ " ($\frac{1}{2}$ " on special order)

Length: 8', 9', 10'

Width: 4'

Edges: Square

Packaging: Twin Mounted

Application: All predecorated panels should be installed vertically. Exposed square edges lend a decorative effect. When possible, avoid vertical joints at edges of openings. Vertical joints may be trimmed with wood or metal and with cove molding and baseboard to present an attractive appearance.

Nailing: Use color head nails to match the color of the predecorated board, (or black, if nailed in joint) $1\frac{3}{8}$ " long, 8" o.c. Nails are available with product.

SGP 0028597

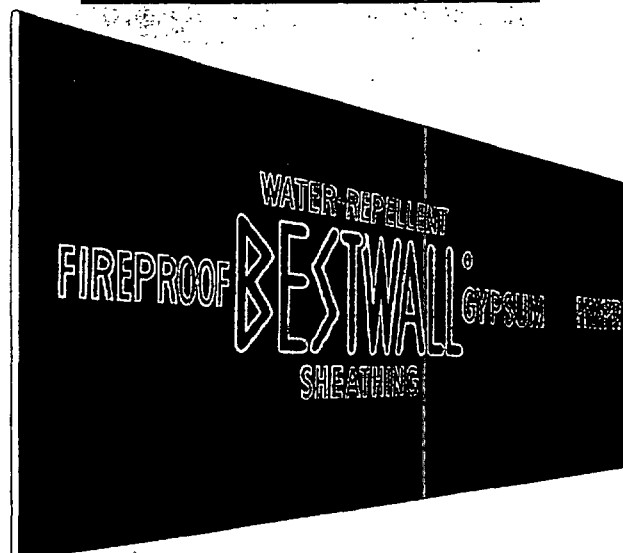
SGP 0028598

GYPSUM SHEATHING

DESCRIPTION

Bestwall Gypsum Sheathing is the only gypsum sheathing reinforced with glass fibers. The gypsum core consists of incombustible gypsum rock combined with an asphalt emulsion to provide high resistance to water. All Bestwall Gypsum Sheathing meets ASTM C79-54 Specifications for water resistance. This eliminates the need for building paper (except where required by local building code).

Bestwall Gypsum Sheathing is manufactured in widths of 2' and 4'. The 2' wide sheathing is made with precision-cut tongue and groove edges to provide a structurally strong and stable wall. V tongue and groove edges fit snugly, minimizing wind infiltration. The 4' wide square edge sheathing, applied vertically, completely eliminates the need for corner bracing. It is designed to meet requirements of FHA Technical Circular 12.



BESTWALL

ADVANTAGES

- Incombustible! As the exterior sheathing over a wood framed wall with any exterior finish and with an interior such as 5/8" Firestop or gypsum lath and plaster will give a wall having one hour fire resistance from either side
- Very little waste, low cost
- Reinforcement with glass fibers gives better nailing qualities and greater resistance to shock
- Specially treated core and face paper are water resistant
- Large panels may be applied easily and quickly

PRODUCT USE

May be used on both commercial and residential buildings, wherever strong, stable walls are desired.

DATA

Thickness: 1/2"

Length: 8', 9'

Width: 2', 4'

Edges: 2' x 8' — V Edge and Tongue and Groove
4' x 8' and 4' x 9' — Square Edge

Packaging: Twin Mounted

Application: *Square Edges* — Panels shall be applied vertically with long edges parallel to the studs. Use length necessary to span distance between sills and plates or other structural members. Center long edges on studs. *V-Groove* — Apply panels horizontally at right angles to studs with grooved edge down. Break end joints on succeeding courses so that end joints in following courses are not in line. All V-joint edges shall be in close contact.

Nailing: Galvanized roofing nails with a 3/8" to 7/16" head, 1-3, 4" long, #11 gage should be used. For 4' wide sheathing, 4" o.c. around edges at top and bottom plates, and 8" o.c. in the field. For 2' wide sheathing, 8" o.c.

SGP 0028599

GYPSUM ASSOCIATION201 North Wells Street
Chicago, Illinois 60606**GYPSUM SHEATHING**
RECOMMENDATIONS FOR NAILING AND STAPLING**FASTENER SPACING**

SHEATHING SIZE	SPACING
$\frac{1}{2}$ in., 2 x 8 ft. (Applied Horizontally) Nail With siding or with diagonal bracing With no siding or diagonal bracing* Staple With diagonal bracing With siding but without diagonal bracing*	8 in. o.c. 4 in. o.c. 6 in. o.c. 4 in. o.c.
$\frac{1}{2}$ in., 4 x 8 ft.; 4 x 9 ft. (Applied Vertically) Nail Without diagonal bracing Staple Without diagonal bracing	8 in. o.c. field 4 in. o.c. perimeter 6 in. o.c. field 3 in. o.c. perimeter

* Recommended where regulations permit the use of 1 x 8 in. horizontal wood sheathing without bracing

NAILS— $1\frac{1}{2}$ in. long galvanized roofing nail, 11 gauge, $\frac{3}{8}$ in. to $\frac{7}{8}$ in. head.

STAPLES—16 gauge flattened galvanized wire, $\frac{7}{16}$ in. wide crown (outside measure), $1\frac{1}{2}$ in. long legs with divergent points.

All fasteners shall be spaced not less than $\frac{3}{8}$ in. from the ends or edges of the sheathing. They shall be driven in such a manner that the sheathing bears tightly against the framing members without cutting the face paper.

SGP 0028600

Fire resistant Gypsum Sheathing

SGP 0028601



DESCRIPTION . . . a
USES . . . b
FUNCTION AND UTILITY . . . c
WEATHER PROTECTION . . . d
VAPOR PERMEABILITY . . . e
STRUCTURAL STRENGTH . . . f
ECONOMICAL . . . g
PERMANENCE . . . h
LIMITATIONS OF USE . . . i
DESIGN DATA . . . j
 ☐ WATER REPELLENCY . . . j-1
 ☐ VAPOR PERMEABILITY . . . j-2
 ☐ STRUCTURAL . . . j-3
 ☐ ATTACHMENT . . . j-4
 ☐ CONSTRUCTION DETAILS . . . j-5
SPECIFICATIONS . . . k
Gypsum Association

Fire resistant Gypsum Sheathing

DESCRIPTION (a)

Gypsum sheathing is $\frac{1}{2}$ in. thick and is manufactured in 2 x 8, 4 x 8 and 4 x 9 ft. sheets. The longitudinal edges of 2 x 8-ft. gypsum sheathing are v-shaped tongue and groove. The 4 x 8 ft. and 4 x 9 ft. panels have square edges. Gypsum sheathing is enveloped in heavy water-repellent paper. It weighs approximately 2.1 lb. per sq. ft., and has a thermal conductivity value of: conductance "C", 2.25; resistance "R", 0.45. It has a fire resistant, water-repellent gypsum core. Gypsum sheathing is manufactured to comply with the requirements of ASTM Designation C79 and Federal Specification SS-L-306.

USES (b)

Gypsum sheathing is used with such exterior finishes as wood siding, masonry veneer, stucco and shingles. Generally, it does not require the use of exterior building paper. And, use of large panels eliminates the need for diagonal bracing of the frame. See Design Data section.

FUNCTION AND UTILITY (c)

Fire Protection — The core of gypsum sheathing is noncombustible. Furthermore, it protects wood studs from the hazards of external fire — even when it is covered with wood siding. This is due to the unique chemical composition of gypsum — by slowly releasing its chemically-combined water, gypsum actually fights fire until it is completely calcined.

WEATHER PROTECTION (d)

All 2 ft. wide panels of gypsum sheathing have tight-fitting tongue and groove edges which minimize wind infiltration. The large 4 x 8 and 4 x 9 ft. panels are applied vertically with all edges over the framing supports — which also blocks the passage of wind.

Water Repellency — Gypsum sheathing is water repellent. These features of gypsum sheathing — weather protection and water repellency — are the main reasons why the use of building paper is unnecessary.

VAPOR PERMEABILITY (e)

The escape of normal water vapor is provided with gypsum sheathing. It has an average vapor permeability rating well over 20 perms (grains per sq. ft., per hour, per in. of mercury vapor pressure differential). This greatly exceeds the accepted minimum standard of 5.0 perms.

STRUCTURAL STRENGTH (f)

Gypsum sheathing stiffens a wall and provides the necessary strength to resist lateral forces resulting from wind and vibration. As shown in the section on Design Data, gypsum sheathing provides structurally sound walls — without diagonal bracing.

ECONOMICAL (g)

Material cost is low for gypsum sheathing — often as little as 50 per cent of other sheathing materials. There is a minimum of waste too, generally less than three per cent. Waste from end cuts is minimized because the panels are made in lengths which are multiples of both 16 in. and 24 in. — for both stud spacings. And the large sheets, used vertically, eliminate the need for diagonal bracing.

Gypsum sheathing panels go up quickly and easily. Almost 50 per cent fewer nails are required to cover a given area as compared with other sheathing materials. An average home can be sheathed in approximately eight man-hours.

PERMANENCE (h)

As an inert material, gypsum sheathing provides long-lasting stability to a structure's vital framing elements. It will not decay or rot, and it's vermin proof. Test inspections of 25-year-old residences showed that the original gypsum sheathing was in excellent condition and showed no signs of deterioration.

LIMITATIONS OF USE (i)

Gypsum sheathing should not be used as a nailing base. Such materials as wood siding, stucco mesh and wall ties must be applied with fasteners that penetrate through the sheathing into the wood framing. Maximum stud spacing should be 24 in. o.c. To eliminate the need for diagonal bracing, where required by regulation, the maximum stud spacing should be 16 in. o.c. and the 4 ft. panels should be erected vertically.

Design Data

(1) Water repellancy

TYPICAL IMMERSION TEST* — GYPSUM SHEATHING

TIME	WATER ABSORPTION PER CENT OF WEIGHT
30 minutes	3.0%
1 hour	4.0%
2 hours	5.0%

* ASTM C473 — Water Resistance Characteristics Of Core Treated Water-Repellent Gypsum Sheathing

(1-2) Vapor permeability

Gypsum sheathing provides escape for normal water vapor. Its vapor permeability ratings of over 20 perms exceeds the accepted minimum standard of 5.0.

(1-3) Structural

Load deformation tests prove that gypsum sheathed walls are rigid and strong.

FLEXURAL STRENGTH

LOAD IN POUNDS	
Applied Across Fibers	Applied Parallel To Fibers
0 minimum	0 minimum

* ASTM C473 — Flexural Strength Of Gypsum Boards (bending test)

RACKING TESTS

	HORIZONTAL DEFLECTION, IN.		LOAD, LB.	
	At 800 lb.	At 1,200 lb.	At Failure	Perlin ft.
With Diagonal Bracing (Applied Horizontally)				
1/2 in. 2 x 8 ft. Gypsum Sheathing	0.125	0.19	4,880	610
1 x 8 in. Wood Shiplap Sheathing	0.10	0.30	4,625	578
Without Diagonal Bracing (Applied Horizontally)				
1/2 in. 2 x 8 ft. Gypsum Sheathing	0.125	0.325	2,450	306
1 x 8 in. Wood Shiplap Sheathing	1.51	2.67	1,900	238
Without Diagonal Bracing (Applied Vertically)	1,200 lb.	2,400 lb.	total	per lin. ft.
1/2 in. 4 x 8 ft. Gypsum Sheathing	0.073	0.188	6,850	855

* ASTM E72 — Racking Load (8 x 8 in. wall sections of 2 x 4 in. studs x 6 in. o.s.b. (section on one side, loaded laterally)

SGP 0028603

(1-4) Attachment

FASTENER SPACING

SHEATHING SIZE	SPACING
$\frac{1}{2}$ in. 2 x 8 ft. (Applied Horizontally) Nail With siding or with diagonal bracing With no siding or diagonal bracing Staple With diagonal bracing With siding but without diagonal bracing	8 in. o.c. 4 in. o.c. 6 in. o.c. 4 in. o.c.
$\frac{1}{2}$ in. 4 x 8 ft. 4 x 9 ft. (Applied Vertically) Nail Without diagonal bracing Staple Without diagonal bracing	8 in. o.c. field 4 in. o.c. perimeter 6 in. o.c. field 8 in. o.c. perimeter

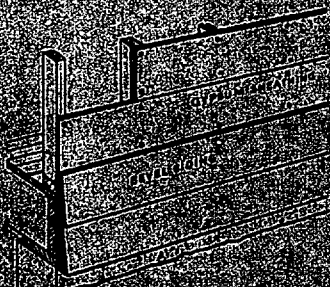
* Recommended where regulations permit the use of 2 x 8 in. horizontal wood sheathing without bracing.

NAILS— $\frac{1}{2}$ in. long galvanized roofing nail, 10 gauge, $\frac{1}{4}$ in. to $\frac{3}{4}$ in. head.

STAPLES—16 gauge flattened galvanized wire, $\frac{1}{4}$ in. wide crown (outside measure), $\frac{1}{2}$ in. long legs with divergent points.

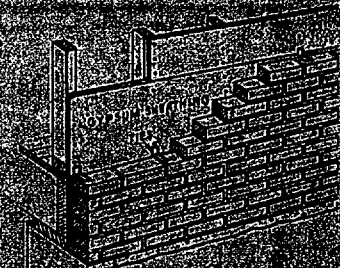
All fasteners shall be spaced not less than $\frac{1}{2}$ in. from the ends or edges of the sheathing. They shall be driven in such a manner that the sheathing bears tightly against the framing members without cutting the face paper.

Design Data—Construction Details (1-5)



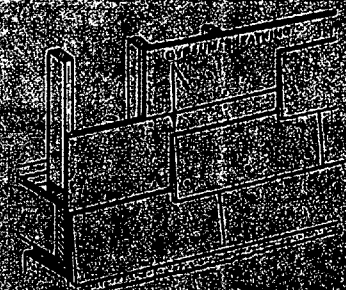
WOOD SIDING

Wood siding is applied directly over gypsum sheathing with nails driven through the sheathing and into the studs.



MASONRY VENEER

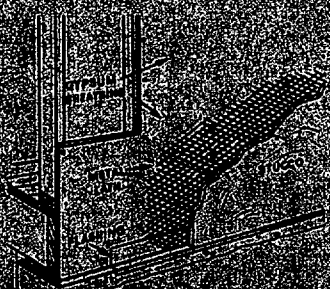
Masonry veneer can be applied over gypsum sheathing in the same manner as over any other type of sheathing. The wall ties are secured by nails driven through the gypsum sheathing and into the studs.



CEMENT ASBESTOS—WOOD SHINGLES

(a) Applied directly over gypsum sheathing using nails such as LS-11 with shanks which expand in the gypsum core for with light metal channels which engage the butts of shingles, the channels being nailed to the framing.

(b) Applied over $\frac{1}{2}$ in. horizontal wood nailing strips, spaced according to shingle exposure and secured through gypsum sheathing into studs.



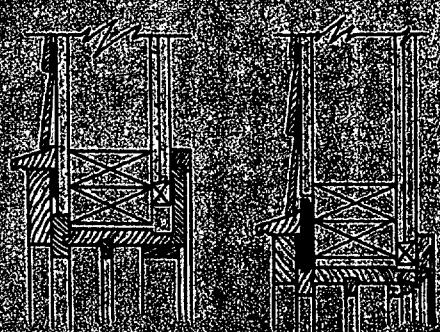
EXTERIOR STUDS

Self-jointing stud members may be directly applied over gypsum sheathing which has been secured with nail. Before use, Wood framing studs of cellular frame nails may be used for attachment of other studs or reinforcement.

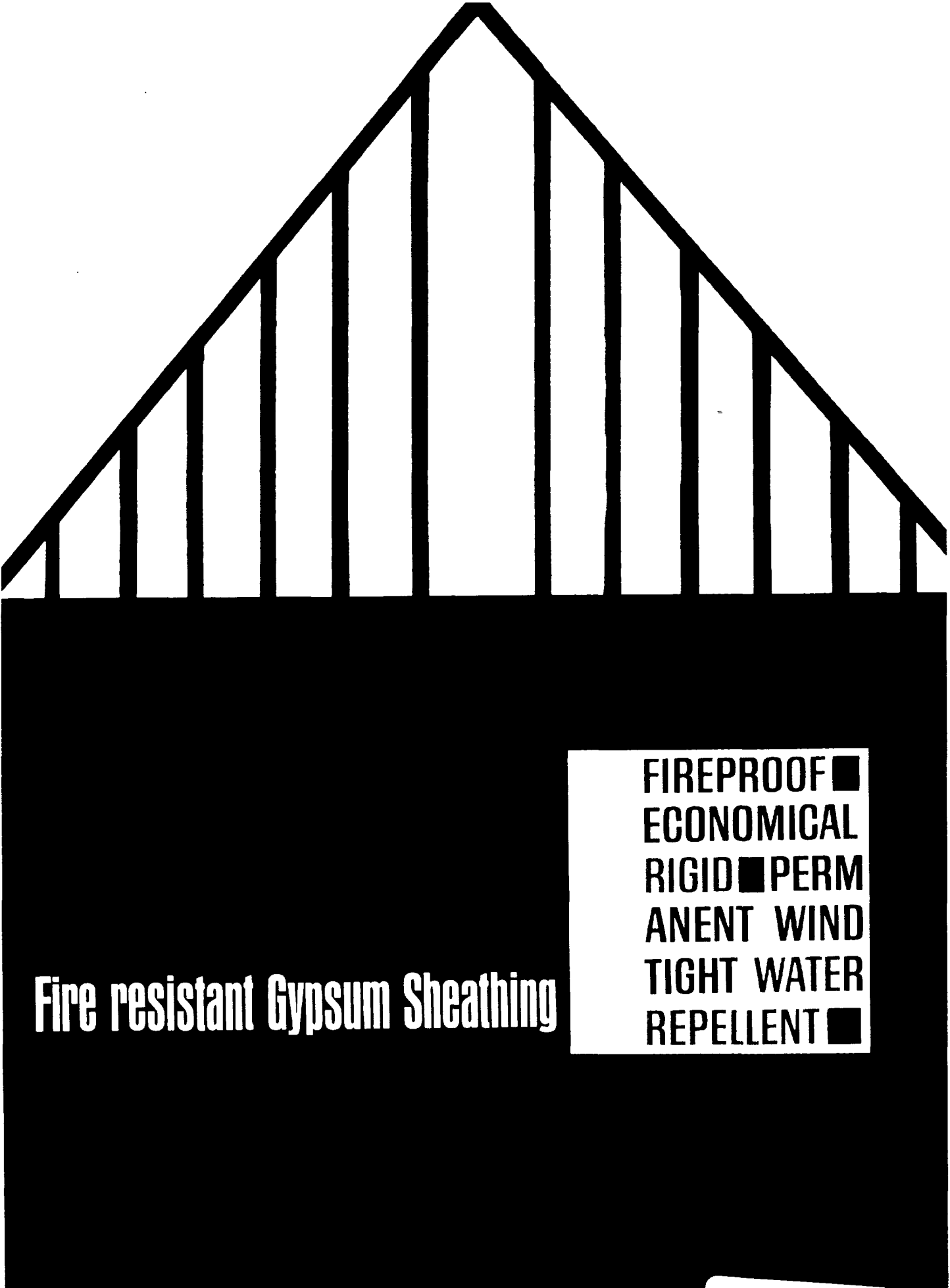
DETAILS FOR FRAMED OPENINGS

Frames with reversible blind stops listed by the National Door Manufacturers Association permit the use of $\frac{1}{2}$ in. or $\frac{3}{4}$ in. thick sheathing without alterations.

Frames with $\frac{1}{2}$ in. blind stops require the



insertion of wood strips between sheathing and trim. If neither is available, the standard window frame with $\frac{1}{2}$ in. blind stops equally satisfactory, provided a $\frac{1}{2}$ in. wood strip is inserted between the sheathing and the trim.



Fire resistant Gypsum Sheathing

**FIREPROOF ■
ECONOMICAL
RIGID ■ PERM
ANENT WIND
TIGHT WATER
REPELLENT ■**

SGP 0028605

Specifications

SCOPE OF WORK:

All exterior walls shall be covered with gypsum sheathing.

FRAMING:

Framing members shall be erected in the manner of approved standard practice and spaced 16 in. (or 24 in.) o.c.

MATERIALS:

Sheathing: Sheathing shall be core-treated, water-repellent gypsum sheathing, $\frac{1}{2}$ in. thick, 2 x 8 ft. with tongue and groove longitudinal edges or $\frac{1}{2}$ in. thick, 4 x 8 ft. or 4 x 9 ft., with square longitudinal edges. All sizes shall meet the requirements of ASTM C79.

Nails: Nails shall be 11 gauge, $\frac{3}{8}$ in. head, $1\frac{1}{2}$ in. long for 2 ft. wide sheathing and 12 gauge, $\frac{3}{8}$ in. head, $1\frac{1}{2}$ in. long for 4 ft. wide sheathing.

Staples: Staples shall be 16 gauge, $7/16$ x $1\frac{1}{2}$ in. with divergent points.

APPLICATION:

Gypsum Sheathing—2 x 8 ft.

Apply $\frac{1}{2}$ in., 2 x 8-ft. gypsum sheathing with the long dimension perpendicular to the framing members—with grooved edges down interlocking the tongue of the adjacent panel. Ends of the panel shall abut over the centers of framing members and all end joints shall be staggered. Fit sheathing snugly around all window and door openings. Securely flash the heads of all openings. Secure sheathing to studs with nails spaced approximately 4 in. o.c. (8 in. o.c. where wood siding or diagonal bracing is used). Nails shall be not less than $\frac{3}{8}$ in. from edges or ends of sheathing. If staples are used, secure sheathing to studs by spacing staples 6 in. o.c. (with diagonal bracing) or 4 in. o.c. (with siding but no diagonal bracing).

Gypsum Sheathing—4 x 8 ft. and 4 x 9 ft.

Apply $\frac{1}{2}$ in., 4 x 8-ft. or 4 x 9-ft. gypsum sheathing with the long dimension parallel to the framing members. The long edge of the panel shall abut over centers of framing members. Fit sheathing snugly around all window and door openings. Securely flash the heads of all openings. If using nails, secure sheathing to studs 4 in. o.c. around the perimeter of the board and 3 in. o.c. in the field of the board (if using staples, secure sheathing to studs 3 in. o.c. around the perimeter of the board and 6 in. o.c. in the field). Staples shall be driven with the crown at right angle to the paperbound edge of the sheathing. This shall be done in a manner which assures that the crown will bear tightly against the sheathing—but not cut into the face paper. The legs of the staples shall be no less than $\frac{3}{8}$ in. from the ends and edges of the sheathing.

EXTERIOR FINISHES:

Note: Generally, building paper is not required over gypsum sheathing.

Wood Siding: Apply wood siding directly over gypsum sheathing. Nails shall have a minimum penetration of 1 in. into the stud when driven through the sheathing and into the framing. End joints of siding shall butt over framing members.

Stone or Brick Veneer: Fasten masonry ties for the veneer securely through the sheathing and into the framing, spacing ties as required by masonry courses. Use an 8d nail or larger.

Stucco: Apply stucco mesh according to manufacturer's directions, using self-furring material, furring strips or furring nails. Nail through the sheathing using nails which penetrate at least 1 in. into the framing.

Cement-Asbestos Siding or Wood Shingles: Attach directly to gypsum sheathing, using approved systems or fasteners in accordance with sheathing manufacturer's directions.

Alternate for Shingles: Apply 1 x 2 in. wood furring strips horizontally over the gypsum sheathing, spaced to correspond to the shingle exposure specified. Use nails of sufficient length to provide at least 1 in. penetration into the studs. Nail through the sheathing into the framing with a minimum of one nail at each intersection of stud and furring.



Gypsum Association

201 NORTH WELLS STREET, CHICAGO, ILLINOIS 60606
1350 N. HIGHLAND AVENUE, HOLLYWOOD CALIFORNIA 90028

SGP 0028606



PITTSBURGH TESTING LABORATORY

3120 SOUTH 20th STREET - PHILADELPHIA 45, PA.

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OUR: PH-5756
YOUR: G-1269

R E P O R T

DESCRIPTION - Witnessing Tests of Sheathing Material for Resistance to Racking Under Dry and Wet Conditions on 48" Wide, Square Edge, one-half inch thick, Bestwall Gypsum Sheathing
AT - Bestwall Gypsum Company, Paoli, Penna.
REPORTED TO - Bestwall Gypsum Company, Paoli, Penna. December 28, 1959.

On December 21 and 23, 1959, we visited the Bestwall Gypsum Company at Paoli, Pennsylvania to witness Wet and Dry Racking Tests on the above material.

Test panels, prior to testing, were inspected by us and found to conform with Technical Circular No. 12, Underwriting Division, F. H. A., Washington, D. C.

Test frames were assembled with double end studs which were fastened together with 10 D common nails. Studs were nailed to sole plates with 16 D common nails. Top sole plate was nailed to the top plate with 10 D common nails. No. 1 construction grade wood was used.

Nail spacing on test frames was as follows: 4" on edges, 8" in center. Galvanized roofing nails with a 3/8" to 7/16" head - 1-3/4" long - #11 gage were used. Racking Tests were made in conformance with A. S. T. M. E72-55.

The Dry Series Tests, composing three test panels, were made on December 21, 1959. Deflection was measured with mirror gages. Mirror gage distance was seven feet.

Results of Dry Tests are as follows:

Test Panel	Total Load, Lbs.	At Load of 1200 lbs.		At Load of 2400 lbs.	
		Ave. Total Deflection	Residual Deflection	Ave. Total Deflection	Residual Deflection
No. 1	7400	.08	.00	.16	.07
No. 2	7400	.07	.02	.31	.09
No. 3	8200	.05	.03	.25	.03
Ave. of 3 tests	7666	.066	.017	.240	.063

REMARKS: Load was applied to test panels in increments of 400 lbs.

OUR: PH-5756
YOUR: G-1269

Bestwall Gypsum Company

December 28, 1959

The Wet Series Tests, composing three test panels, were made on December 23, 1959. Deflection was measured with mirror gages. Mirror gage distance was seven feet.

Results of Wet Tests are as follows:

Test Panel	Total Load, Lbs.	At Load of 1200 Lbs.		At Load of 2400 Lbs.	
		Ave. Total Deflection	Residual Deflection	Ave. Total Deflection	Residual Deflection
No. 1	5600	.09	.00	.27	.10
No. 2	5000	.10	.02	.35	.11
No. 3	5000	.09	.00	.22	.08
Ave. of 3 tests	5200	.093	.007	.280	.097

Remarks: Load was applied to test panels in increments of 400 lbs.
Panels exceeded the requirements for Racking Strength without diagonal corner bracing as specified in Technical Circular No. 12 titled -
"A Standard for Testing Sheathing Materials for Resistance to Racking."

J. Connelly, Inspector.

PITTSBURGH TESTING LABORATORY

R. J. Vurpillat
Manager Philadelphia District

RJVurpillat

(2 of 2)

SGP 0028608



FIREPROOF GYPSUM SHEATHING

FIREPROOF

LOW COST

LESS WASTE

WIND RESISTANT

FAST APPLICATION

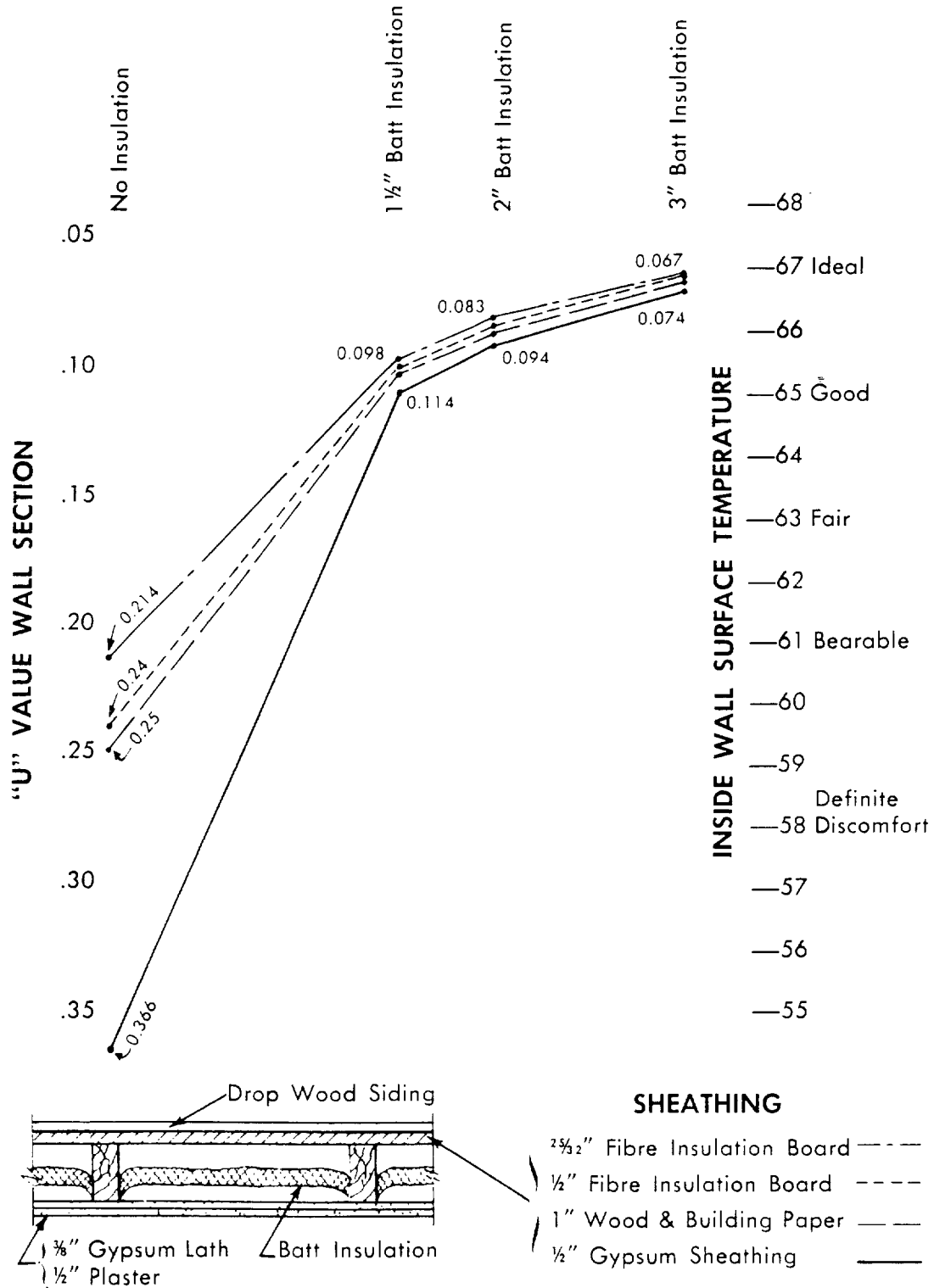
2' WIDE TONGUE AND GROOVE EDGE

WATER REPELLENT (Meets ASTM C79-54)

4' WIDE SQUARE EDGE (No Corner Bracing Required)

SGP 0028609

COMPARATIVE EXTERIOR WALL INSULATION



"U" VALUE BASED ON WOOD EXTERIOR SIDING 79 INSIDE, 0 OUTSIDE — USING F.H.A. FIGURES

Bestwall Fireproof Gypsum Sheathing when used with blanket insulation gives you high insulating value at a much lower cost. The above chart shows how Bestwall Fireproof Gypsum Sheathing combined with sufficient batt insulation provides practically the same surface temperature as other sheathings of the same or greater thickness and the same batt insulation. Yet Bestwall Fireproof Gypsum Sheathing costs from 20 to 50% less per thousand sq. feet than other sheathing materials after erection.

SGP 0028610

COMPARATIVE EXTERIOR WALL COSTS

MIDWEST AREA COSTS FOR MATERIAL AND HOURLY WAGE RATE OF \$4.00

Based on 1000 square feet of sheathing (or sheathing for a single family, one story home 26' x 40') using various combinations of insulation, exterior sheathing and interior finishes with the same exterior siding.

TYPE OF WALL	"U" VALUE (1)	1/2" BESTWALL FIREPROOF GYPSUM SHEATHING	25/32" FIBERBOARD	3/8" PLYWOOD	1" x 8" SHIP-LAP	NAILS	LABOR NAIL DRIVING	LABOR CUTTING, FITTING, HANDLING	BUILDING PAPER LABOR AND MATERIAL	DIAG. CORNER BRACING LABOR AND MATERIAL	2" INSUL. LABOR AND MATERIAL	1/2" BESTWALL GYPSUM WALLBOARD	1/2" BESTWALL INSULATING GYPSUM WALLBOARD	WASTE	TOTAL
3/8" Plywood (4' x 8') 1/2" Bestwall Gypsum Wallboard	.303			\$130		\$1.44	\$ 8.90	\$24.25				\$60.00		\$ 5.20	\$229.82
1" x 8" Wood—Horizontal 1/2" Bestwall Gypsum Wallboard	.250				\$138	\$3.75	\$14.20	\$60.63	\$25.75	\$22.00		\$60.00		\$35.00	\$359.33
25/32" Fiberboard (4' x 8') 1/2" Bestwall Gypsum Wallboard	.217		\$120			\$4.29	\$17.80	\$24.25				\$60.00		\$ 4.80	\$231.14
3/8" Plywood (4' x 8') 1/2" Bestwall Insulating Gypsum Wallboard	.228			\$130		\$1.44	\$ 8.90	\$24.25					\$75.00	\$ 5.20	\$244.79
1" x 8" Wood—Horizontal 1/2" Bestwall Insulating Gypsum Wallboard	.197				\$138	\$3.75	\$14.20	\$60.63	\$25.75	\$22.00			\$75.00	\$35.00	\$374.33
25/32" Fiberboard (4' x 8') 1/2" Bestwall Insulating Gypsum Wallboard	.173		\$120			\$4.29	\$17.80	\$24.25					\$75.00	\$ 4.80	\$246.14
3/8" Plywood (4' x 8') — 2" Batts, 1/2" Bestwall Gypsum Wallboard	.094			\$130		\$1.44	\$ 8.90	\$24.25			\$78.00	\$60.00		\$ 5.20	\$307.79
1" x 8" Wood—Horizontal, 2" Batts 1/2" Bestwall Gypsum Wallboard	.088				\$138	\$3.75	\$14.20	\$60.63	\$25.75	\$22.00	\$78.00	\$60.00		\$35.00	\$437.33
25/32" Fiberboard (4' x 8') 2" Batts 1/2" Bestwall Gypsum Wallboard	.082		\$120			\$4.29	\$17.80	\$24.25			\$78.00	\$60.00		\$ 4.80	\$309.14

"U" VALUE BASED ON WOOD EXTERIOR SIDING 70" INSIDE - 40" OUTSIDE USING F.H.A. FIGURES

DEDUCT \$14.82 WHEN 4" NAIL SPACING IS USED IN PLACE OF CORNER BRACING

DEDUCT \$15.63 WHEN 4" WIDE SHEATHING IS APPLIED VERTICALLY WITH NAILS 1" ON CENTER AROUND EDGES AND 3" ON CENTER IN FIELD AND NO CORNER BRACING

NOTE—Material and labor costs of wood studs, wood siding and labor costs for erecting interior wallboard which are common to all types of construction, are not included. Notice the cost of constructions with Bestwall Fireproof Gypsum Sheathing in the above table are less than the cost of constructions with comparable "U" factors.

PROVE TO YOURSELF THAT . . .

BESTWALL FIREPROOF GYPSUM SHEATHING GIVES YOU THE LOWEST COST FOR THE JOB REQUIRED

PUT YOUR COST FACTORS IN THE PROPER PLACES IN THE TABLE ABOVE . . .

(or figure the "U" value and cost of your wall construction to see where it fits in the table).

SGP 0028611

For performance and value, no other type of sheathing matches Bestwall Fireproof Gypsum Sheathing. Dollar for dollar no other type of sheathing gives you as many advantages.

Bestwall Gypsum Sheathing is fireproof, water-repellent and wind-tight. The interlocking "V" joint construction of 2' x 8' Bestwall Gypsum Sheathing gives a tighter, stronger joint—makes sheathing easier to apply. Building paper (except under a few local Building Codes) is not required.

Bestwall Fireproof Gypsum Sheathing is reinforced with textile glass filaments providing stronger gypsum sheathing at no additional cost.

Because it's tailored to meet construction demands, Bestwall Fireproof Gypsum Sheathing reduces waste to under 5%. One man working 8 hours can put up as much as 1500 feet. And you save even more on labor and material costs because Bestwall Gypsum Sheathing requires less nailing.

Bestwall Fireproof Gypsum Sheathing, 4' x 8' or 4' x 9', applied vertically, eliminates need for corner bracing. Tested and proven to meet requirements of F.H.A. Technical Circular #12.

Bestwall Fireproof Gypsum Sheathing is so low in price you'll save big money on over-all costs and when it is combined with supplemental insulation in areas where it is needed, you will effect the greatest economy.

Anyway you look at it, Bestwall Fireproof Gypsum Sheathing is a builder's best buy. Meets F.H.A. Minimum Property Standards and Building Codes.



BESTWALL CERTAIN-TEED SALES CORPORATION
ARDMORE, PENNSYLVANIA

SGP 0028612



**A. sum
Products**

SGP 0028614

GYPSUM WALLBOARD MANUAL

1965 EDITION

JOINT TREATMENT

A. DEFINITION

Joint System is the material with which gypsum wallboard joints are reinforced and concealed. This general term includes 8 products: Joint Compound, Bedding Compound, Topping Compound, All Purpose Compound, Ready Mix Joint Compound, One Day Wallboard Joint Compound, Bestex Texture, and Joint System Tape.

B. PRODUCTS

1. Joint Compound is a dual-purpose product used for both taping and finishing. The advantage to using this product is the necessity for having only a single product, on the job, to complete all the joint work. It is yellow in color but can also be obtained white from some plants.
2. Bedding Compound is specifically designed for taping, first coating corner bead and nails. Since it is used for this express purpose, we are able to build into this product the maximum taping and adhesive qualities necessary.
3. Topping Compound is specifically designed for finishing joints, corner bead and nailheads. Used for this express purpose, we are able to reduce the amount of adhesive and incorporate other raw materials which make the product easier sanding, better working, and possess lower shrinkage. We have three toppings available: regular topping (yellow in color), a white topping, and Western Topping which is a longer working topping than our regular topping and is used in relatively dry areas.
4. All Purpose is a product marketed to compete with other low cost compounds on the market. It is used for taping, finishing, nail spotting, and texturing; but it is not the best product for any of these applications. All Purpose is sold only in areas where there is competition from other low cost products. It has no real advantage over any of the other joint system products in the line.

5. Ready Mix Joint Compound is a prepared wet mix product which is used for taping and finishing joints, cornerbead, and nailheads. It has excellent storage life, working properties, sandability, and low shrinkage. It eliminates the necessity for job mixing, thus producing more uniform end results.
6. One Day Wallboard Joint Compound is a setting type material as opposed to all other joint products which are of the drying type. It is used for Taping and all coats preceeding the final coat on joints, cornerbead and nailheads. Any of the other finishing compounds can be used as the final coat over One Day applications. Since it is a setting type product, it offers the advantage of completing a given job in a single day. When once set, One Day does not shrink; thus eliminating delayed shrinkage problems. A primer must be used over One Day applications prior to texturing.
7. Bestex Textures:
 - a) Bestex #1 is used for hand texturing application, roller, brush, sponge, etc.
 - b) Bestex #2 is a spray application texture to which perlite or like aggregate may be added from $1\frac{1}{2}$ to 13 lbs/25 lb. bag depending upon the desired texture finish. This makes this product a very versatile texture. It is the whiter of the two textures.
 - c) Bestex A is a plain (no aggregate) texture for spray application. This product is currently being field tested and will be released shortly.
 - d) Bestex B is a sand finish (fine aggregate) texture for spray application only. This product is currently being field tested and will be released shortly.
 - e) Bestex C is a simulated acoustic (coarse aggregate) texture for spray application only. This product has just been released.
 - f) Bestex D is a coarse texture for spray application direct to masonry ceilings. Irregularities in the concrete are to be grouted in with bedding compound prior to the application of the texture. This product is currently being field tested and it is expected that it may be released shortly.
For best results, a vinyl primer should be applied prior to the application of any of the texture products.
8. Joint System Tape - We have available a spark perforated tape which has very low expansion properties, thus minimizing edge wrinkling and edge cracking.
9. Laminating Compound is another product which comes under the Joint System line, although its function is not to conceal joints. Laminating Compound is a product developed for the sole purpose of laminating two gypsum boards together. Most gypsum companies recommend joint compound for lamination because they do not have a laminating compound to offer. Laminating Compound has several advantages over joint compound for laminating wallboard:

9. Laminating Compound (continued)

1. More intimate and more permanent bond
2. Easier to spread
3. Longer open life
4. More Economical

10. Gorbit - The final product we will discuss which comes under the Joint System line but also does not function as a joint concealing material is Gorbit. Gorbit was designed for adhering gypsum wallboard to interior masonry or concrete walls. It is a setting type material which is used at a heavy consistency, such that irregularities in the masonry or concrete wall can be overcome. This product eliminates the necessity for furring.

C. JOINT SYSTEM PROBLEMS & MEANS FOR PREVENTING & CORRECTING:

The product sheet is self-explanatory and should be used as a guide in handling joint system problems in the field.

PROBLEMS WHICH CAN OCCUR IN
JOINT TREATMENT
(cont.)

Section 6

Sub-Section A

Joint Treatment Conditions	Cause	Remedy or Prevention
Starved Joints	Delayed shrinkage (not allowing preceeding coats to dry). Insufficient cement applied over tape to fill recess. Over sanding.	Allow sufficient drying time between coats of cement. Keep sanding to a minimum.
Blisters in Tape	Insufficient cement under the tape. Tape not initially pressed into good contact with the cement.	Open up blister by slitting tape. Fill cut with cement and press tape back in place.
Poor Bond	Freezing of wet cement in pail or on wall after application. Insufficient soaking time.	Protect from freezing. Allow necessary soaking time.
Cracks in Inside Corners	Too much cement over the tape at apex of angle.	Wipe down corners correctly, leaving only a small amount or no cement in the apex.
"Burn Thru" or Joints Showing Thru Paint	1. Painting before the joint system is completely dry. 2. Crowning the joints will cause a difference in light reflection. 3. Difference in texture and suction between cement and board. 4. Painting with paint having poor hiding properties - thinning paint too much.	1. Allow sufficient drying time. 2. Avoid high crowns. 3. Apply primer or skim coat. 4. Avoid excessive thinning of paints.

(Same is true for textures as well as paints.)

BESTWALL VERSUS COMPETITIVE PRODUCTS (U.S.G & NATIONAL)

JOINT COMPOUNDS

1. Mixing - Competitive products must be mixed very stiff initially, whereas our products are mixed at about the consistency they will be used.
2. Stability - After mixing our products stiffen, whereas competitive products thin out. Our joint compounds retain their consistency, whereas the competitive compounds continue to thin out, particularly in warm weather. This means the applicator must add dry powder to the competitive products to retain the desired consistency.
3. Plasticity - Our products have, in general, more plasticity than competitive products. Plasticity enables better control to be had in applying our products with both hand and Ames tools. This means better shearing and feathering qualities.
4. Shrinkage - In general, our products have lower shrinkage than similar products of our competitors. Our Topping Compound has lower shrinkage than any competitive casein base compounds that we have tested.
5. Durability - Our products develop greater strength and water resistance over a period of time. After 30 days standing, competitive products turn to mush when rewetted, whereas our products retain their integrity when rewetted. In other words, our products develop a resistance so dampness and wetting whereas other joint compounds do not.
6. Quality Control - While our joint system business has been increasing the number of complaints has been decreasing, so this is a strong indication of high quality standards. We have no way of determining how competitors are doing in this respect.

LAMINATING COMPOUND

There is no competitive material to match our product. Ease of mixing, strong water resistant bond, good coverage, and low cost are the main advantages. Competitors recommend joint compounds which are not designed for lamination.

BESTEX TEXTURES

Our combination of Bestex #1 and Bestex #2 gives the applicator both excellent hand application and spray application products.

BESTEX TEXTURES (continued)

The spray application, Bestex #2, has several advantages over competition:

1. Whiteness - second to none
2. Versatility - through the addition of various amounts and grades of perlite or similar aggregates, numerous varieties of texture finishes can be obtained. Competitive textures which have premixed aggregate do not possess this versatility.
3. Coverage and Economics - the excellent coverage and local aggregate addition on the job makes this the most economical texture product available.

JOINT SYSTEM PRODUCTS

Bestwall offers a complete line of Joint System Products, designed to conceal joints and nail heads, and to "surface-weld" Bestwall Gypsum Wallboard panels together. Properly used, these products assure smooth, seamless appearance of walls and ceilings, with joints made as strong as the wallboard itself. When application is completed, the surface is ready for priming and decoration as desired with no further preparation necessary.

Bestwall Joint System products are easy to use. Instructions are included on each container. These products are economical and versatile.



BESTWALL®

The Bestwall line includes:

- | | |
|-------------------------------------|---|
| 1. Joint System (Compound and Tape) | 7. Grabit |
| 2. Joint Compound | 8. 1-Day Wallboard Joint Compound |
| 3. Bedding Compound | and the newest addition to the Bestwall line: |
| 4. Topping Compound | |
| 5. Tape | 9. Ready Mix Joint Compound |
| 6. Laminating Compound | |

Plus these products for special finishing use:

1. Bestex #1 and Bestex #2
2. Spackling Compound
3. Patching Plaster

PRODUCT USES

All building and remodeling wherever gypsum wallboard is used.

DESCRIPTION AND PACKAGING

1. BESTWALL WALLBOARD JOINT COMPOUND

This is a plasticized adhesive, used for bedding and topping Bestwall Tape and for spotting nail heads. Also forms a strong, durable bond between layers of gypsum wallboard, in 2-ply laminated construction. The compound, a dry powder, is easily mixed with water. Shrinkage is low. Easy and economical to use, this Bestwall compound is available as follows:

In Bags: 25 lb.; and 18 lb. with 250' roll of Bestwall Tape.

In Cases: 5 lb., packed 6 per carton; 4 lb. with 60' roll of Bestwall Tape; or 4 lb. with 60' roll of Bestwall Tape; and plastic knife.

Approximate requirements: 60 lbs. of compound per 1,000 sq. ft. gypsum wallboard.

2. BESTWALL BEDDING COMPOUND

Specially formulated for bedding tape, providing maximum adhesion to joints. Spreads smoothly and evenly, to assure best appearance. This economical compound can be applied easily, using a standard hand tool or Ames Applicator.

Bestwall Bedding Compound can be used to best advantage on large projects or custom work, as part of a 2-material treatment in combination with Bestwall Topping Compound. Use approximately 20 lbs. Bestwall Bedding Compound and 40 lbs. Bestwall Topping Compound per 1,000 sq. ft. of gypsum wallboard.

Available in 25 lb. bags only.

SGP 0028621

JOINT SYSTEM PRODUCTS (Continued)

3. BESTWALL TOPPING COMPOUND

This compound is designed for finishing taped joints and for spotting nail heads. It leaves surfaces smooth, ready for final finishing. When necessary, sanding is easy. 2-material use is recommended, in combination with Bestwall Bedding Compound.

Available in 25 lb. bags only.

(Note: Do not use Bestwall Topping Compound for embedding tape)

4. BESTWALL TAPE

Full-width, center-creased tape with skived edges. Bonding qualities are excellent. Porosity permits rapid drying of joint compound. Easy to use, economical, low expansion. Stabilized against varying conditions of humidity.

Width 2".

Available in 60', 250' and 500' rolls as follows: 250' rolls packed 20 per box, approx. 29 lbs.; 500' rolls packed 10 per box, approx. 28 lbs.; 60' rolls packed 60 per box, approx. 24 lbs.

5. BESTWALL LAMINATING COMPOUND

(See separate sheet)

6. BESTWALL GRABIT

(See separate sheet)

7. BESTWALL 1-DAY WALLBOARD JOINT COMPOUND

This new wallboard joint compound, developed through Bestwall research, is to be used for taping, topping, concealing nail heads and corner bead in gypsum wallboard construction.

This product, which mixes easily with water, is formulated to set and harden in 2½ to 3 hours. Working life is approximately 2 hours. When set, Bestwall 1-Day Wallboard Joint Compound *will not shrink*.

Final tight coat should be Bestwall Topping Compound, or other Bestwall Finishing Compounds as desired. Where joint system textures are to be used as part of the decor-

ating scheme, a vinyl primer sealer or equivalent must be applied to the entire surface prior to texturing. Available in 25 lb. bags.

8. BESTWALL READY MIX JOINT COMPOUND

(See separate sheet)

PRODUCTS FOR SPECIAL FINISHING

1. BESTWALL BESTEX

A special texturing compound, designed to produce white decorative finishes with excellent light-reflecting qualities.

Bestex #1 is excellent for hand application. For light texture, use approximately 12 lbs. per 1,000 sq. ft. of gypsum wallboard; for heavy texture, 50 lbs. per 1,000 sq. ft. of gypsum wallboard.

Bestex #2 is designed for spray application. Perlite may be added in quantities from 2 lbs. up to 13 lbs. per 25 lbs. of Bestex #2. Gives widest possible range of textures desired. For light texture, use approximately 16 lbs. per 1,000 sq. ft. of gypsum wallboard; for Simulated Acoustic texture, use 90 lbs. of Bestex #2 plus 45 lbs. of fine Perlite per 1,000 sq. ft. of gypsum wallboard.

Both products are available in 25 lb. bags.

Bestex #1 is also available in 5 lb. boxes, packed 6 to the carton.

2. BESTWALL SPACKLING COMPOUND

Fills small holes and cracks in plaster and other surfaces before decorating.

Available in 25 lb. bags, or in 5 lb. boxes packed 6 to the case.

3. BESTWALL PATCHING PLASTER

Used for repairing large areas and cracks before painting.

Available in 25 lb. bags, or in 5 lb. boxes packed 6 to the case.

SGP 0028622

READY MIX JOINT COMPOUND

DESCRIPTION

Ready Mix Joint Compound is an easy-working material ideal for the filling of joints, and embedding the joint reinforcing tape in gypsum wallboard construction. Furnished in cans ready to use, this stable, all purpose compound is also excellent for use in covering nailheads and forming interior and exterior angles. Ready Mix Joint Compound assures a standard mixture for uniform workability throughout the job. It has a long wet life and will not spoil even when the pail is opened. Ready Mix Joint Compound is completely compatible with Bestwall 1-Day Wallboard Joint Compound and may be used for the topping coat over Bestwall 1-Day Wallboard Joint Compound. Ready Mix Joint Compound produces an excellent surface for any type of decoration. For best results, surface should be primed before being decorated.



BESTWALL®

ADVANTAGES

- No water needed — overcomes job mixing
- Convenient for touchup work where only a small amount of material is needed
- Very little consistency change
- Does not have tendency to spoil
- Fast tool clean-up
- Smooth, easy-sanding finish
- Low shrinkage
- No waste — use only what's needed
- No paint discoloration
- Neater jobs — will not stain wood flooring
- Provides smooth, seamless beauty

PRODUCT USE

Reinforcement and concealment of joints to produce smooth, unbroken wall surfaces in gypsum wall-

board construction. Also used for covering nailheads and forming interior and exterior angles.

DATA

Packaging: 5 gallon pails; 1 gallon cans, packaged four cans to a carton.

Color: White; yellow on request.

Application: Apply to joints, leaving a uniform thickness of material under the tapes. Apply first coat over tapes as soon as compound is completely dry. Fill corner bead. Treat nailheads at same time. Apply any further coats after previous coats are completely dry.

SGP 0028624

1-DAY WALLBOARD JOINT COMPOUND

DESCRIPTION

Bestwall 1-Day Wallboard Joint Compound is a new product developed through Bestwall research and field-tested through Bestwall Systems Engineers. It is designed for taping, concealing nail heads and corner bead in gypsum wallboard construction.

This new compound makes possible the taping and finishing of all wallboard joints within a single day. It is used for all coats preceding the final coat. The compound, a "setting" material, is formulated to harden in 2½ to 3 hours. When hardened, Bestwall 1-Day Wallboard Joint Compound will not shrink. This solves a major problem of wallboard installation, by eliminating days of heating unfinished homes and buildings, time lost traveling to and from jobs, and long delays while waiting for conventional materials to dry and harden. And because there is no shrinkage, quantity of compound and number of coats applied may be reduced.



BESTWALL

ADVANTAGES

- Makes possible taping and finishing of all wallboard joints within a single day
- Sets and hardens in 2½ to 3 hours
- Will not shrink when hardened
- Eliminates 4 to 5 days of delay. Eliminates multi-day heating of building while waiting for compounds to dry and harden. Makes possible faster, more profitable jobs.

PRODUCT USES

For taping and all coats preceding the final coat in the finishing of joints, concealing of nailheads and corner bead in gypsum wallboard construction. It is well suited to high rise construction as well as to homes and other buildings.

DATA

Mixing: Mix 25 lbs. of Bestwall 1-Day Wallboard Joint Compound with 13 pints of water. Allow mix to

soak 5 minutes. Re-mix, adding water if necessary to attain desired working consistency. Working life is approximately 2 hours.

Application: Apply to joints, leaving a uniform thickness of material under the tapes.

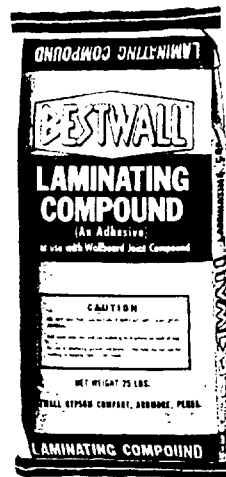
Apply first coat over tapes as soon as compound under tapes has hardened to a point where movement of the tapes will not occur. Fill corner bead. Treat nail heads at same time. Apply final tight coat with Bestwall Topping Compound, or other Bestwall finishing compounds as desired. When joint system textures are to be used as part of the decorating scheme, a vinyl primer sealer or equivalent must be applied to the entire surface prior to texturing. Complete application instructions included in each bag.

Bestwall 1-Day Wallboard Joint Compound is available in 25 lb. bags.

LAMINATING COMPOUND

DESCRIPTION

Bestwall Laminating Compound is an exclusive product formulated to assure adhesion between sheets of wallboard. It is a casein base dry powder product, requiring addition of water only. Easy to mix and easy to apply, it forms a permanent, positive bond. Only 30 to 35 lbs. of the compound are needed for 1000 ft. of glueline, making this a very economical product. Bestwall Laminating Compound has been proven effective through many years of actual field use.



BESTWALL[®]

ADVANTAGES

- Provides strong, permanent adhesion between sheets of wallboard
- Easy to mix, requiring water only
- Needs no more than five minutes soaking time prior to use
- Easy to apply
- Economical
- Water resistant when dry
- Long open time permits flexibility of installation
- No increase in thickness due to bridging

PRODUCT USES

Designed specifically for joining sheets of wallboard together in a permanent, positive bond.

DATA

Consistency: Dry powder, mixes with water to form glue which will not self-level and which retains consistency during application.

Proper mixture is 25 lbs. of Compound added to 4½ gals. of water (5½ lbs. per gal.)

Hardens into a water-resistant solid form. Will not increase thickness due to bridging.

Coverage: Approximately 30 lbs. per 1000 sq. ft. of glueline.

Application: May be applied with an Ames Applicator, or special notched spreader from Bestwall.

Notches should be triangular, 3/16" x 3/16", and 3/4" on center.

Complete instructions for mixing and applying are included on each bag.

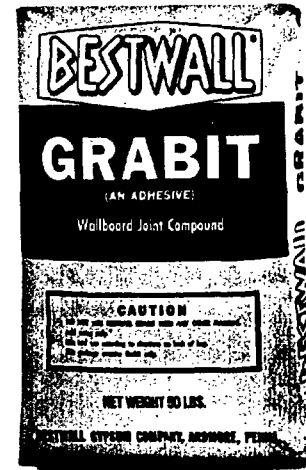
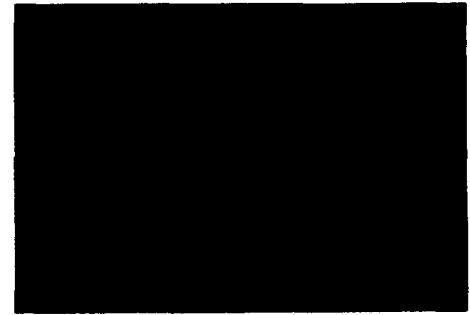
Packaging: 25 lb. bag.

SGP 0028626

BESTWALL GRABIT

Grabit is an adhesive developed by Bestwall which permits direct attachment of gypsum wallboard to interior masonry walls. It may be used on poured concrete, cinder block or concrete block walls which are reasonably straight and true and are free from surface treatment, decoration, or protrusions. Grabit may be used on exterior walls which have been waterproofed on the weather side. Grabit may also be used to adhere gypsum wallboard to polystyrene insulation material.

Adhesion is secure and permanent, with no need for furring strips or fasteners. After being mixed with water as directed, Grabit can be applied with blade or caulking gun. Only four 1" ribbons are needed for each 4' wide wallboard panel. The adhesive fills in all normal irregularities in the masonry. In 3 to 4 hours, Grabit sets hard, and joint taping and finishing operations may then be started. This adhesive may be used wherever there is need to attach gypsum wallboard to interior masonry walls: in homes, apartments, hotels, offices and plants.



BESTWALL®

ADVANTAGES

Eliminates all furring strips or fasteners • Eliminates nail popping • Adhesive is permanent • No special preparation of surface needed • Only water needed for mixing • Easy to apply, only four strips to each wallboard • Sets in 3 to 4 hours.

PRODUCT USES

Designed for direct attachment of gypsum wallboard to interior masonry walls (or to exterior walls which have been waterproofed). Can be used anywhere in residential, commercial, or industrial installations.

DATA

Packaging: 50 lb. bags.

Consistency: Dry powder, mixes with clean water to form a paste plastic enough to be applied with a caulking gun, yet stiff enough so that the bead will not sag or flow. Retains consistency for 2½ hours or longer. Proper mixture is 50 lbs. of Grabit to 10 quarts of water. Fills in all normal irregularities in the masonry. Hardens permanently in 3 to 4 hours.

Surface Preparation: Surfaces should be reasonably straight and true, free of fragments of mortar, splinters from forms, protruding reinforcing rods, etc. Surface out of alignment by 1" or more should be leveled by some suitable means.

Coverage: Up to ¼ lb. per sq. ft. depending on roughness of base surface.

APPLICATION

On the back side of board, apply a 1" ribbon of Grabit to each edge, and two ribbons in the field of the board 16" from each edge. Use mechanical fasteners or a brace where necessary, to hold board in place until adhesive sets.

To align joints, place a 2"x4" over the adjoining board edges and tap with a hammer. If boards are warped, use masonry nails to pull boards into alignment.

Remove all dropping from face of boards before the adhesive sets.

Complete instructions for mixing and applying are included on each bag.

SGP 0028627

AMES TAPING TOOLS

An up-to-date folder is distributed by the Ames Tool Company whose home office is at 505 O'Neill Avenue, Belmont, California. All salesmen should review this carefully to have current information on mechanical tools used in the application of joint finishing materials, laminating compounds, and other items in wall-board application.

Please notice, in running through the folder, that, while some of the items are available "For Sale", the important equipment shown is available on a "Rental" basis. This is one of the oldest companies making such equipment and has tools distributed throughout the United States, Canada and other parts of the world. They continually improve the equipment and, whenever a major change is made, will bring in the old pieces of equipment, replacing them with newer, improved models. Thus, the applicators in the field using Ames Tools rapidly have the advantage of their development and improvement.

Also note the list of the Ames Taping Tool Systems, Inc. Distributors on the back sheet of the folder. Up-to-date stock of all items is maintained in these locations. The personnel service equipment, and promote use of the tools to applicators.

A customer interested in getting some Ames equipment or having such equipment serviced should contact the Distributor closest to him. Where additional information or literature other than what is provided is needed, a note to the nearest Distributor will get most of the information needed very quickly.

Bestwall Laboratory people work continuously with the latest Ames equipment, to be sure Bestwall Joint System Materials work through them. Mr. Ames has been in contact with our Laboratory people from time-to-time and takes the position that his equipment can satisfactorily apply the Bestwall materials that he has seen. He instructs his representatives in the field and his distributors that they are not to promote one Manufacturer's joint system to the exclusion of the other, unless they have definite proof of some problems.

This literature and information about the Ames equipment is sent to you to improve your knowledge of the tools in the trade used with Bestwall materials. It is not meant to recommend this type equipment to the exclusion of other equipment which is available to do the same job, from other manufacturers.

The major selling point of mechanical tools for applying joint system is: speed and quality quickly. There are some applicators who do an excellent job in hand application and who do not have enough work to justify some of these pieces of equipment. Be sure everyone understands that Bestwall Joint System materials can do a satisfactory job in both methods of application.

Ames Taping Tools Distributors

AMES TAPING TOOL SYSTEMS, INC. (NORTHERN CALIFORNIA)

1770 STROBRIDGE AVENUE
CASTRO VALLEY, CALIFORNIA, U.S.A.

AMES TAPING TOOL SYSTEMS, INC. (CENTRAL CALIFORNIA)

P. O. Box 807
505 O'NEILL AVENUE
BELMONT, CALIFORNIA, U.S.A.

AMES TAPING TOOL SYSTEMS, INC. (SOUTHERN CALIFORNIA)

711 WEST COLLINS AVENUE
ORANGE, CALIFORNIA, U.S.A.

AMES TAPING TOOL SYSTEMS, INC. (ILLINOIS)

5233 ST. CHARLES ROAD
BERKELEY, ILLINOIS, U.S.A.

AMES TAPING TOOL SYSTEMS, INC. (DELAWARE)

8 EAST THIRTY-SEVENTH STREET
WILMINGTON, DELAWARE, U.S.A.

AMES TAPING TOOL SYSTEMS, INC. (TEXAS)

P. O. Box 327
Highway 183
EULLESS, TEXAS, U.S.A.

AMES TAPING TOOL SYSTEMS, INC. (OHIO)

3927 LAGRANGE
TOLEDO, OHIO, U.S.A.

AMES TAPING TOOL SYSTEMS, INC. (WASHINGTON)

7126 BEACON AVENUE
SEATTLE, WASHINGTON, U.S.A.

AMES TAPING TOOL SYSTEMS, INC. (GEORGIA)

183 RIO CIRCLE
DECATUR, GEORGIA, U.S.A.

AMES TAPING TOOLS OF CANADA, LTD.

409 NOTRE DAME AVENUE
WINNIPEG 2, MANITOBA, CANADA

MECHANICAL DRYWALL OF AUSTRALIA, PTY. LTD.

P. O. Box 5
SEVEN HILLS, N.S.W., AUSTRALIA

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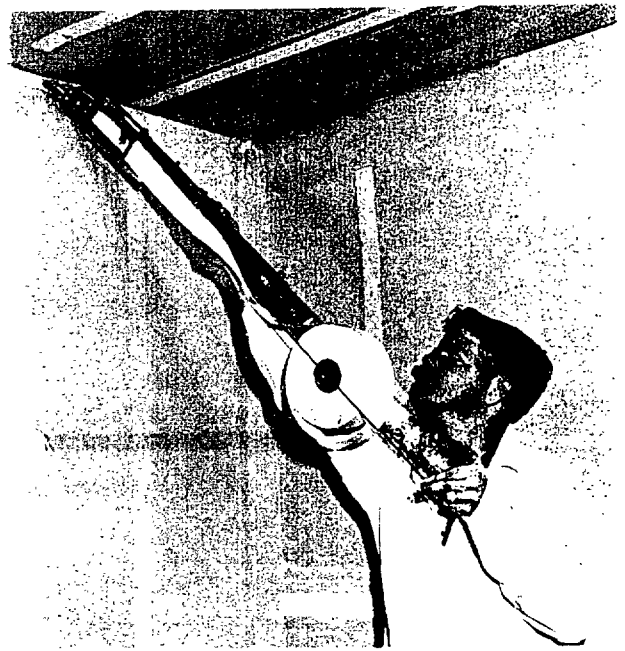
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FORM 39

AMES TAPING TOOLS



*First in Gypsum Drywall
Taping and Finishing*



SGP 0028631

DRYWALL

In the historically slow-to-change building industry, the increased use of gypsum drywall has been spectacular. Billions of square feet of fireproof gypsum wallboard are now being used annually, in the United States and throughout the world to help in the mass production of millions of new living units.

At its humble beginning, it was possible to obtain only three-eighths inch thick gypsum board, nailed to studs. We now observe, however, its present state of development which allows Owners, Architects, and Builders to select their walls from:

- (a) One-half inch wallboard nailed to wooden studs, and having a forty-five minute fire rating.
- (b) One-half inch gypsum wallboard, nailed and glued to wooden studs.
- (c) Five-eighths inch thick gypsum wallboard, nailed to wooden studs, and having a one-hour fire rating.
- (d) Two layer, three-eighths inch thick wallboard, first layer nailed to wooden studs, second layer glued to underlayer with no exposed nails.
- (e) Back blocking to prevent delayed ridging of joints.
- (f) Job fabricated, non-bearing partitions for the elimination of wall studs and the saving of floor space.
- (g) Pre-finished panels of imitation wood grain.
- (h) Many other recent innovations in order to secure the advantages inherent in fireproof gypsum wallboard.

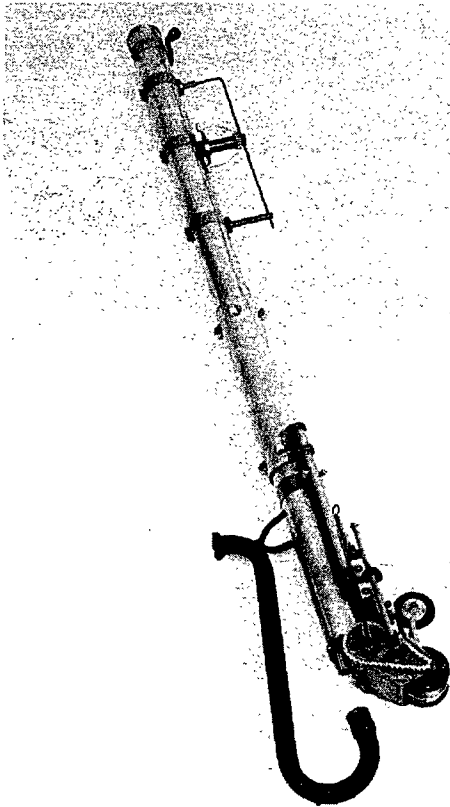
Drywall has become a major factor in the construction industry. Along with this remarkable development of gypsum drywall, "AMES TAPING TOOLS" is closely identified with the growth of gypsum board itself.

THERE ARE AMES TAPING TOOLS TO FIT YOUR JOB

The AMES TAPING TOOLS described on the following pages were developed to provide the highest quality job of taping and finishing gypsum drywall joints at the least cost to the contractor.

AMES TAPING TOOLS:

1. Cut training time.
2. Increase the efficiency of even the best hand tapers.
3. Produce uniform jobs of the highest quality.
4. Speed up each operation.
5. Decrease material cost.



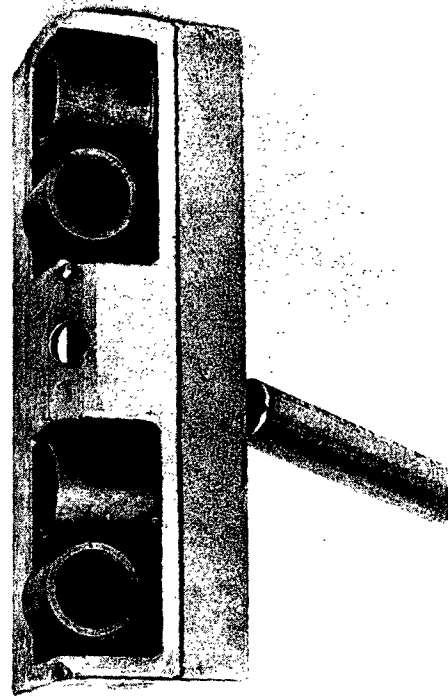
AUTOMATIC TAPER

The Automatic Taper applies tape and cement simultaneously to the flat joints and corners. It automatically dispenses the correct amount of cement under the tape, regardless of the speed at which it is operated.

The tool is designed for high-volume production and although more time is usually required to become proficient with the Automatic Taper than with some of the other tools, the skilled operator can easily repay the small cost of the time spent learning.

The average Automatic Taper operator will apply and wipe from 400-500 lineal feet of tape per hour.

***RENTAL RATE — \$.88 PER DAY**



CORNER ROLLER

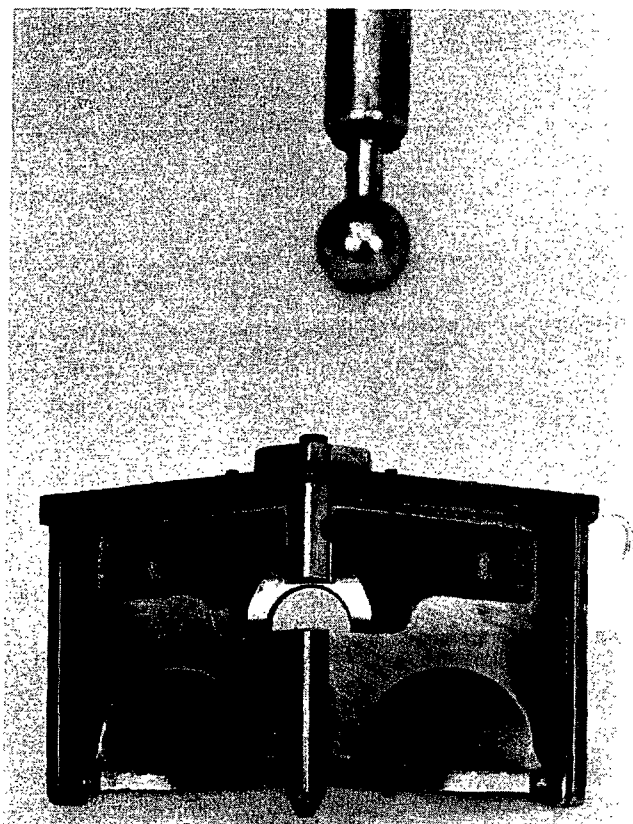
The Corner Roller, designed for forming corners, is used following the application of tape with the Automatic Taper. It imbeds the tape in the corner angles, forcing out the excess cement from under the tape preparatory to finishing.

The Corner Roller can also be used following the operation of laying in the tape by hand with the Corner Applicator and Mud Shoe.

This tool is simple to operate and requires no training period.

***RENTAL RATE — \$.08 PER DAY**

*Furnished Free with rental of
Automatic Taper*



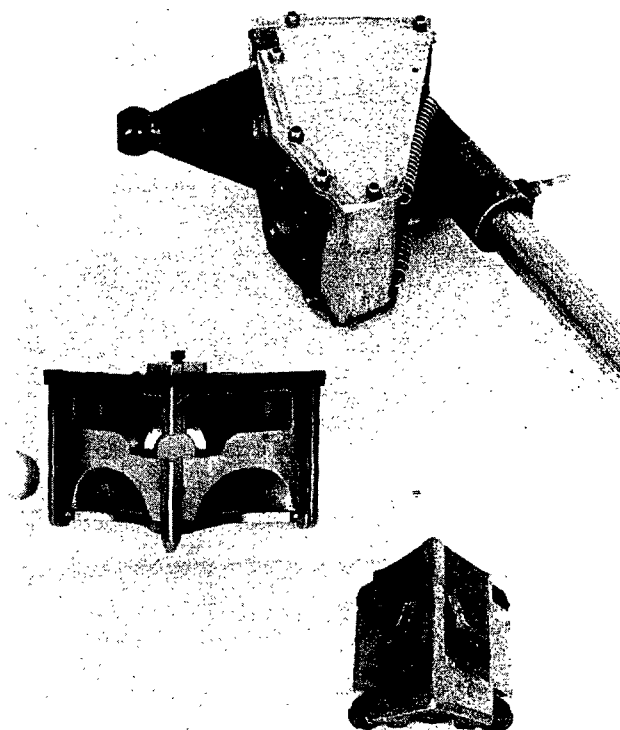
CORNER FINISHER

Available in either 2" or 3" widths, the Ames Corner Finisher distributes the excess cement evenly over the tape, feathering the edges of the cement accurately.

This tool may also be used with the Corner Applicator or Flat Applicator for applying an extra coat of cement over the tape in order to obtain as perfect a corner as possible.

While many mechanics have learned to handle this precision tool very well with no training, we recommend that the new operator receive some instruction from an experienced man before attempting its use.

***RENTAL RATE — \$.27 PER DAY**



CORNER APPLICATOR

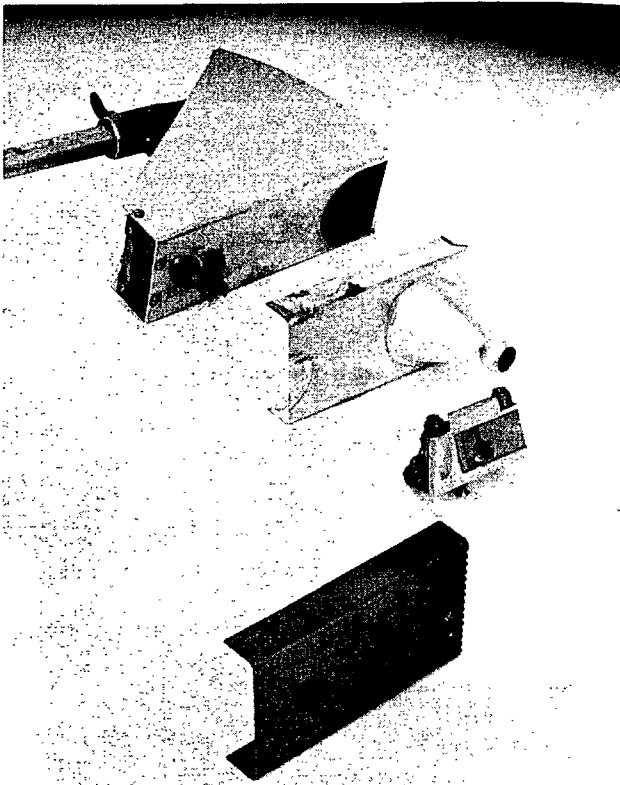
shown with FINISHER AND SHOE

The Corner Applicator applies cement to corners preparatory to laying in the tape by hand. With the Shoe attachment, it cements both sides of the angle at once, thus reducing the time required for applying cement to inside angles.

With the Corner Finisher Attachment, the Corner Applicator is used as the handle and cement carrier, and applies cement over the tape.

Little training time is required to learn to use the Corner Applicator and Shoe.

***RENTAL RATE — \$.16 PER DAY**



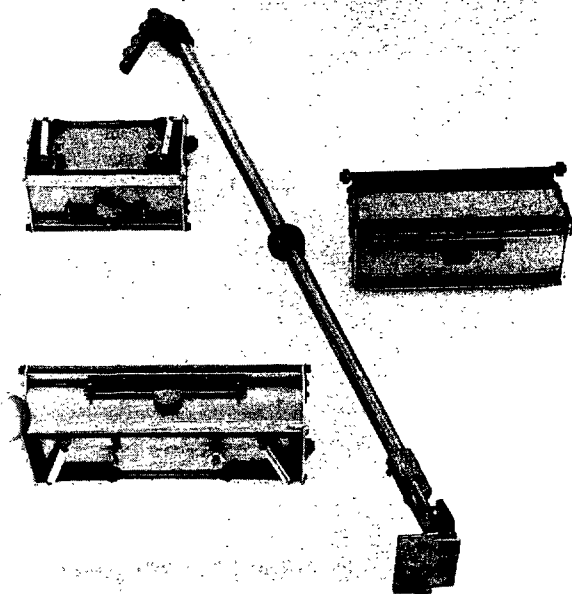
FLAT APPLICATOR *with* ATTACHMENTS

With the Ribbon Applicator Head, the Flat Applicator dispenses ribbons of cement to flat joints preparatory to laying on tape by hand.

With the Cone Base and Corner Shoe, it applies cement to both sides of inside angles simultaneously, and is designed for the contractor doing less than three houses per week.

Usually no training is required to learn to use the Flat Applicator.

***RENTAL RATE — \$.25 PER DAY**



FLAT FINISHERS

The Ames Flat Finishers are available in three widths:

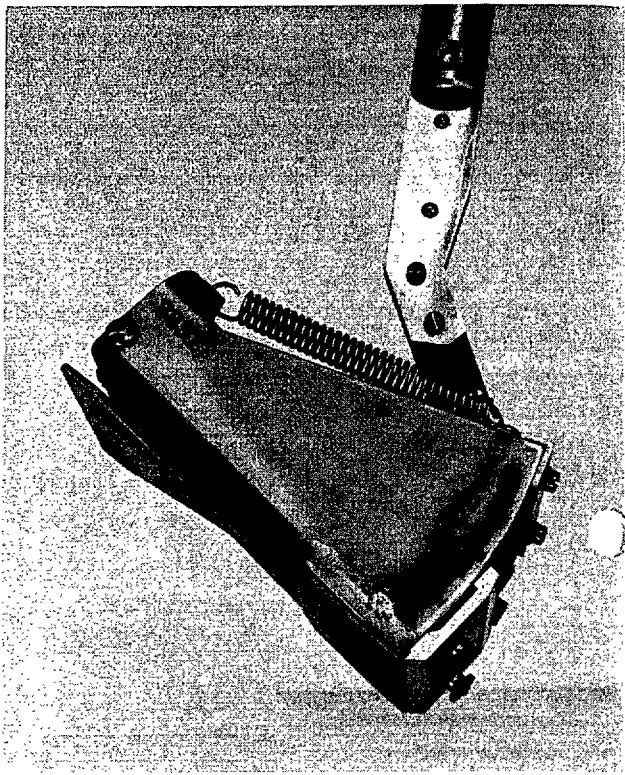
7"—applies the first coat of cement over the tape leaving the cemented area smooth with a feathered edge.

10"—applies the second coat of cement over the tape leaving a finished joint.

12"—Applies a third coat of cement. May be used instead of the 10" Flat Finisher for the second coat if desired.

The Ames Flat Finishers require little training and an inexperienced man can compete favorably as to speed and quality with an experienced hand tapper in a day or two. In a week's time, he should be able to finish joints at a speed that no hand operator can match. The handles for these tools come in three lengths so the operator may work from the floor.

***RENTAL RATE — \$.35 PER DAY EACH SIZE**



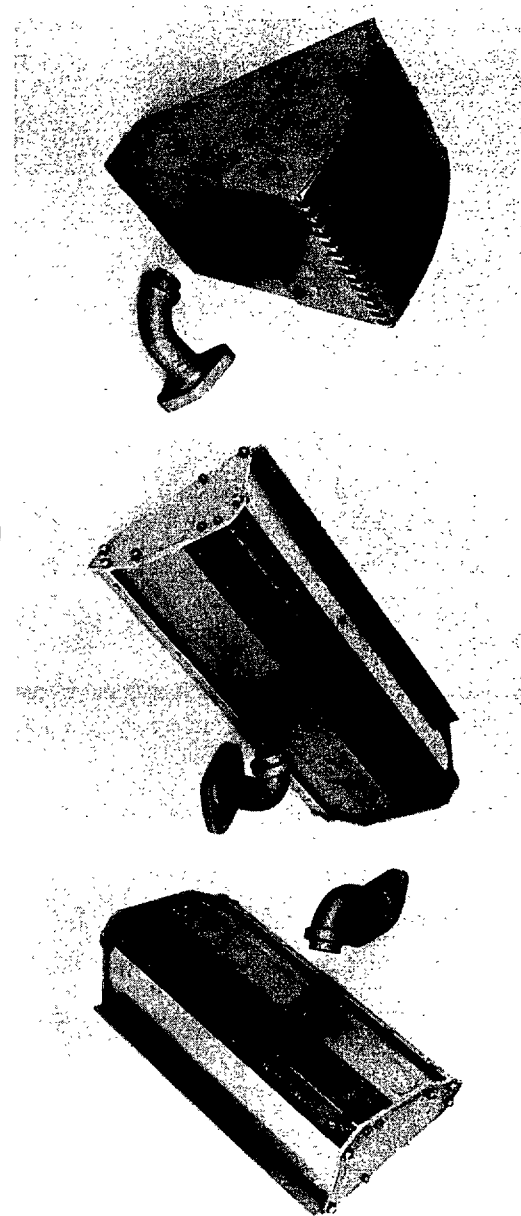
NAIL SPOTTER

The Ames Nail Spotter is used to apply cement to the nail head depressions in one easy motion, while working from the floor.

The tool is light in weight, easy to handle and requires little training to operate efficiently.

The reversible, replaceable Nail Spotter blade is priced at *\$1.50 and becomes the property of the customer.

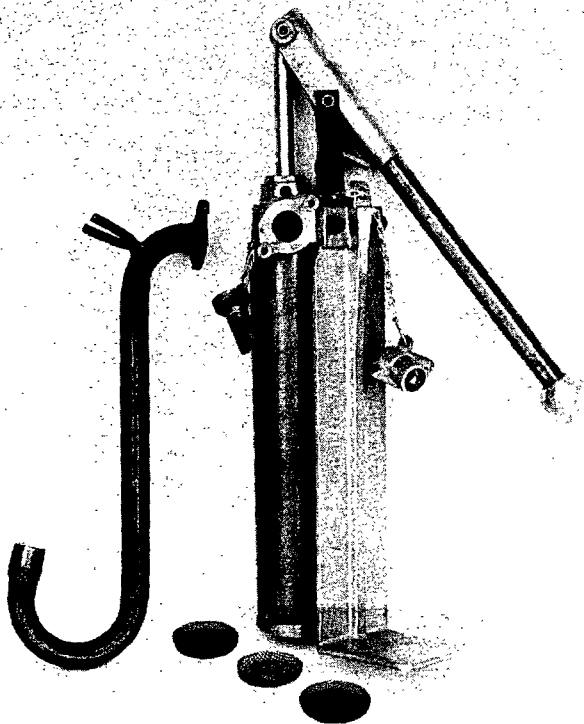
*RENTAL RATE — \$.17 PER DAY



MASTIC SPREADER

The tools shown above are specially designed for uniformly spreading mastic in the double wall system of construction. They apply variously spaced beads of cement to the surface of the first course of gypsum board, to which the second course of gypsum board is applied.

*RENTAL RATE — \$.35 PER DAY



LOADING PUMP

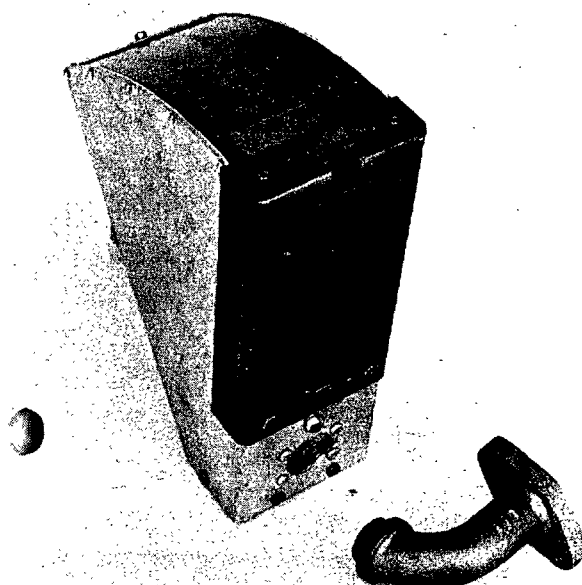
With its various nozzles, the Ames Loading Pump is used to fill the Automatic Taper, the Flat Applicator, the Corner Applicator, the Flat Finishers and the Multiple Bead Spreaders with cement.

The capacity of the pump is such that a minimum of time is lost in filling tools.

A replaceable screen at the intake of the pump assures clean cement with which to work and is available in three different meshes.

The Loading Pump is designed to be used in a standard five gallon pail.

***RENTAL RATE — \$.06 PER DAY**

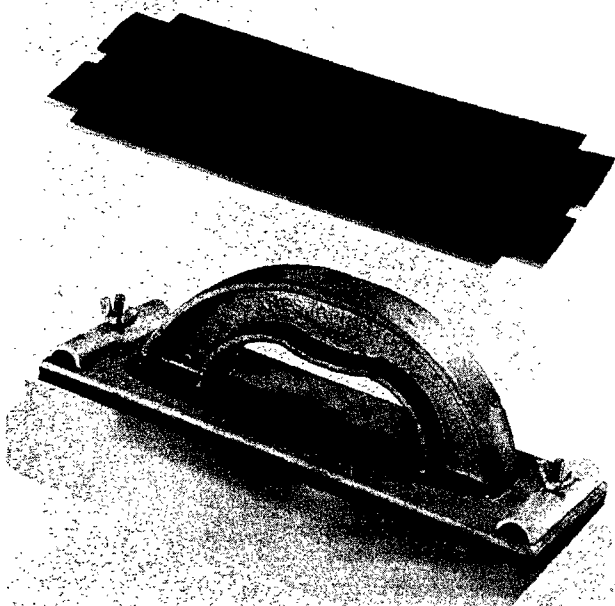


MASTIC SPREADER

(SINGLE BEAD)

The Single Bead Spreader applies a large single bead of mastic and has been developed for bridging irregularities as where steel clips are used to secure the first course of gypsum board.

***RENTAL RATE — \$.35 PER DAY**



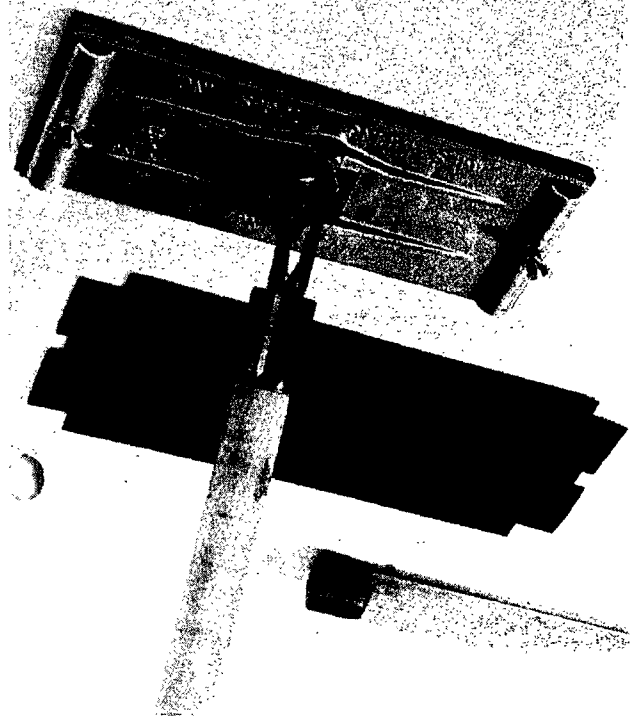
BLOCK SANDER

The Block Sander, useful throughout the taping operation, is used to knock off particles or "crumbs" left on the wall up to the height the operator can reach.

This sander is very popular with workmen for a variety of sanding jobs, and is furnished free with the original set of Ames Finishing Tools.

It may also be purchased separately.

No free maintenance work is performed on sale items.

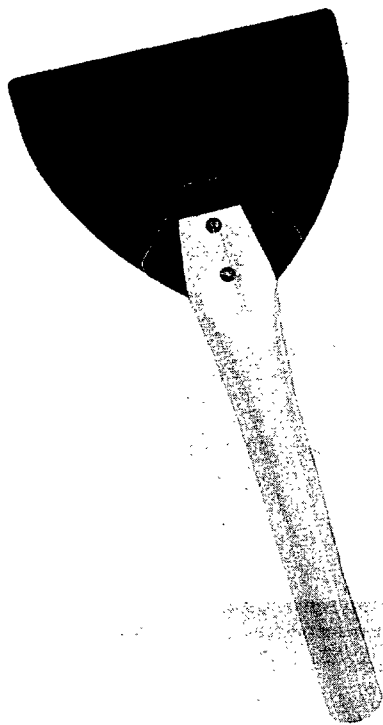


UNIVERSAL SANDER

The Ames Universal Sander is excellent for use on walls and ceilings above the height an operator can reach with the Block Sander. Its patented swivel device makes it possible to sand both the ceiling and wall sides of ceiling angles from the floor.

The Universal Sander is furnished rent free with the original set of Ames Finishing Tools..

It may also be purchased separately



BROADKNIFE

**BLADE WIDTHS: 7" AND 9"
REGULAR AND LONG HANDLES**

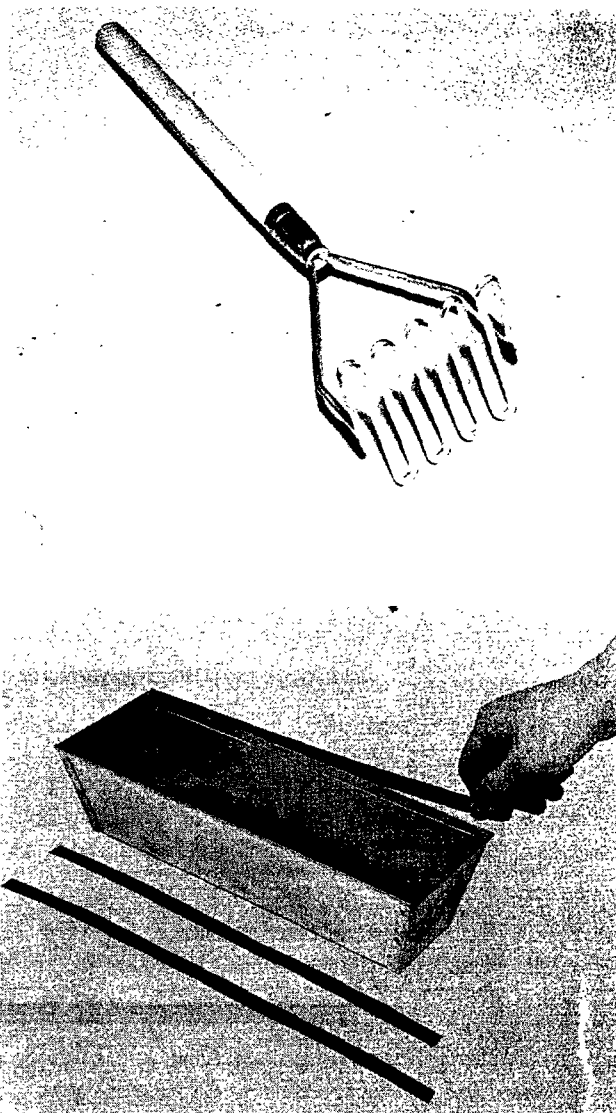
With the Ames Broadknife all wiping can be done from the floor.

The replaceable blade eliminates the expense of purchasing an additional handle.

There is a patented flexible shim plate at the anchor point of the blade which increases the blade resistance to break at this particular stress area.

The Broadknife is furnished free with the original set of Ames Taping and Finishing Tools.

May also be purchased separately

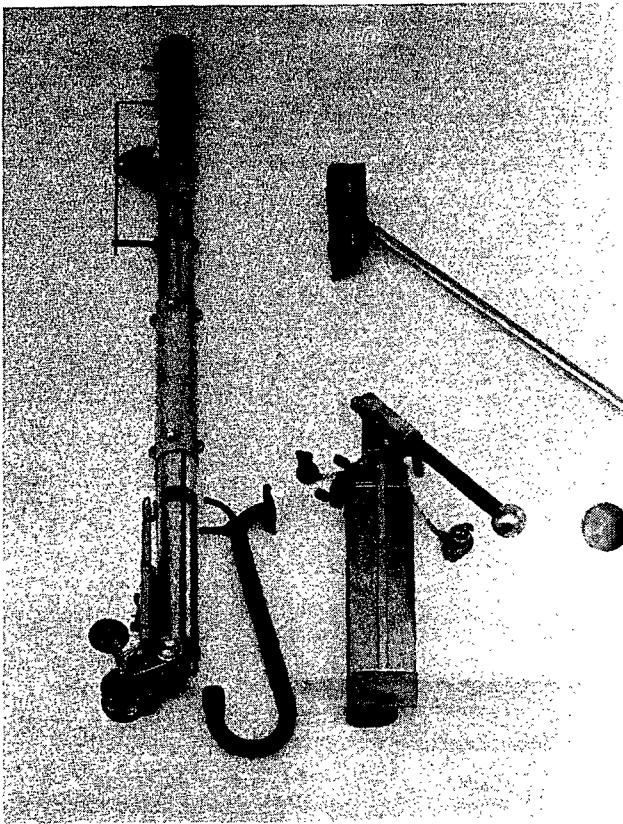


12" BLADE PAN

These items are furnished rent free with the original set of Ames Finishing Tools.

The Cement Mixer is furnished primarily to acquaint the operator with this method of mixing cement and to discourage use of sticks for this purpose as they too often leave trash in the cement.

The 12" Blade Pan is furnished to acquaint the operator with a pan of the proper size and shape and has a patented replaceable blade. They may be purchased from your nearest Ames Distributor.

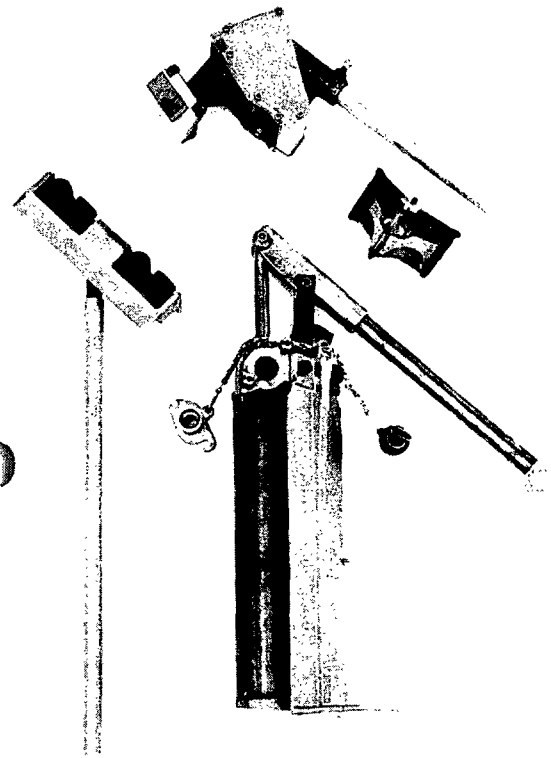


SUGGESTED COMBINATION OF TOOLS FOR TAPING

1 Automatic Taper with Corner Roller .	\$.88
1 Loading Pump	.06
*DAILY RENTAL	\$.94

The above equipment is sufficient for one man to apply tape to flats and angles. If the operator saves only one man hour per day, rental of these tools is highly profitable for the contractor.

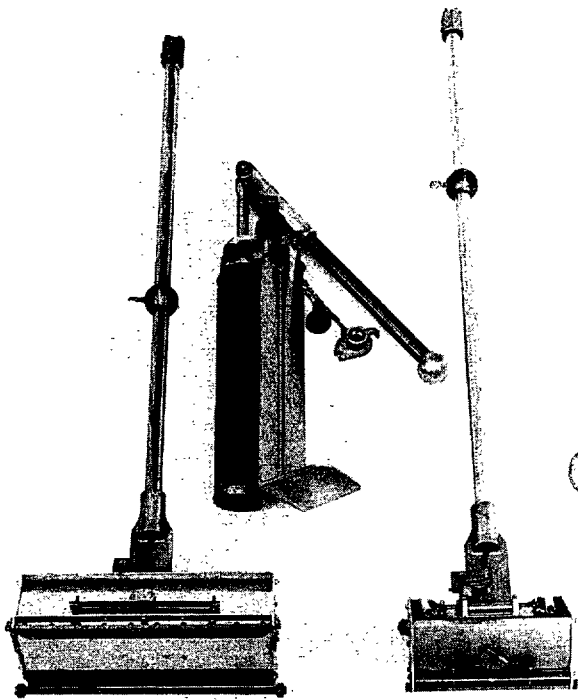
**All rental rates and prices shown apply only to the United States. For rates outside U. S., contact your nearest distributor.*



SUGGESTED COMBINATION OF TOOLS FOR TAPING AND FINISHING CORNERS

1 Corner Applicator	\$.16
1 Corner Roller	.08
1 3" Corner Finisher	.27
1 Loading Pump	.06
*DAILY RENTAL	\$.57

All the equipment necessary for applying the tape in corners and finishing over the tape.



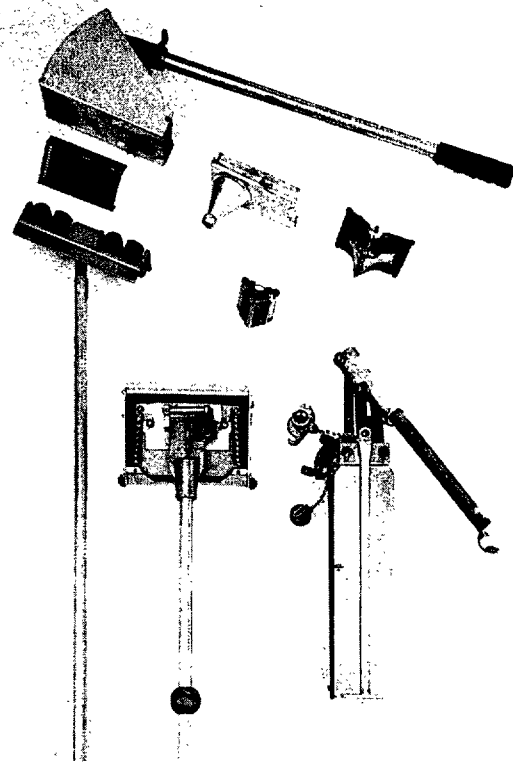
SUGGESTED COMBINATION OF TOOLS FOR FLAT FINISHING

1. 7" Flat Finisher	\$.35
1 12" Flat Finisher	.35
1 Loading Pump	.06

***DAILY RENTAL \$.76**

These tools are required to finish the flat joints. Again the saving of only one man-hour per day will more than justify use of these tools.

The time saved using the Ames Tools varies from one to four hours per day.

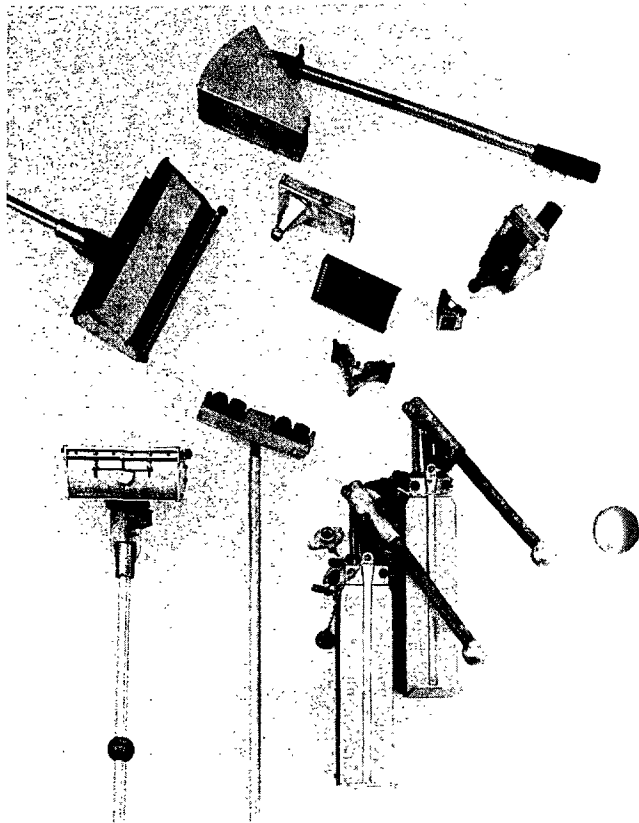


SUGGESTED COMBINATION OF TOOLS FOR LIMITED PRODUCTION

1 Flat Applicator	\$.25
1 7" Flat Finisher	.35
1 Corner Roller	.08
1 Corner Finisher	.27
1 Loading Pump	.06

***DAILY RENTAL \$1.01**

These tools will complete all phases of taping and finishing. One man operating the above tools should effect a substantial saving in time over the best hand tapers.



**RECOMMENDED SET OF TOOLS FOR
THE CONTRACTOR DOING THREE
TO FIVE HOUSES PER WEEK**

1 Corner Applicator	\$.16
1 Flat Applicator	.25
1 Corner Roller	.08
1. Corner Finisher	.27
1 7" Flat Finisher	.35
1 10" Flat Finisher	.35
2 Loading Pumps	.12

***DAILY RENTAL \$1.58**

The above set of tools is sufficient equipment for two men doing three to five houses per week.

These tools should save the contractor at least four times the rental cost.

Any combination of tools may be used. The individual contractor will soon learn which tools best suit his needs.



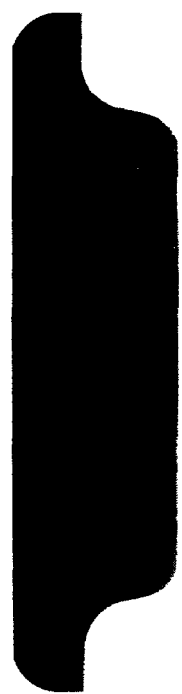
**RECOMMENDED SET OF TOOLS FOR
THE CONTRACTOR DOING MORE
THAN FIVE HOUSES PER WEEK**

1 Automatic Taper with Corner Roller .	\$.88
1 Corner Finisher	.27
1 7" Flat Finisher	.35
1 10" Flat Finisher	.35
1 12" Flat Finisher	.35
1 Corner Applicator	.16
3 Loading Pumps	.18

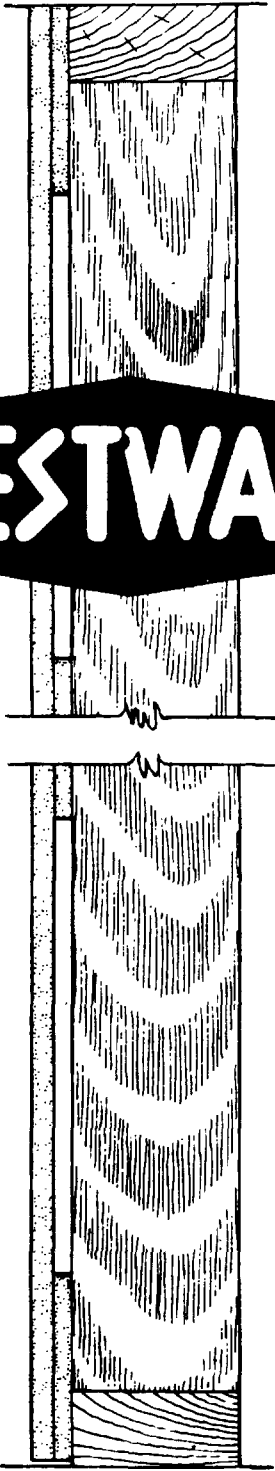
***DAILY RENTAL \$2.54**

This set of tools is sufficient equipment for three operators. The cost is less than \$0.91 per man per day. These tools, when in the hands of experienced Ames operators are the answer to volume taping and finishing. With each man specializing in one operation, excellent speed and quality is attained.

Also, it is not uncommon to cut the time required to tape and finish in half when using Ames Taping Tools.



SGP 0028643



A technical cross-section diagram of a wall assembly. It shows a vertical section with various layers. At the top, there's a layer with diagonal hatching. Below that is a layer with vertical hatching. A horizontal line separates this from another layer with vertical hatching. Below that is a layer with horizontal hatching. At the bottom, there's a layer with diagonal hatching. The diagram is framed by a vertical line on the left and a vertical line on the right.

BESTWALL

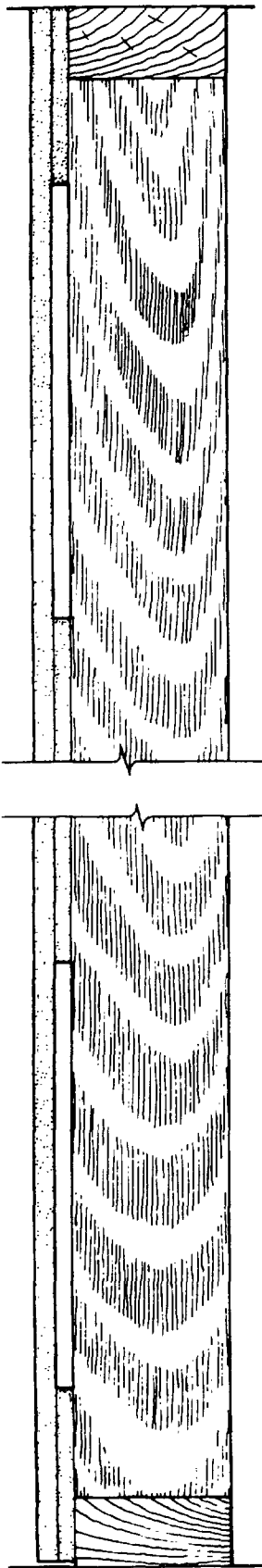
HUMMER SYSTEMS

SGP 0028644

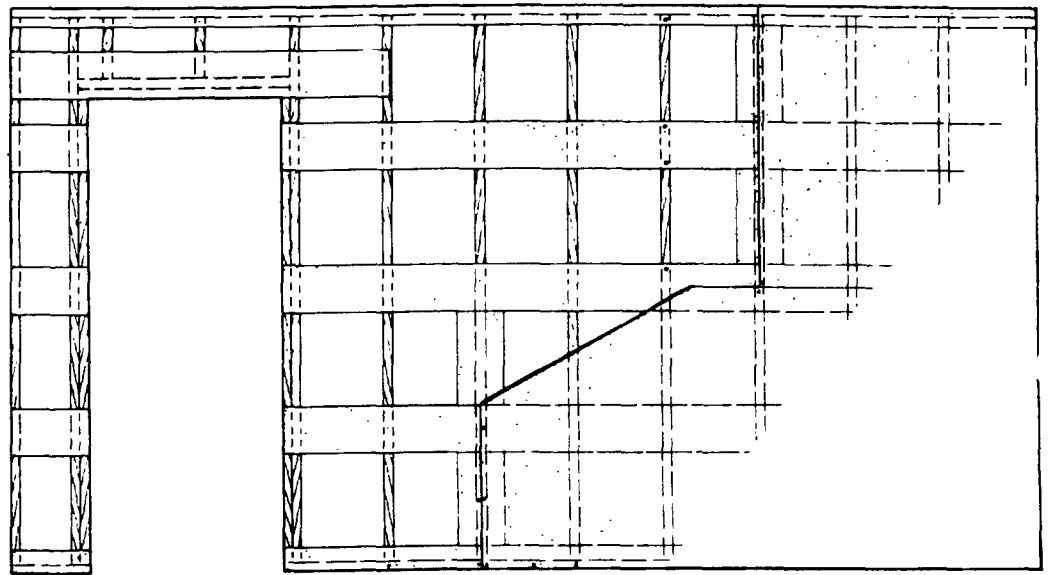
STRIP LAMINATION

This original strip laminated method of applying Bestwall Gypsum Wallboard provides nearly all the advantages of two-ply lamination at lower cost. Full size sheets of Bestwall Gypsum Wallboard are applied to the framing of walls and ceilings over strips of gypsum wallboard. The System is recommended for commercial and residential work in new construction or remodeling — wherever strong, durable walls and ceilings are desired.

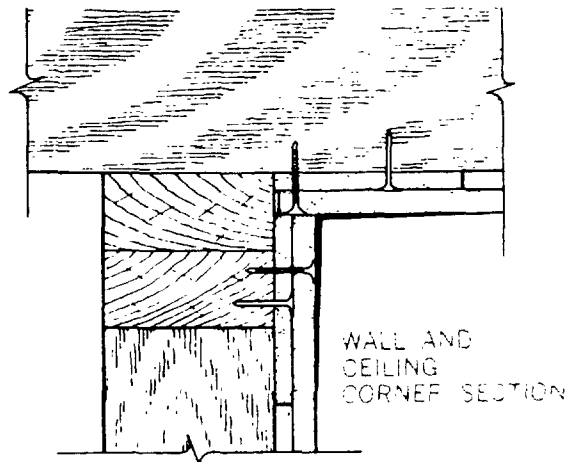
- **SOUND TRANSMISSION**—34 db.
- **STRENGTH**—Strip lamination at joining of boards and in center greatly strengthens construction.
- **LAMINATED CONSTRUCTION**—Smooth surfaces—monolithic finish.



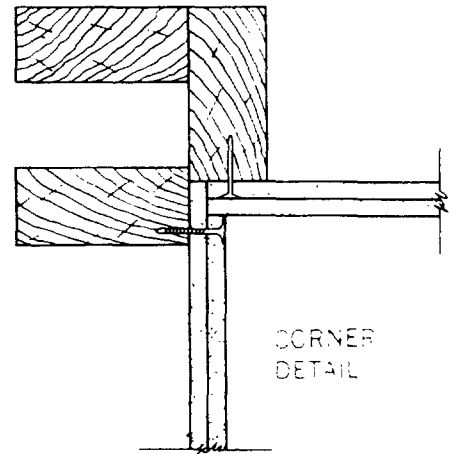
WALL SECTION



WALL ELEVATION SCALE $\frac{3}{8}'' = 1'0''$

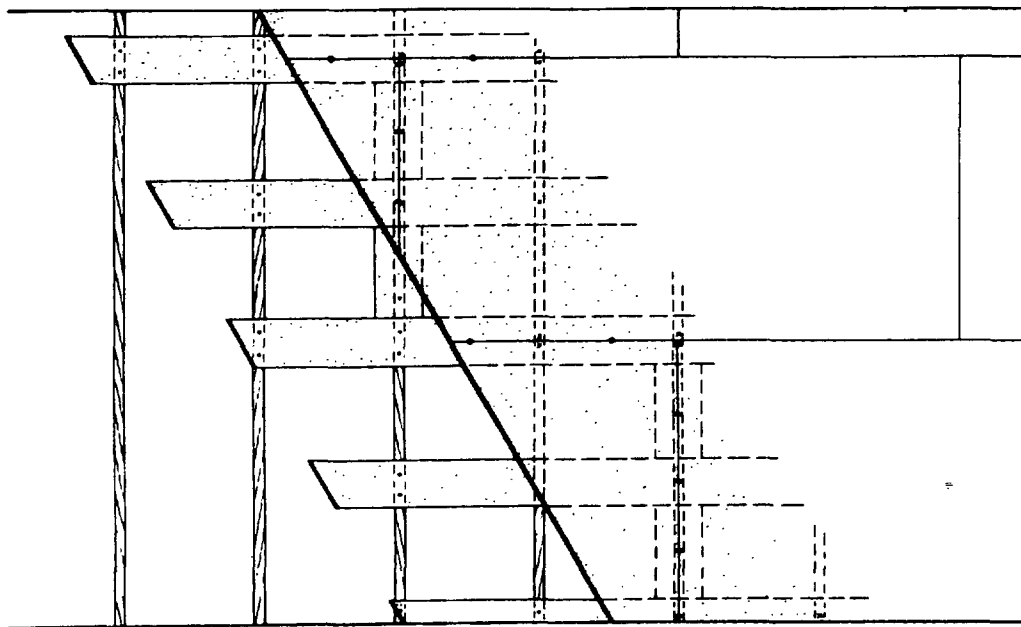


WALL AND
CEILING
CORNER SECTION



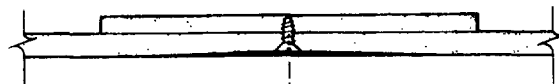
CORNER
DETAIL

SCALE 3" = 1'0"

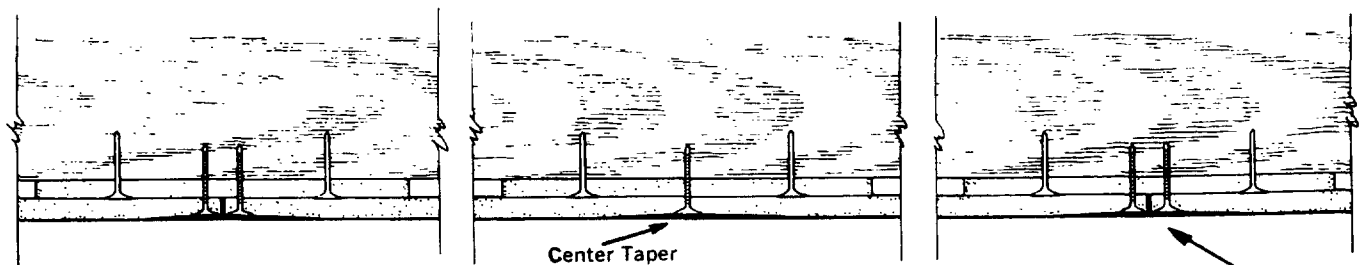


STRIP LAMINATED CEILING—Joist spacing 24" o.c.

NOTE: Screws may be eliminated
if joist spacing is 16" o.c.



Center taper midway between joints if joists are spaced greater than 16" o.c.



CEILING CROSS SECTION PARALLEL TO JOISTS

Permanent Fasteners in Recess
Covered by Tape and Cement

SCALE 3" = 1'0"

BESTWALL HUMMER SYSTEMS

STRIP LAMINATION

FEATURES:

1. Sound Transmission Loss: 34 Decibels (Tested before 1957).
2. Strength: Strip lamination at joint of boards and in center greatly strengthens application.
3. Laminated Construction: Smooth monolithic walls created by unitized lamination of multi-ply of Gypsum Wallboard.

SPECIFICATIONS:

All gypsum wallboard and joint system materials used, including laminating compound, shall be manufactured by the Bestwall Gypsum Company and shall be installed by a Bestwall Hummer licensed contractor in a first-class workmanship manner.

FIRST (or back) LAYER (apply to ceilings first and then to sidewalls).

Backer Board: Use $\frac{3}{8}$ " thick, 8" wide strips at right angles to the framing. 4" wide strips may be used at floor line and ceiling angles. 8" wide board strips should be spaced 24" o.c.

Nailing: Use $1\frac{1}{4}$ " Drywall nails (or 1" long, flat head divergent point staples). Over metal framing use annular ring nail, serrated staple or Bestwall Drywall screws. Use two fasteners, each 1" from edge, in every nailer, back of strip.

Nail heads (or staples) should be driven flush with the surface of the board.

DO NOT DIMPLE BOARD.

SECOND (or face) LAYER (apply to ceilings first and then to sidewalls).

Face Board: Use $\frac{1}{2}$ " thick, 4' wide, 8' to 16' long, tapered edge Gypsum Wallboard (use wallboard with center taper on ceilings), applied at right angles to the framing. Make joints in face board centered over the 8" board strips.

Laminating Compound: See Bestwall Product Sheet BW-62355. Apply laminating compound to back of board in strips with serrated spreader or on strips on ceilings and walls with a machine glue spreader.

Face Nailing: Use $1\frac{5}{8}$ " long, Drywall nail. Over metal framing use Bestwall Drywall screw. Do not dimple board for fasteners that are under tape or trim.

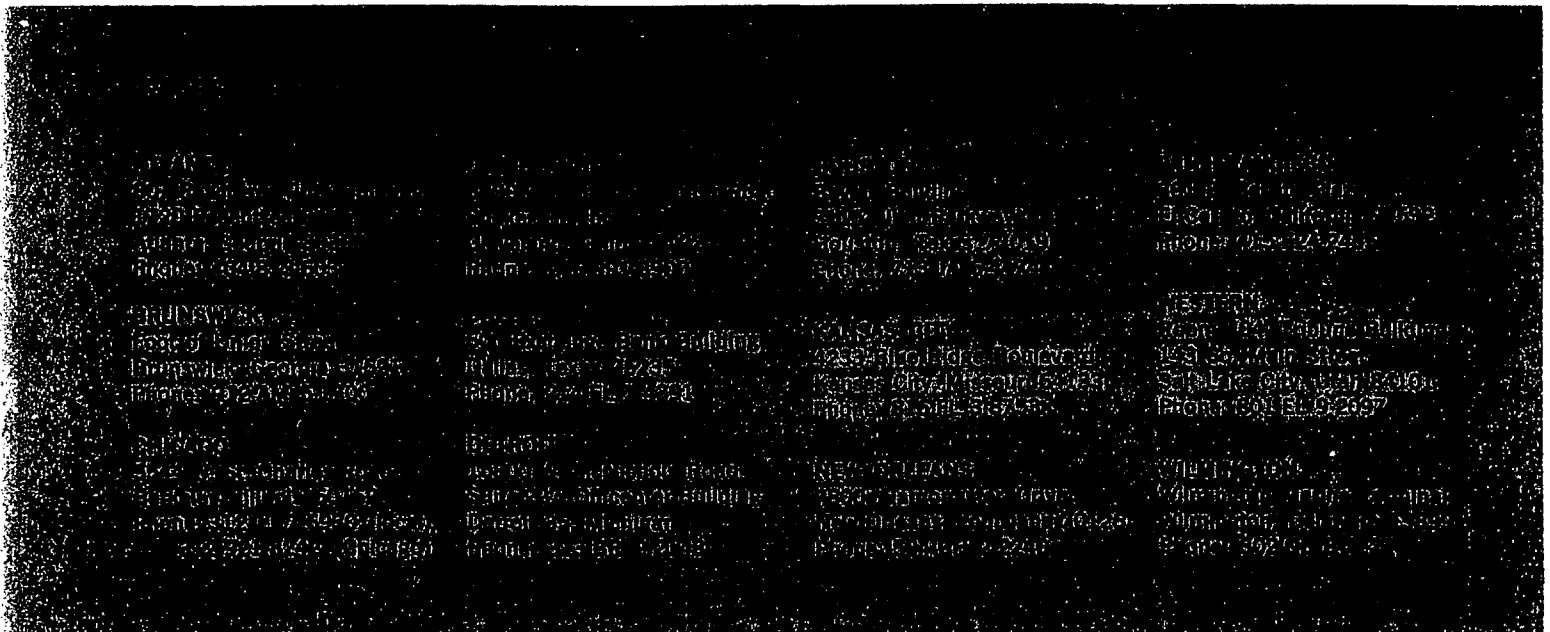
Ceilings: Nail in edges and center taper at every nailing member.

Sidewalls: Nail in edges only at every stud.

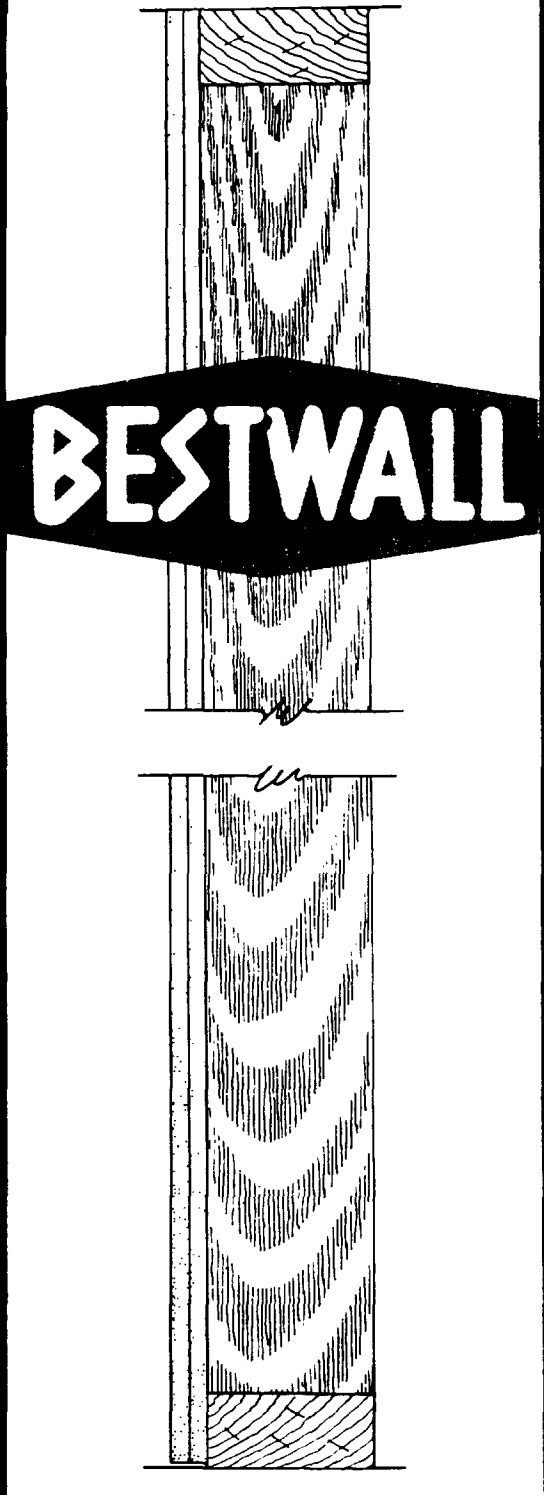
Additional Fasteners: Use Bestwall flat head screws in joints midway between joists or studs, if spaced more than 16" o.c. (as 24" o.c.).

Note: For sidewalls only use a double-headed nail in the center of the sheet at every other stud to hold face board tight to back strips until glue hardens.

Joint Treatment and Decoration: See Bestwall Product Sheet BW-6236C.



BESTWALL GYPSUM COMPANY
PAOLI, PENNSYLVANIA



BESTWALL

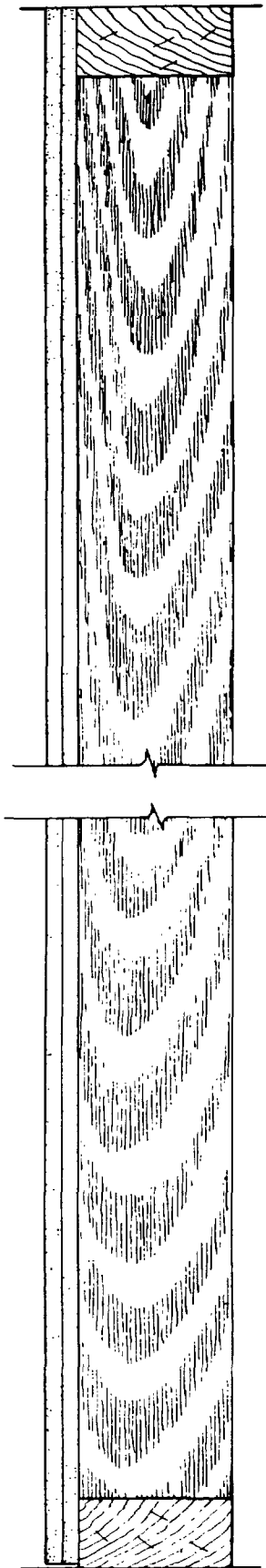
HUMMER SYSTEMS

SGP 0028648

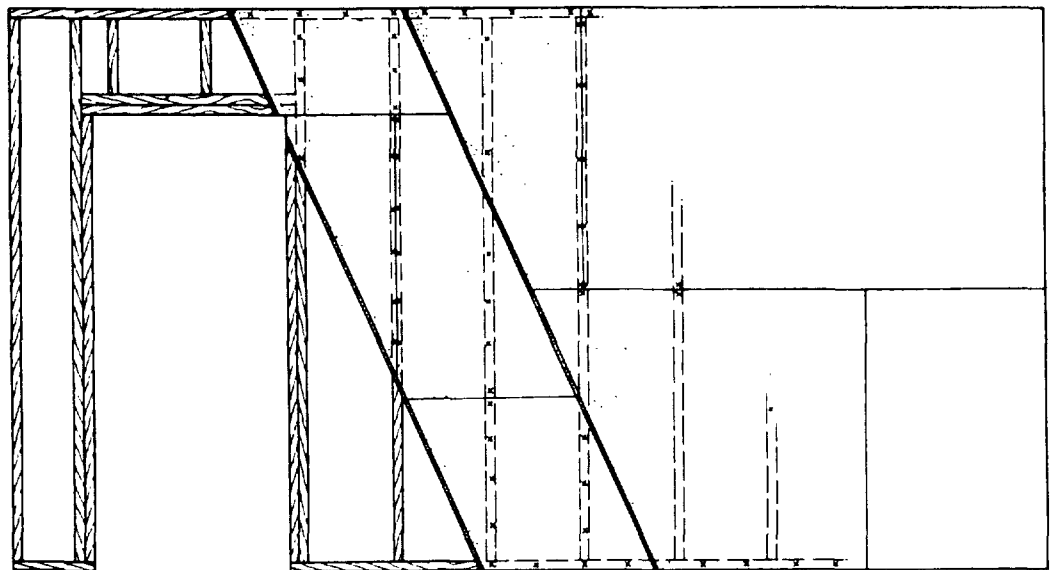
TWO-PLY GYPSUM LAMINATION

Two-Ply Lamination is an advanced system of wall and ceiling construction erected by laminating two plies of $\frac{3}{8}$ " Bestwall Glass Fiber Reinforced Gypsum Wallboard to conventional framing. The first ply is nailed. The second is applied with adhesive and nails. It is the basic system for fire rated, durable walls and ceilings for residential and commercial work in new construction or remodeling.

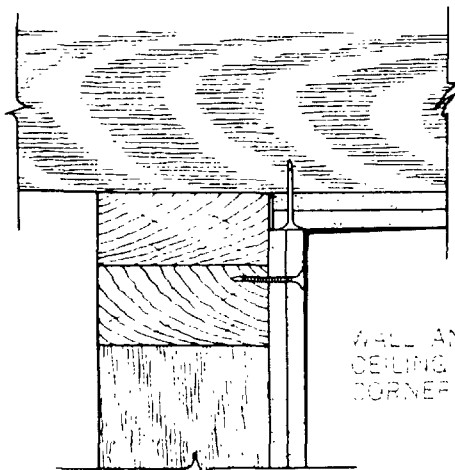
- FIRE RESISTANCE—One-Hour
- SOUND TRANSMISSION—38-43 db.
- STRENGTH—Two-ply lamination offers twice the strength of one-ply application.
- LAMINATED CONSTRUCTION—Smooth surfaces—monolithic finish.



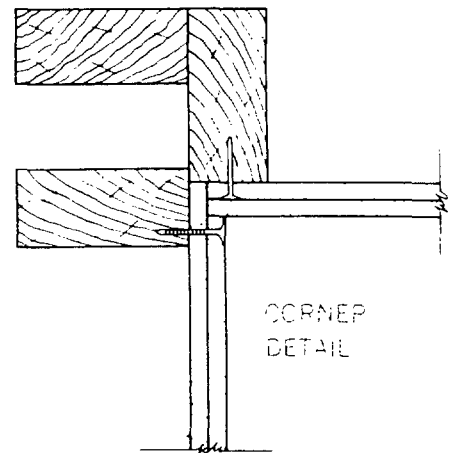
WALL SECTION



WALL ELEVATION SCALE $\frac{3}{8}$ " = 1'0"

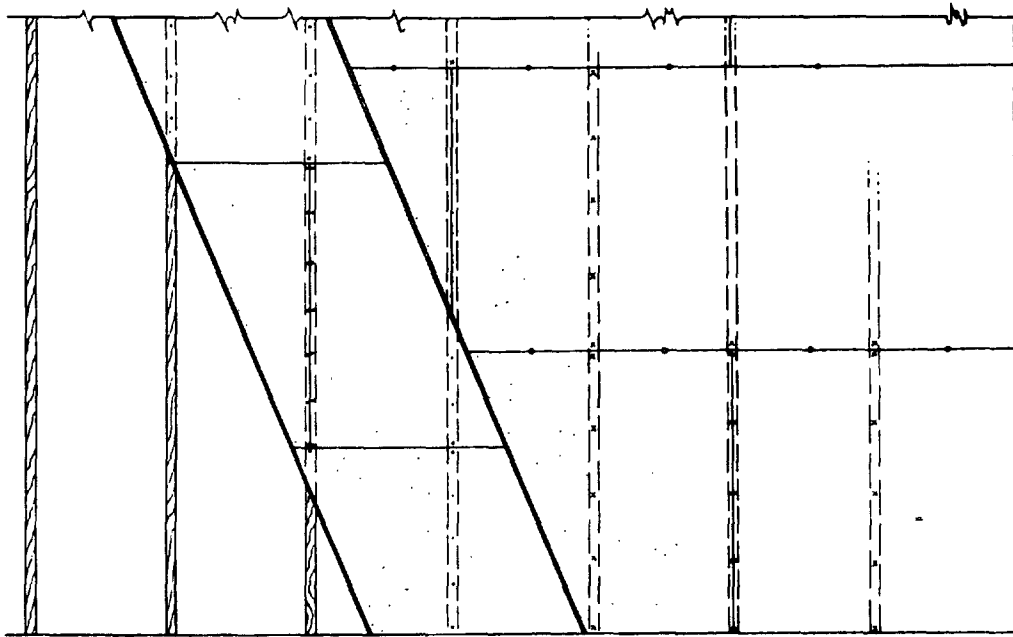


WALL AND
CEILING
CORNER SECTION



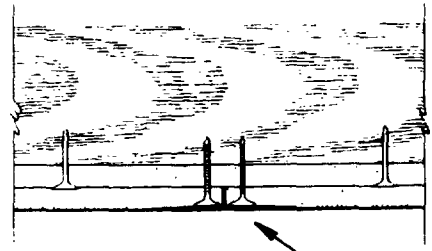
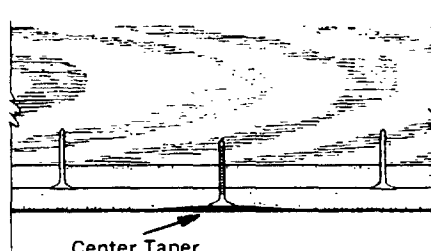
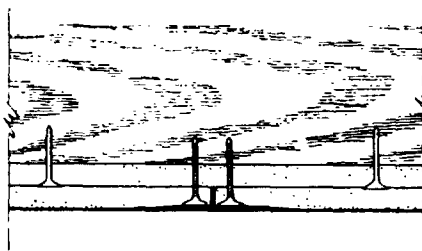
CORNER
DETAIL

SCALE 3" = 1'0"



TWO-PLY CEILING—Joist spacing 24" o.c.

NOTE: Screws may be eliminated
if joist spacing is 16" o.c.



CEILING CROSS SECTION PARALLEL TO JOISTS

Permanent Fasteners in Recess
Covered by Tape and Cement

SCALE 3" = 1'0"

SGP 0028650

BESTWALL HUMMER SYSTEMS

TWO-LAYER LAMINATION

FEATURES:

1. Fire Resistance:One hour.
2. Sound Transmission Loss: 43 Decibels (Tested before 1957).
38 Decibels (Tested 1958).
3. Strength:Two-layer lamination has twice the strength of a single layer application.
4. Laminated Construction: ..Smooth monolithic walls created by unitized lamination of multi-piles of Gypsum Wallboard.

SPECIFICATIONS:

All gypsum wallboard and joint system materials used, including laminating compound, shall be manufactured by the Bestwall Gypsum Company and shall be installed by a Bestwall Hummer licensed contractor in a first-class workmanship manner.

FIRST (or back) LAYER (apply to ceiling first and then to sidewalls).

Backer Board: Use $\frac{3}{8}$ " thick, 4' or 2' wide, square edge gypsum backer, applied at right angles to the framing.

Nailing: Use $1\frac{1}{4}$ " Drywall nails (or 1" long, divergent point staples). Ceiling spacing 5" to 7" o.c. Walls 6" to 8" o.c. Over metal framing use Bestwall Drywall screws or

attachments recommended by metal framing manufacturing specifications.

DO NOT DIMPLE BOARD.

SECOND (or face) LAYER (apply to ceilings first and then to sidewalls).

Face Board: Use $\frac{3}{8}$ " thick, 4' wide, 8' to 16' long, tapered edge Gypsum Wallboard (use wallboard with center taper on ceilings) applied at right angles to the framing. Joints in face board must not occur over joints in the first layer board (spaced 12" min.). Do not dimple board for nails or screws that are under tape or trim.

Laminating Compound: See Bestwall Product Sheet BW 52355. Apply glue to back of face layer with serrated metal blade or to face of back layer with machine glue spreader.

Note: For applying face layer which has a vapor barrier predecorated finish, use a "contact type" adhesive.

Face Nailing: Use $1\frac{1}{4}$ " long Drywall nails.

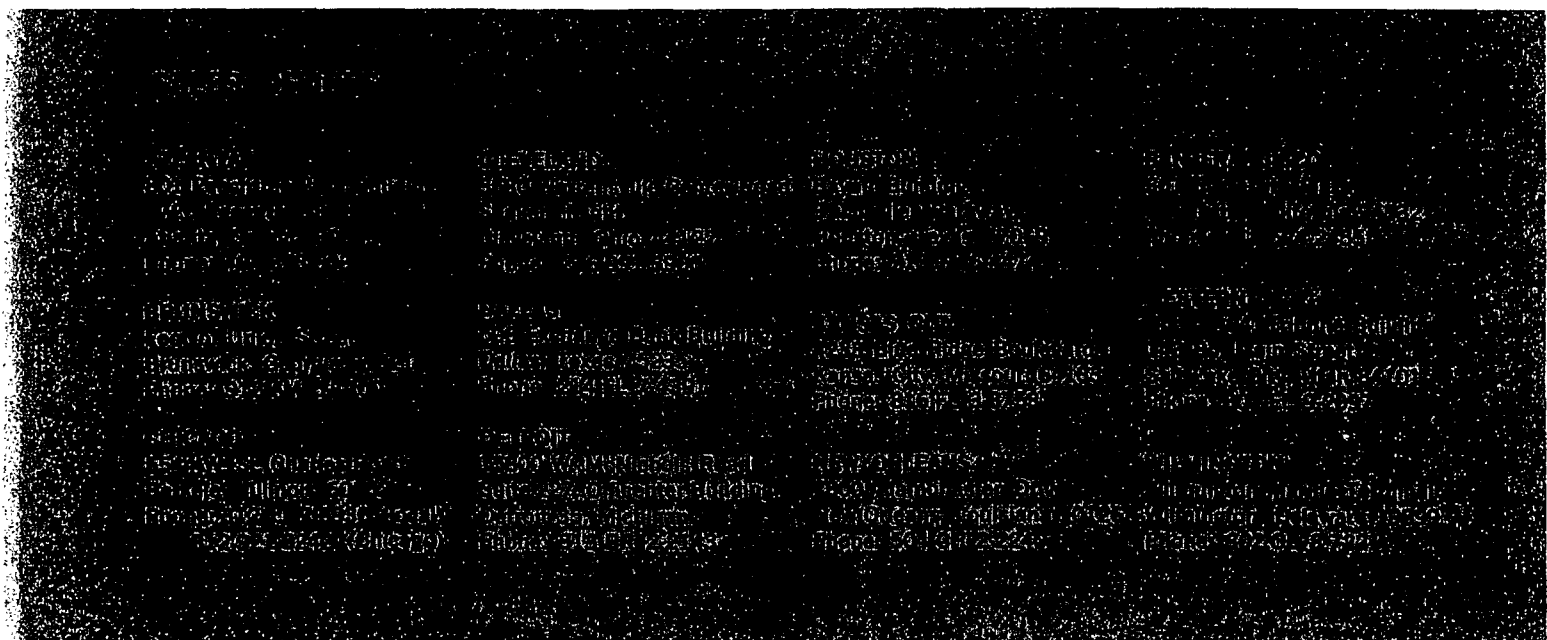
Ceilings: Nail in edges and center taper at every nailing member.

Sidewalls: Nail in edges only at every stud.

Additional Fasteners: Use Bestwall Drywall screws in joints midway between joists or studs, if spaced more than 16" o.c. (as 24" o.c.).

For sidewalls only, use a double-headed nail in the center of the sheet at every other stud to hold face board tight to back layer until glue hardens.

Joint Treatment and Decorating: See Bestwall Product Sheet BW 52360.



BESTWALL GYPSUM COMPANY
PAOLI, PENNSYLVANIA

SGP 0028651

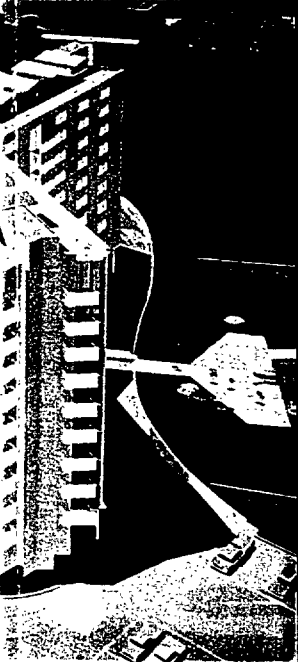
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SGP 0028652



THE PHILADELPHIAN—ARCHITECT, SAMUEL I. OSHIVER AND ASSOCIATES

BESTWALL GYPSUM COMPANY PRESENTS



SON AND CASACCIO



2121 8th AVENUE BUILDING—ARCHITECT, ROBERT LEE HALL

DOUBLE SOLID PARTITION SYSTEM

WHY DRYWALL SYSTEMS:

1. Dry Construction
 - A. Fast installation
 - B. Minimum clean up
 - C. Work progress in any weather
2. Exacting fire rating
3. Exacting sound rating
4. Price competitive with other wall systems

BACKGROUND:

Laminated Gypsum Wallboard Systems are not new. The first patents were issued in 1938 to Mr. E. B. Hummer, Bestwall Gypsum Company's Research and Development Director for Drywall Systems. The development by Bestwall of a **one-hour** fire resistive assembly utilizing a $\frac{5}{8}$ " thick patented gypsum core (Firestop), coupled with the "know how" of laminating multi-ply of Gypsum Wallboard together, made possible the creation of systems which could develop fire resistive qualities and sound attenuation acceptable in multi-story residential buildings. All of these systems have been accepted by F.H.A., lending institutions, and approved under local building codes.

EXPANSION:

In 1962 Bestwall Gypsum Company completed an expansion program that increased production capacities by 90 per cent. This program was designed to accommodate the added uses of Gypsum Wallboard created by the acceptance of commercial application of these systems. Adequate manufacturing facilities are now maintained to service projects regardless of schedule or scope.

THE CREATION OF SYSTEMS ENGINEERING:

Systems Engineers, specialists in application of commercial Drywall Systems, have been thoroughly trained to recommend the proper combination of systems that meet the specifications of the most discriminating architects. They can assist with architectural detailing, lending institution presentations, quantity surveys and actual on-the-job application. Bestwall Systems Engineers are available through all local Bestwall Certain-teed Sales Corporation District Sales Offices. There are twenty-four located in strategic cities across the nation.

CONCLUSION:

For the **architect** who desires walls that produce a quiet, safe building, the Bestwall Systems Engineer will recommend the proper Bestwall System. The **owner** will appreciate the low insurance rates and the smooth, maintenance-free walls that can receive any type of finish. The **tenant** will renew leases in a comfortable, quiet residence. Consideration and planning **now** will assure a profitable investment.

SEMI- SOLID PARTITION SYSTEM

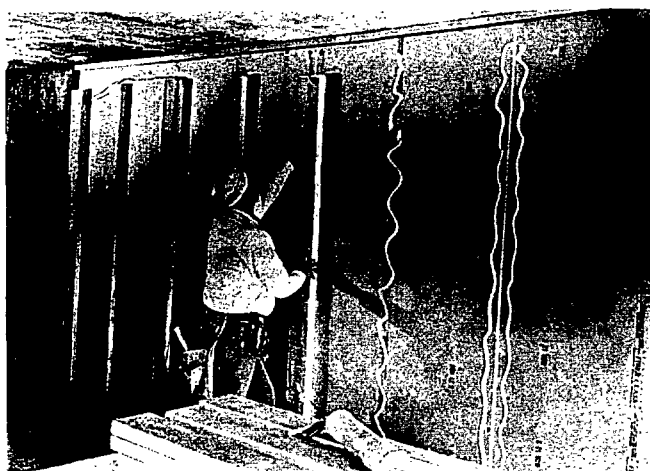
METAL STUD PARTITION SYSTEM



Electrical work roughed in, ready for 1" coreboard



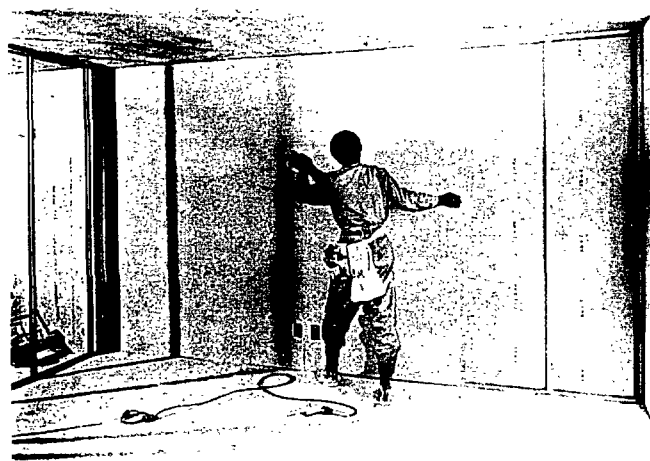
Laminating finished layer to 1" coreboard



Stud lamination to first side



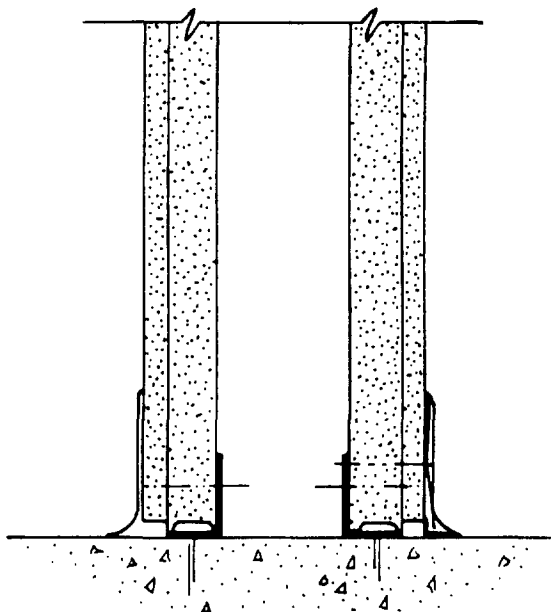
Completion of partition



Applying first layer to metal studs



Face layer being laminated

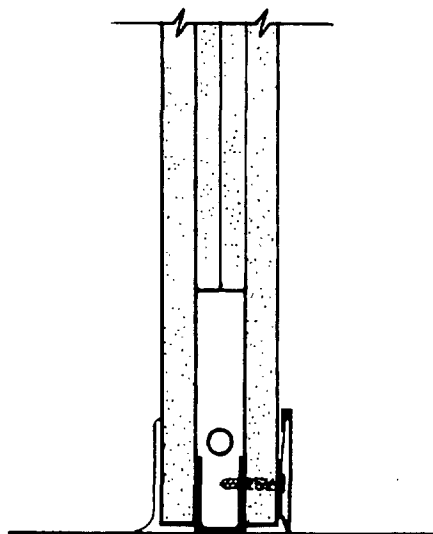


DESCRIPTION

This non-load bearing gypsum partition is recommended for high-rise apartment houses, commercial installations and institutional buildings, wherever party walls with particularly good sound resistance and fire protection are desired. It is erected by laminating $\frac{1}{2}$ " ply to 1" homogeneous board on each side of an air space. This center air cavity allows space for concealed wiring, electrical boxes, hose boxes, piping, and other rough work. It also provides greater resistance to sound transmission. For specifications see Bestwall Systems Engineering Folder BW-62400.

FEATURES

- **Fire Resistant:** The Double Solid Partition System (6" thick-basic) provides 2-hour fire protection.
- **Sound Transmission Loss:** 47.2 db. (6" thick-basic).
- **Strength:** Proven in ASTM "Bump" tests and performance to have greater resistance to deflection and cracking than a standard frame or thin solid wall.
- **Laminated Construction:** Smooth monolithic walls created by unitized lamination of multi-ply of Gypsum Wallboard.
- **Center Air Space:** (1" to 6" as required) space for piping—conduit—fixture framing—additional resistance to sound transmission.

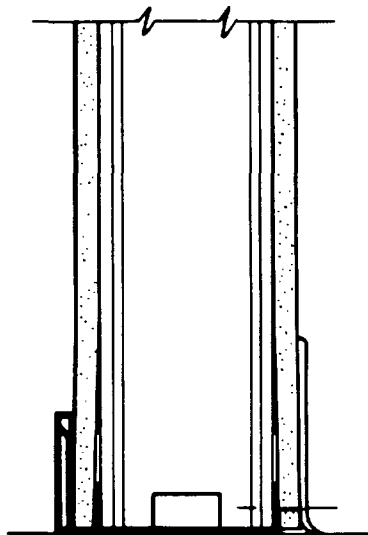


DESCRIPTION

This basic system is the original method for erecting non-load bearing corridor and party walls. It is erected by laminating $\frac{5}{8}$ " Bestwall Fire-stop Gypsum Wallboard to gypsum ribs with metal or wood floor and ceiling runners. It provides thin, yet strong, lightweight, highly fire resistive partitions. A Bestwall Systems Engineer can modify this, and all other Bestwall Partition Systems, to meet your specific job requirements of sound and fire resistant characteristics and also electrical and telephone conduits, mechanical and air equipment, etc. For specifications see Bestwall Systems Engineering Folder BW-62390.

FEATURES

- **Fire Resistant:** Semi-Solid Laminated Gypsum Partitions ($2\frac{1}{4}$ " thick-basic) provide 1-hour fire protection. With modifications $1\frac{1}{2}$ ", 2, and 3-hour fire resistance can be obtained.
- **Sound Transmission Loss:** $2\frac{1}{4}$ " partitions—35 db., $2\frac{3}{4}$ " partitions—37.5 db., 4" partitions—37 db., 5" partitions—40 db.
- **Strength:** At least 10 per cent less deflection under standard ASTM "Bump" test than walls within 2" x 4" studs 16" o.c. faced with $\frac{1}{2}$ " Gypsum Wallboard.
- **Laminated Construction:** Smooth monolithic walls created by unitized lamination of multi-ply of Gypsum Wallboard.



DESCRIPTION

This is a complete non-load bearing system that integrates Bestwall, the original glass fibered gypsum wallboard, with lightweight steel framing. It is designed and engineered to create an economical partition that may be fire rated. It offers accurate and speedy installation with savings in material and labor. In addition, this system provides a varied range of functional and decorative space design for new and remodeling work in commercial, industrial, institutional and residential buildings. For specifications consult Bestwall's Metal Stud Partition Folder BW-62120.

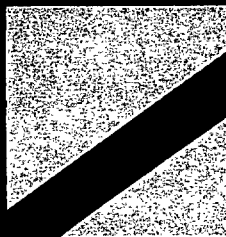
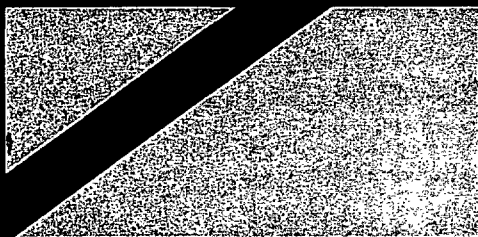
FEATURES

- **Versatility:** System components may be combined with a variety of board thicknesses to meet individual requirements.
- **Light Weight:** This is a factor which can result in savings in structural design requirements.
- **Workability:** Simplicity of design assures minimum on-site construction delays.
- **Fire Resistant:** 1-hour fire rating is achieved with a single layer of $\frac{5}{8}$ " Bestwall Gypsum Wallboard on both faces. A 2-hour fire rating is achieved with a double layer of $\frac{5}{8}$ " Bestwall Firestop on both faces.

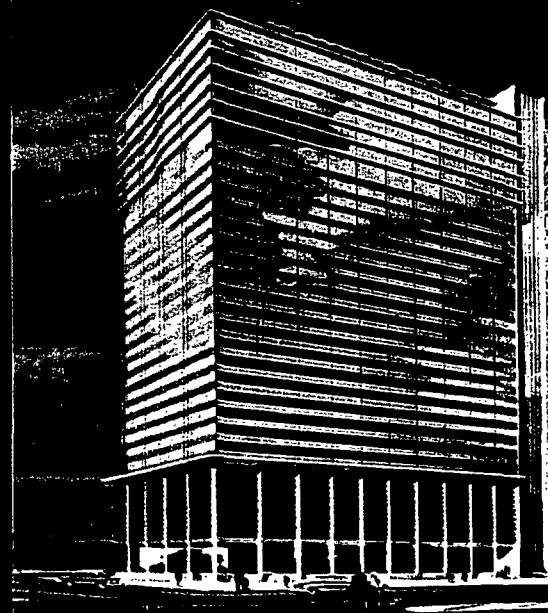


PARK CITY WEST—ARCHITECT, SAMUEL I. OSHIVER AND ASSOCIATES

"GYPSUM WALLBOARD IN HIGH-RISE BUILDINGS"



BW-63215 5/63



PENN TOWERS—ARCHITECT, SAMUEL I. OSH



PENN CENTER INN—ARCHITECT, CHARLES LUCKMAN ASSOCIATES



EVERGREEN TOWERS—ARCHITECT, ANDER



ER AND ASSOCIATES

BESTWALL GYPSUM COMPANY

GYPSUM WALLBOARD MANUAL

1965 EDITION

Section 7

Sub-Section A

SEMI-SOLID PARTITION

Correct Erection Method

The semi-solid partition which involves a layer of wallboard on each side of gypsum ribs is the present name for the original Bestwall Hummer System "B". Much of the Company literature has shown the manufacture of a panel and the erection of this panel in a wall. In some instances, this involved a two faced panel and in other instances, it was one face with ribs. This prefabrication was done in a warehouse or on the job by the drywall applicator's men.

Current literature no longer shows 3-1/2" and 6-1/4" ribs nor 12" ribs. A standard 6" wide rib is used in the semi-solid partition. A full scale fire test with 5/8" Firestop and 1" thick ribs made of this assembly has proven that the fire resistance is applicable with 6" wide ribs at the joint between the face boards and in the center, that is, 2' on center. Furthermore, the test was made without joint treatment but with mechanical fasteners, as shown in the details.

The Bestwall Laboratory has experimented with and shown that it is practical to erect a semi-solid partition in place without any prefabrication. The new sound slide film showing "Gypsum Wallboard in High Rise Buildings", shows this method.

Install the floor runners, plumb up and install the ceiling runners. Then start at the exterior wall columns, etc., and set the wallboard vertically on one side, fastening it with 1" long Bestwall Drywall Screws (nails may be used in wood runners) to the ceiling and floor runner. Next to the backside of this first layer, apply Bestwall Laminating Compound with a glue spreader 3" on each of the joints between sheets and in a 6" width down the center of the board.

A 6" gypsum rib (1" thick, or as specified) should then be held in place against the back of the board over the glue by a workman with one centered over the joint and the other rib at the center of the sheet. A second workman on the face side of an initial layer should attach a 1-1/2" long Bestwall Drywall screw (designed for this use and shown in the Price Schedule) with an electric power screw driver, approximately 2' on center, with 4 screws to an 8' high partition to hold the rib tight in the board. A screw should be used on the edge of each board into the rib and in the center of the sheet.

After the ribs are all in place and the various electrical wiring, piping, and other rough in work completed, the applicator should run Bestwall laminating compound with a mechanical glue spreader down the ribs and then install the other face side of the semi-solid partition, using Bestwall Drywall Screws (1" long) at the top and bottom runners, and (1-1/2" long) in the face board into the ribs in the same manner as on the first side.

The next day when the glue has set, the partition will show remarkable rigidity and strength. This semi-solid partition with 5/8" Firestop and 1" ribs is one

SGP 0028659

hour fire resistant.

Advantages

1. The screw attachment is no more costly than the screw attachment of gypsum board to metal studs. Actually, this construction method is similar to the installation followed by many applicators for 8' to 9' high partitions of single layer Gypsum Board over metal studs.
2. Stronger by test than conventional 5" partition, stud and 1/2" gypsum wallboard.
3. Saved -- 20 square feet more usable floor area than 2" x 4" wood stud wall construction for every 100 lineal feet of partition.

LAMINATED GYPSUM WALLBOARD SYSTEMS

Bowing Board

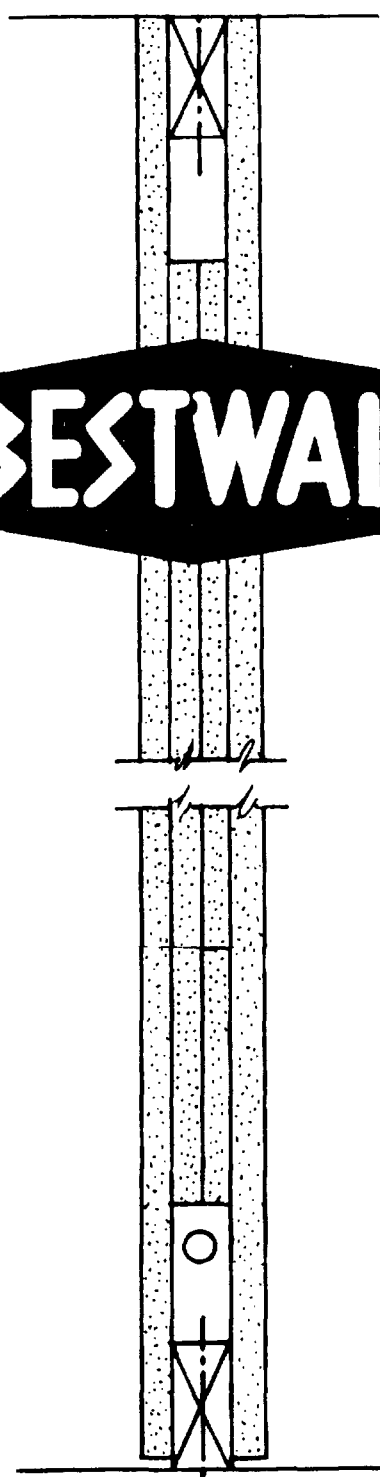
For years E. B. Hummer has advocated bowing the face board in all laminated gypsum wallboard work. After the base layer is in place, the face layer to be laminated if it is bowed so that the outer or exposed face is concave and the backside is convex, the board will hug the wall in application and reduce to eliminate the necessity for fasteners within the field of the board. This bowing should very generally be across the long dimension of the board, that is the long dimension should be bent in the curve.

Where the face board is erected vertically it is obvious that by doing this the board can be nailed at the top plate, pressed down and nailed at the bottom plate, hugging the wall all the way down and eliminating the need of the nailing through the face of the board in the field. This is particularly helpful when applying predecorated board as Woodgrain board, Eternawall, or the Decorator line. This is equally applicable to the application of the board to wood framing and those framing members are in the same plane or where the board is being applied to an existing surface. When the face board is applied horizontally, bow the board across the short direction of the board, that is make the 4' width curved, and again applying the board with the top edge in place first and pull the bottom edge in, nailing along the tapered edge.

Bestwall literature many years ago had detailed drawings showing the method of piling board to develop this curvature. While competition minimized the idea at that time, you will see USG, National and other manufacturers showing details on bowing gypsum wallboard in some of their current literature.

Do not place a support in the middle of a sheet of board and let the ends hang down to accomplish this curvature. This will result in very badly misshaped and warped board which will defeat the purpose of curving the board. Have the board flat on the floor with the surface that is to be concave up and then lay supports under the edges of the board to raise the edge up and allow the weight of the board to accomplish the curvature. This should be no more than 1" in 4' or 2" in 8'. Generally, allowing the board to set in this position over night will accomplish the desired curvature on the face board. Allowing the board to remain too long in this position will again defeat the purpose and result in some badly warped board.

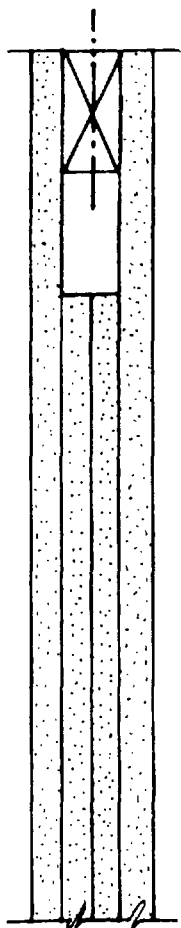
With care E. B. Hummer's idea as advocated by Bestwall for many years and now by other gypsum manufacturers can assist the contractor in getting good laminated installations and eliminate the need of fasteners in the field thereby reducing the cost of the installation.



BESTWALL

HUMMER SYSTEMS

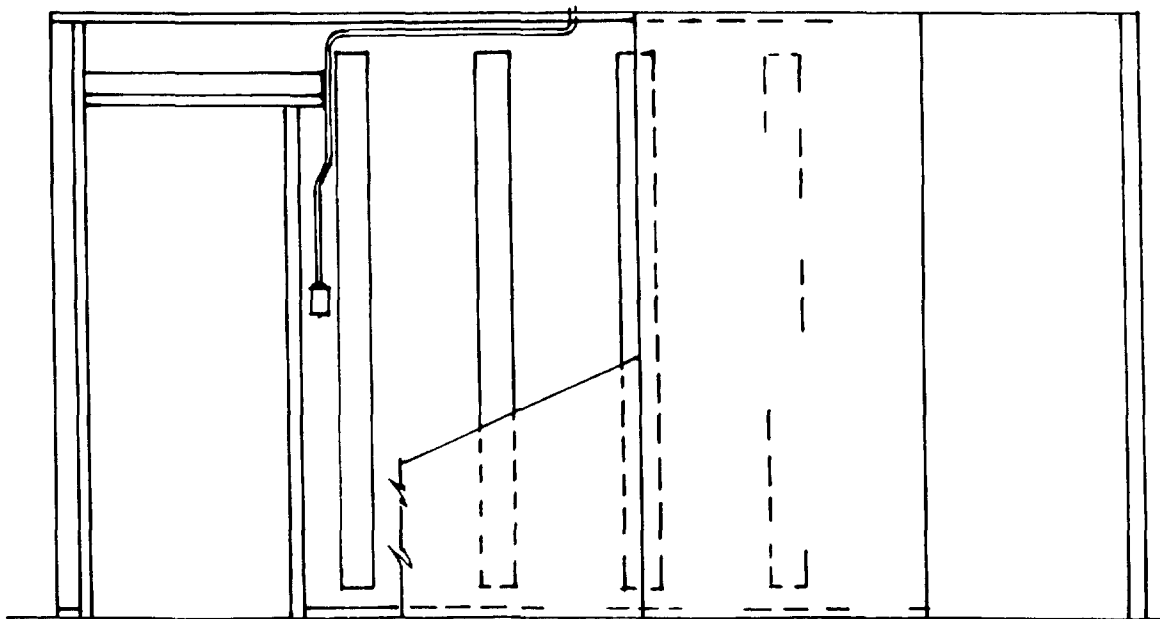
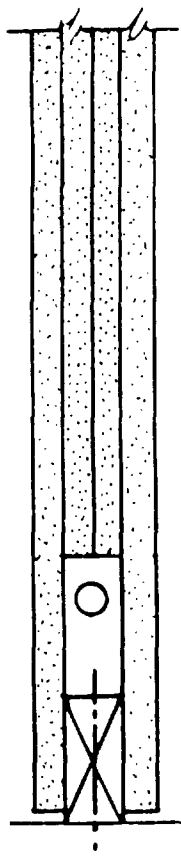
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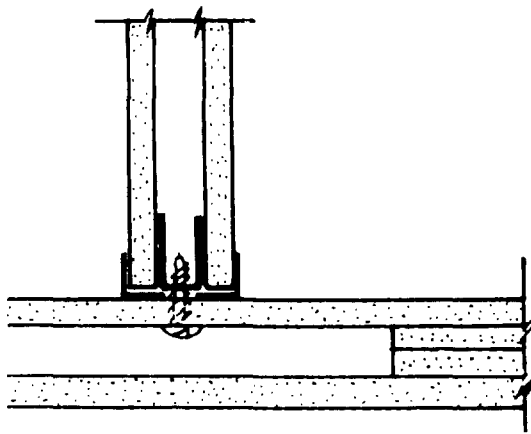


SEMI-SOLID LAMINATED GYPSUM PARTITIONS

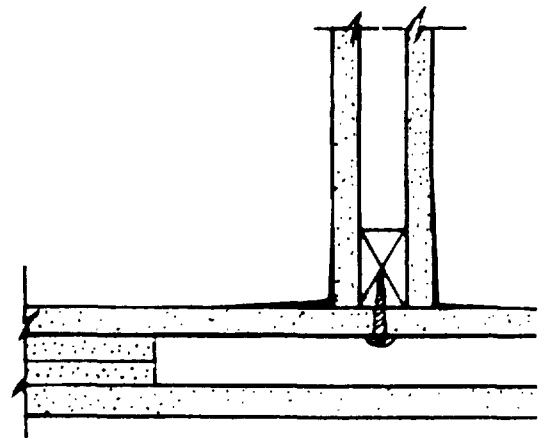
The Semi-Solid Gypsum Partition System is a non-load bearing construction erected by laminated $\frac{5}{8}$ " Bestwall Firestop Gypsum Wallboard to gypsum ribs inserted in metal or wood floor and ceiling runners. It is recommended for commercial and residential work in both new construction and remodeling—wherever fire-rated, non-load bearing partitions are required.

- FIRE RESISTIVE—One-hour.
- SOUND TRANSMISSION—35 db.
- STRENGTH — More rugged, less joint breakage, no nail pops.
- LAMINATED CONSTRUCTION—Smooth surfaces—monolithic finish.

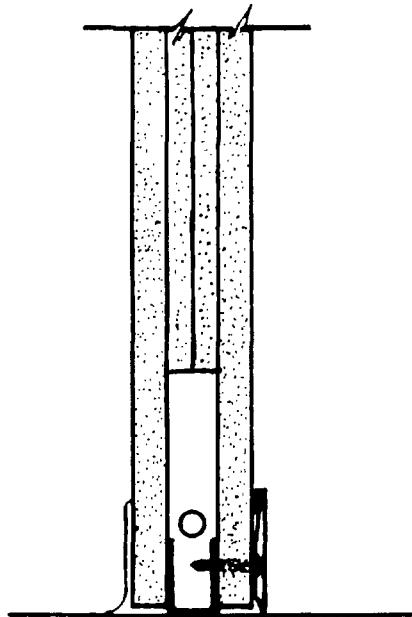




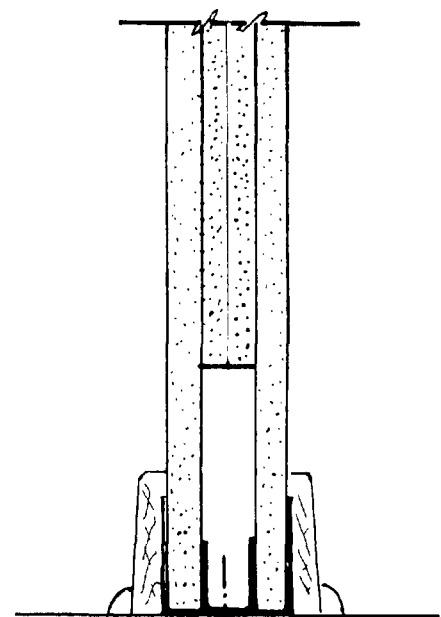
INTERSECTING WALL METAL



INTERSECTING WALL WOOD



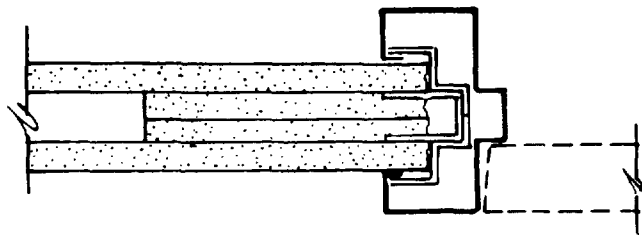
TYPICAL METAL RUNNER WITH VINYL OR METAL BASE



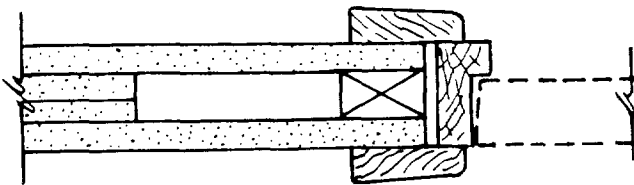
TYPICAL METAL RUNNER WITH WOOD BASE

SCALE 3" = 1'0"

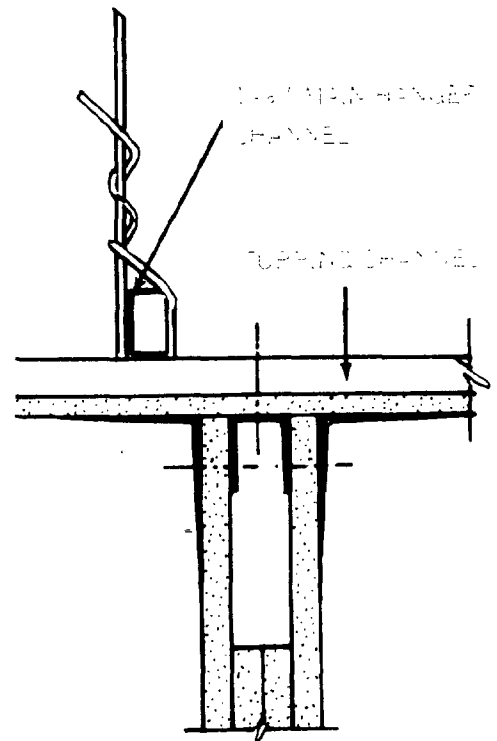
General description and dimensions of the wall and floor system. The wall is shown in cross-section, and the floor is shown in plan view. The wall is supported by a metal runner, and the floor is supported by a wood base. The wall is shown in cross-section, and the floor is shown in plan view. The wall is supported by a metal runner, and the floor is supported by a wood base.



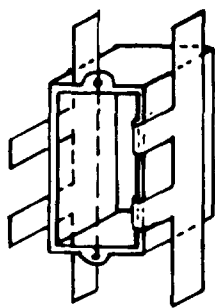
TYPICAL METAL DOOR



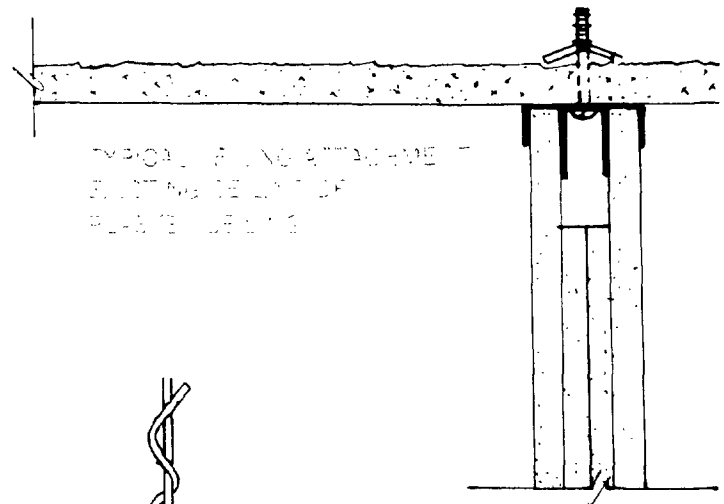
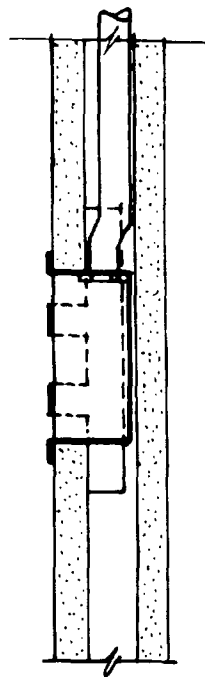
TYPICAL WOOD DOOR



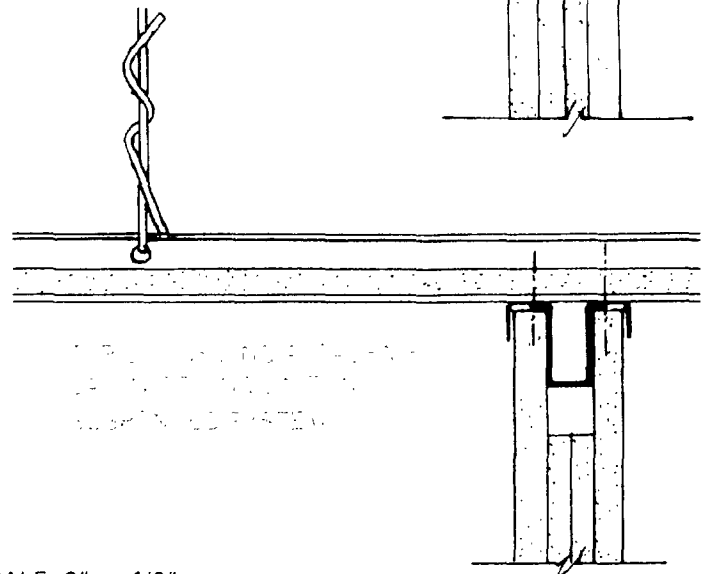
TYPICAL DOOR FRAME ASSEMBLY
SUSPENDING DOOR FROM BOARD



ELECTRIC BOX
MOUNTING DETAIL



TYPICAL CEILING ATTACHMENT
SUSPENDING CEILING OF
PLASTER BOARD



TYPICAL CEILING ATTACHMENT
SUSPENDING CEILING OF
PLASTER BOARD

SCALE 3" = 1'0"

SGP 0028665

BESTWALL HUMMER SYSTEMS

2 1/4" SEMI-SOLID GYPSUM WALLBOARD NON-LOAD BEARING PARTITION

FEATURES:

1. Fire Resistance: One hour with Bestwall Firestop.
2. Sound Transmission Loss: .35 Decibels (Tested before 1957).
30 Decibels (Tested 1958).
3. Strength: More rugged, under standard "Bump" test than wall with 2" x 4" studs, 16" o.c., faced with 1/2" gypsum wallboard.
4. Laminated Construction: . Smooth monolithic walls created by unitized lamination of multi-ply of Gypsum Wallboard.
5. Extra Usable Floor Space: .20 sq. ft. more than 2" x 4" stud wall construction for every 100 lin. ft. of wall.

SPECIFICATIONS:

All gypsum wallboard and joint system material used, including laminating compound, shall be manufactured by the Bestwall Gypsum Company and shall be installed by a

Bestwall Hummer licensed contractor in a first-class workmanship manner.

Floor and Ceiling Runners: Use 1" x 1 5/8" wood or metal hat section runners. #105 Metal Casings for 5/8" board may be used at ceiling line in lieu of wood or metal runners.

Laminated Ribs:

Construction: Made by laminating 2—1/2" gypsum strips 6" wide.

Spacing: One rib centered over joint between first layer boards. Another centered between joints.

Face Board: Use 5/8" Bestwall Firestop, 4' wide, floor to ceiling height (12' max.), tapered edge, applied vertically with joints on center of rib.

Laminating Compound:

Apply glue to back of face layer with serrated knife in strips or to rib on wall with a mechanical glue spreader.

Face Nailing: Use 1 5/8" long, Drywall nails at ceiling and floor line, space 5" o.c. If board is set on floor, space 8" o.c. Use 1 1/2" long, Bestwall Drywall screws in joints spaced max. 24" o.c. as shown. Do not dimple board for fasteners that are under tape or trim.

Joint Treatment and Decoration:



ONE-HOUR FIRE RESISTANCE

4" SEMI-SOLID GYPSUM WALLBOARD NON-LOAD BEARING PARTITION

FEATURES:

1. Fire Resistance: Two-hours with 5/8" Bestwall Firestop.
2. Sound Transmission Loss: 42 Decibels (Tested before 1957).
37 Decibels (Tested 1958).
3. Strength: At least 10% less deflection under standard ASTM "Bump" test than walls with 2" x 4" studs 16" o.c. faced with 1/2" Gypsum Wallboard.
4. Laminated Construction: . Smooth monolithic walls created by unitized lamination of multi-ply of Gypsum Wallboard.

SPECIFICATIONS:

All gypsum wallboard and joint system materials used, including laminating compound, shall be manufactured by the Bestwall Gypsum Company and shall be installed by a Bestwall Hummer licensed contractor in a first-class workmanship manner.

Floor and Ceiling Runners: Use 1 1/2" x 1 5/8" wood runner or metal hat section with 1/2" thick 2" wide gypsum board

strip applied to metal runner.

Laminated Ribs:

Construction: Made by laminating 2—1/2" gypsum strips 6" wide.

Spacing: One rib centered over joint between first layer boards. Another centered between joints.

First Layer Board: Use 5/8" Bestwall Firestop, 4' wide, floor and ceiling height (12' max.). Apply vertically with joints centered over rib.

Nailing: Use 1 5/8" long, Drywall nail at ceiling and floor lines spaced 8" o.c. or Bestwall Drywall screws with metal floor and ceiling runners.

Face Layer Board: Use 5/8" Bestwall Firestop, 4' wide, floor to ceiling height (12' max.) tapered edge, applied vertically with joints off those in first layer.

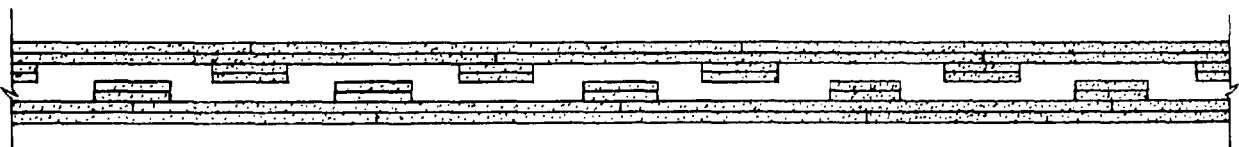
Laminating Compound:

Apply glue to back of face layer with serrated knife in strips or to ribs on wall with a mechanical glue spreader.

Face Board Nailing: Use 2 1/2" nail at ceiling and floor, 8" o.c. or Drywall screws with metal runners.

Screws: Use 2" long Bestwall Drywall screws at edges of first layer and face boards, 24" o.c.

Joint Treatment and Decorating:



TWO-HOUR FIRE RESISTANCE

BESTWALL HUMMER SYSTEMS

5" SEMI-SOLID GYPSUM WALLBOARD NON-LOAD BEARING PARTITION

FEATURES:

1. Fire Resistance: Three-hours with Bestwall Firestop.
2. Sound Transmission Loss: 47 Decibels (Tested before 1957).
40 Decibels (Tested 1958).
3. Strength: At least 10% less deflection under standard ASTM "Bump" tests than walls with 2" x 4" studs, 16" o.c., faced with 1/2" Gypsum Wallboard.
4. Laminated Construction: .. Smooth monolithic walls created by unitized lamination of multi-piles of Gypsum Wallboard.

SPECIFICATIONS:

All gypsum wallboard and joint system materials used, including laminating compound, shall be manufactured by the Bestwall Gypsum Company and shall be installed by a Bestwall Hummer licensed contractor in a first-class workmanship manner.

Floor and Ceiling Runners: Use metal hat sections or 1" x 1 3/8" wood runners spaced 1/2" apart.

Laminated Ribs:

Construction: Made by laminating 2—1/2" gypsum strips 6" wide.

Spacing: One rib centered over joint between first layer boards. Another centered between joints.

First Layer Board: Use 5/8" Bestwall Firestop, 4' wide, floor and ceiling height (12' max.). Apply vertically with joints centered over rib.

Nailing: Use 1 5/8" long, Drywall nail at ceiling and floor lines spaced 8" o.c. or Bestwall Drywall screws with metal floor and ceiling runners.

Face Layer Board: Use 5/8" Bestwall Firestop, 4' wide, floor to ceiling height (12' max.) tapered edge, applied vertically with joints off those in first layer.

Laminating Compound:

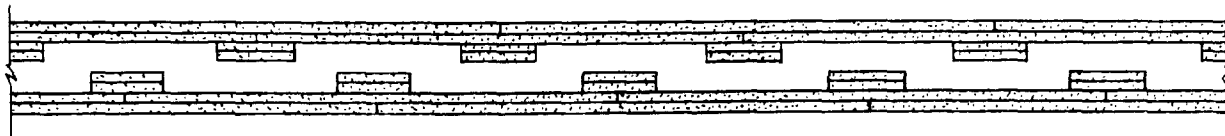
Apply glue to back of face layer with serrated knife in strips or to ribs on wall with a mechanical glue spreader.

Face Board Nailing: Use 2 1/2" nail at ceiling and floor, 8" o.c. or Drywall screws with metal runners.

Screws: Use 2" long Bestwall Drywall screws at edges of first layer and face boards, 24" o.c.

Joint Treatment and Decorating: Use Bestwall compound and paper tape.

Note: For best value in reducing sound transmission a 1/2" rigid glass fiber low density material should be inserted in center space between two sides of wall.



THREE-HOUR FIRE RESISTANCE

DISTRICT OFFICES

ALBANY

301 Franklin Building
100 Franklin Street
Albany, Oregon 97304

BIRMINGHAM

P.O. Box 657
Birmingham, Georgia 30202

CHICAGO

555 W. Lake Street
Chicago, Illinois 60606

CLEVELAND

Communications Center
100 West 10th Street
Cleveland, Ohio 44112

CLEVELAND

P.O. Box 645
Cleveland, Ohio 44112

DALLAS

510 W. Main Street
Dallas, Texas 75201

DALLAS

600 Exchange Bank Building
Dallas 35, Texas 75235

DETROIT

1500 W. McNichols Road
Suite 227, Office Center Building
Detroit 35, Michigan

HOUSTON

P.O. Box 13397
Bayou Building
3115 Allen Parkway
Houston, Texas 77019

KANSAS CITY

4233 Blue Ridge Boulevard
Kansas City, Missouri 64133

NEW ORLEANS

P.O. Drawer 26278
Chef Menteur Station
7800 Almonaster Drive
New Orleans, Louisiana 70126

NORTHWEST

119 W. 2nd South
Salt Lake City, Utah 84101

SAN FRANCISCO

301 El Cerrito Plaza
El Cerrito, California 94532

WILMINGTON

Wilmington Marine Terminal
P.O. Box 310
Wilmington, Delaware 19899

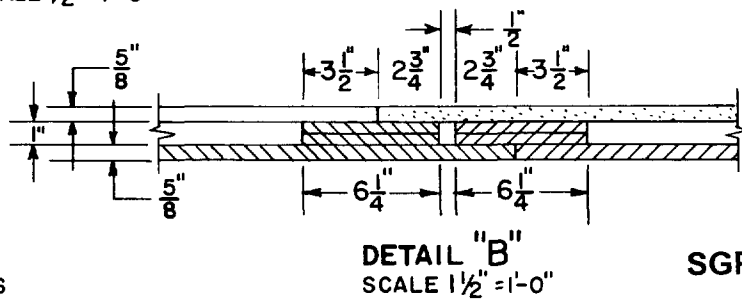
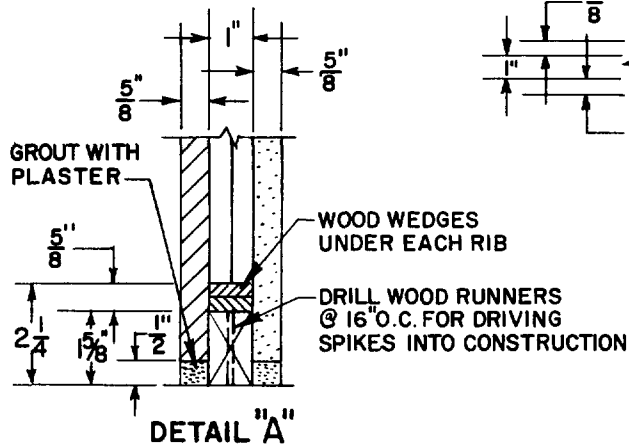
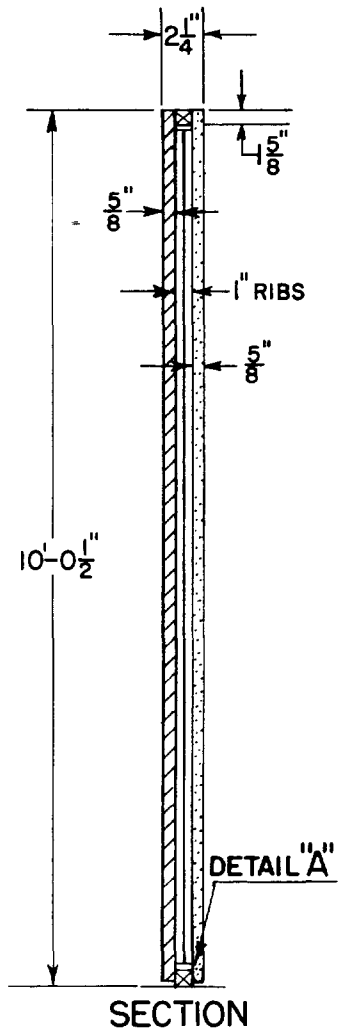
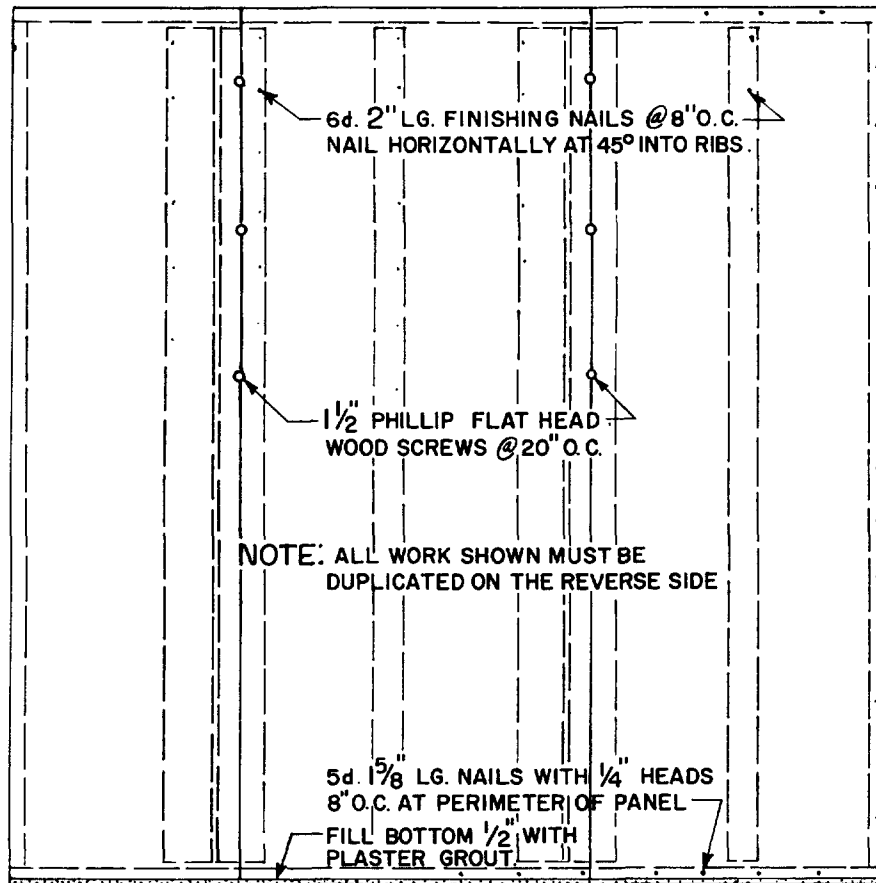
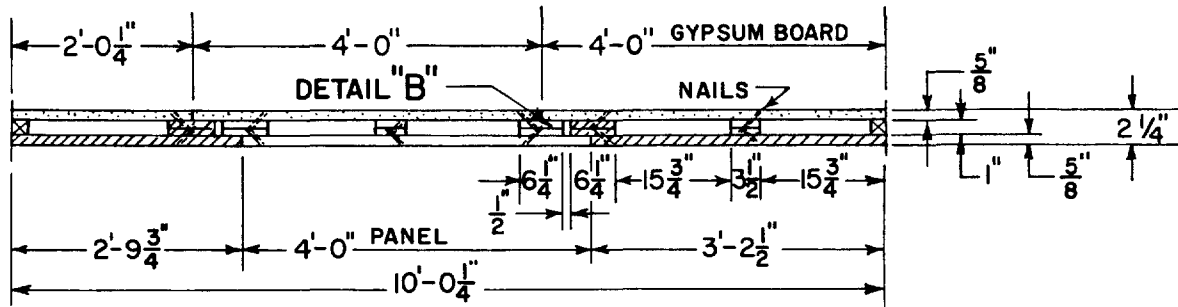


BESTWALL GYPSUM COMPANY
PAOLI, PENNSYLVANIA

SGP 0028667

SYSTEMS ENGINEER

SGP 0028668



SGP 0028669

BESTWALL GYPSUM CO. SYSTEMS ENGINEERING, ARDMORE, PA.	
BESTWALL HUMMER SYSTEM "B" (MODIFIED) NON LOAD BEARING PARTITION	
	4-8-57 2-21-57

FIG.1
R 2717-19-21

CONSULT YOUR

BESTWALL®

SYSTEMS ENGINEER

BESTWALL FIRESTOP GYPSUM WALLBOARD

TWO HOUR NON-LOAD BEARING STUDLESS WALL

REPRODUCTION FROM UNDERWRITERS' LABORATORIES, INC. GUIDE NO. 40 U18.23.

Guide No. 40 U18.23
Wallboard.

August 26, 1957

File R2717

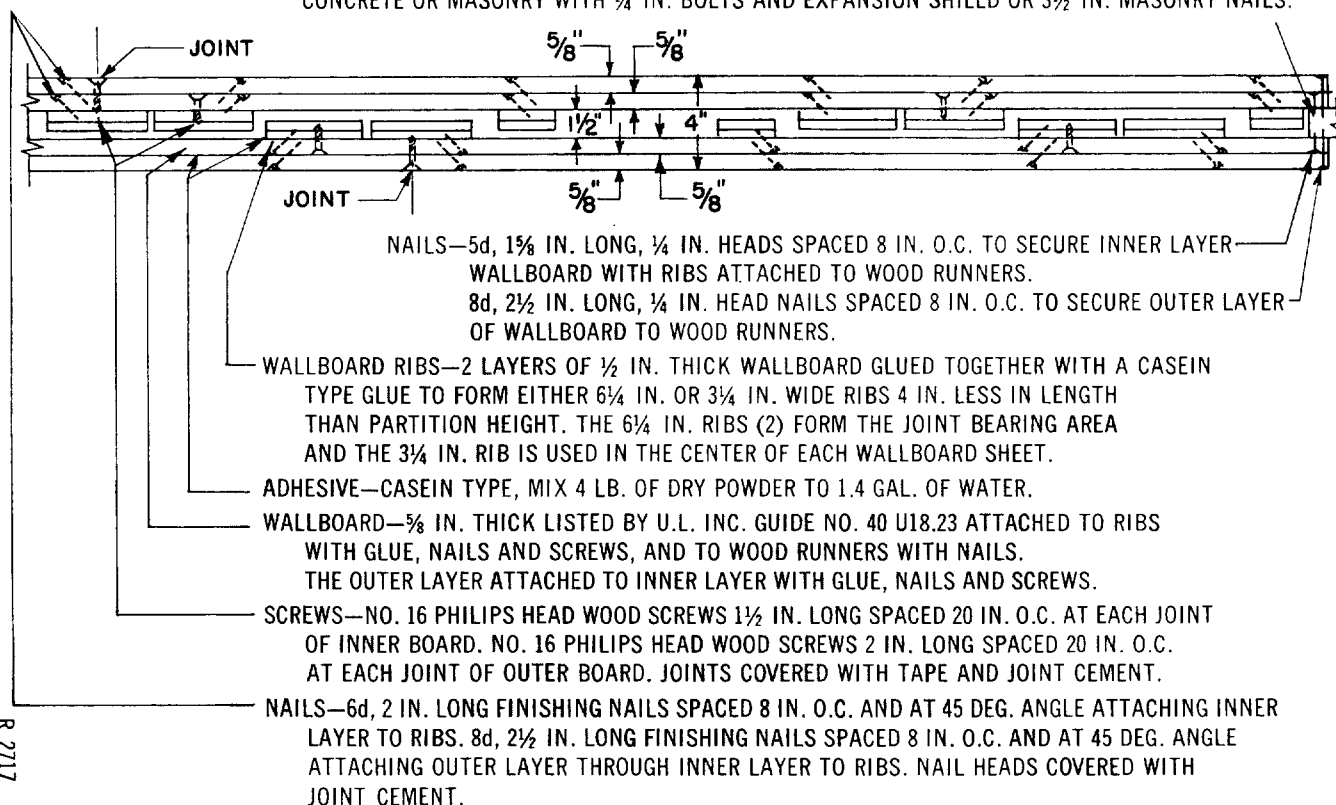
Bestwall Gypsum Co., Ardmore, Pa.

For Wall and Partition Design No. 7-2 hr and 5-3 hr

GUIDE NO. 40 U18
GENERAL INFORMATION (CONT'D)
WALLS AND PARTITIONS

CLASS D-2 DESIGN
DESIGN NO. 7-2HR (NON-BEARING PARTITION)

WOOD RUNNER— $1\frac{1}{2}$ X $1\frac{1}{8}$ IN. YELLOW PINE, USED ON SILL, LINTEL AND SIDES, FASTENED TO CONCRETE OR MASONRY WITH $\frac{1}{4}$ IN. BOLTS AND EXPANSION SHIELD OR $3\frac{1}{2}$ IN. MASONRY NAILS.



SGP 0028670

CONSULT YOUR

BESTWALL

SYSTEMS ENGINEER

BESTWALL FIRESTOP GYPSUM WALLBOARD

THREE HOUR NON-LOAD BEARING STUDLESS WALL

REPRODUCTION FROM UNDERWRITERS' LABORATORIES, INC. GUIDE NO. 40 U18.23.

Guide No. 40 U18.23
Wallboard.

August 26, 1957

File R2717

Bestwall Gypsum Co., Ardmore, Pa.

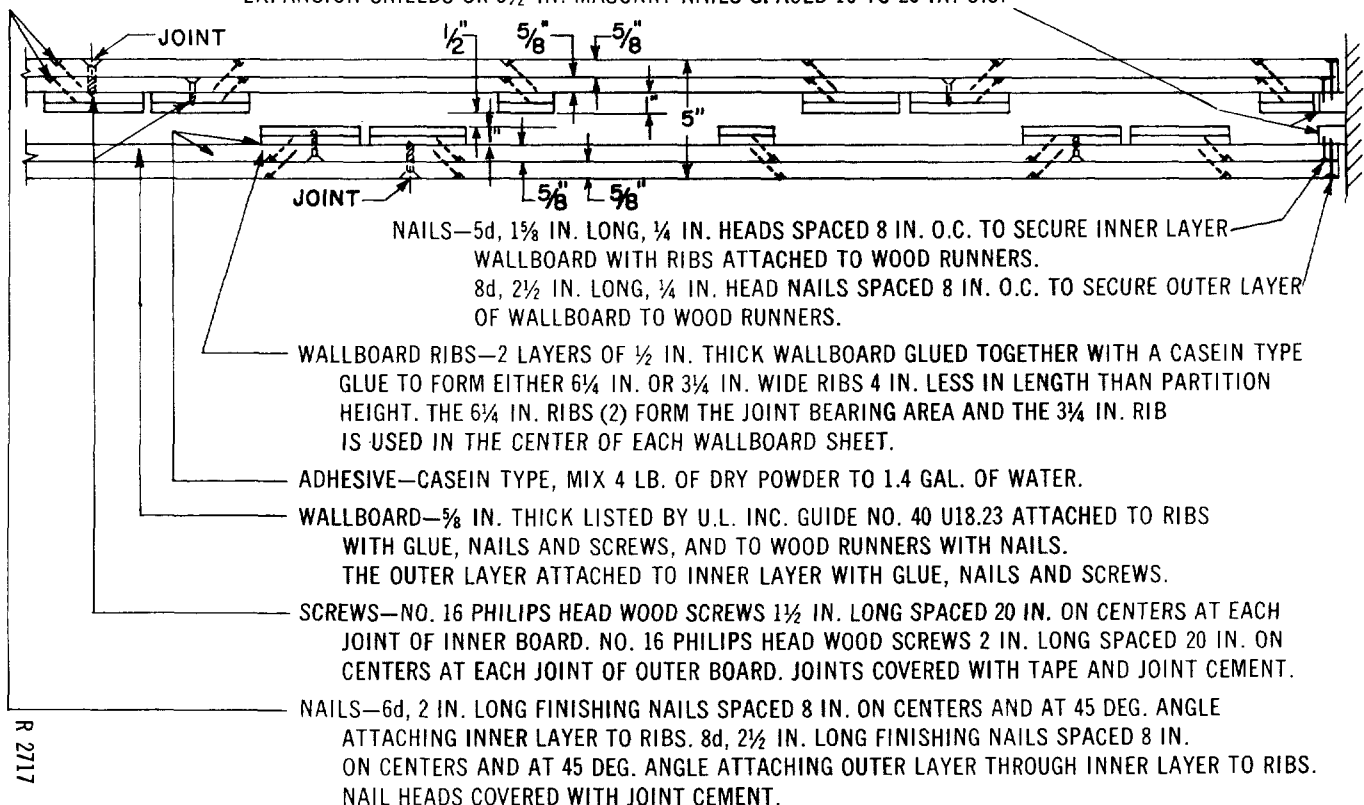
For Wall and Partition Design No. 7-2 hr and 5-3 hr

GUIDE NO. 40 U18

GENERAL INFORMATION (CONT'D)
WALLS AND PARTITIONS

CLASS C-3 DESIGNS
DESIGN NO. 5—3 HR (NON-BEARING WALL)

TWO WOOD RUNNERS*—1 X 1½ IN. YELLOW PINE, SPACED ½ IN. APART USED ON SILL LINTEL AND SIDES, FASTENED TO CONCRETE OR MASONRY WITH ¼ IN. BOLTS 3 IN. LONG AND EXPANSION SHIELDS OR 3½ IN. MASONRY NAILS SPACED 16 TO 20 IN. O.C.



*NOTE: For incombustible construction and rating use 24 gauge sheet metal hat section

SGP 0028672

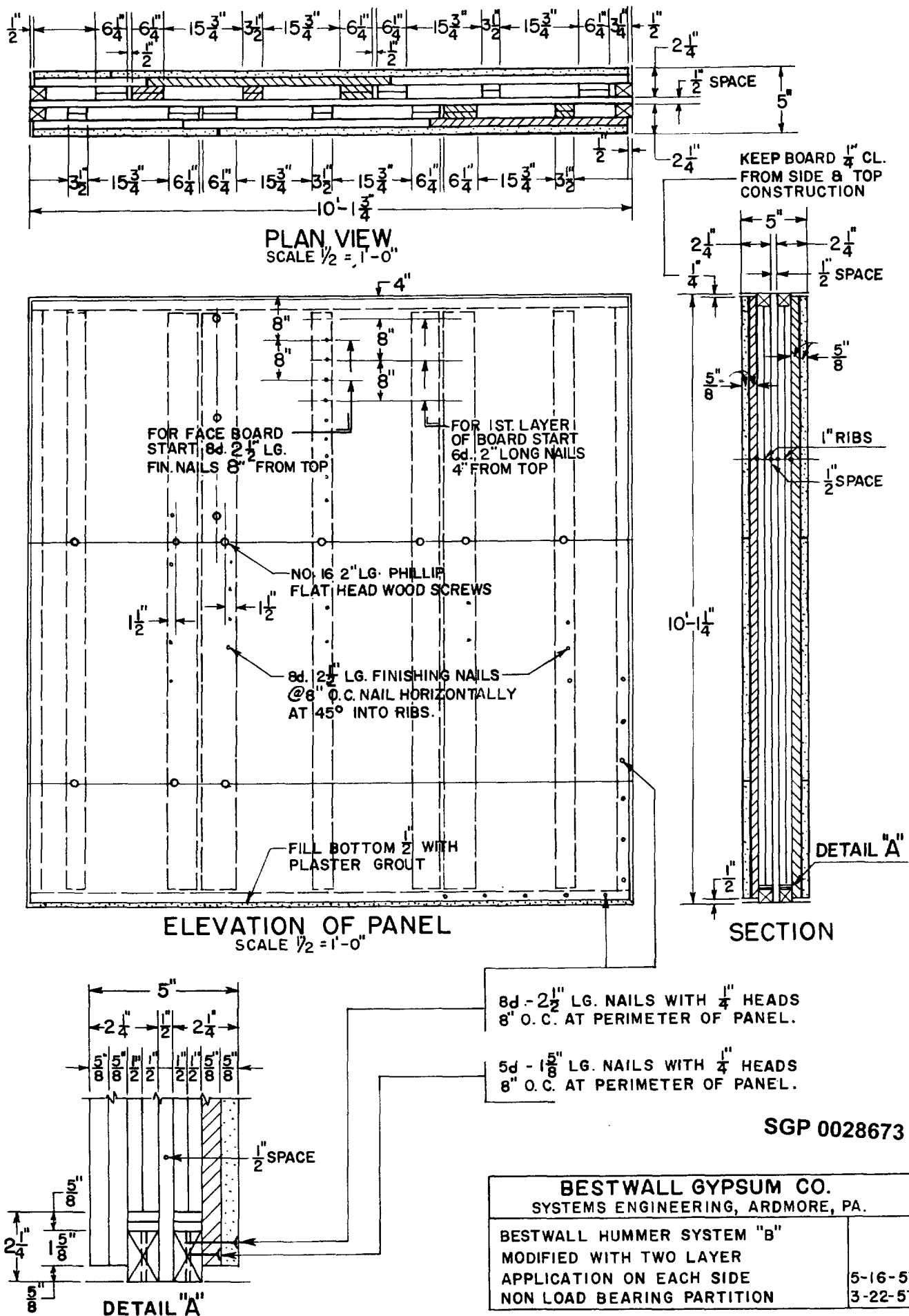
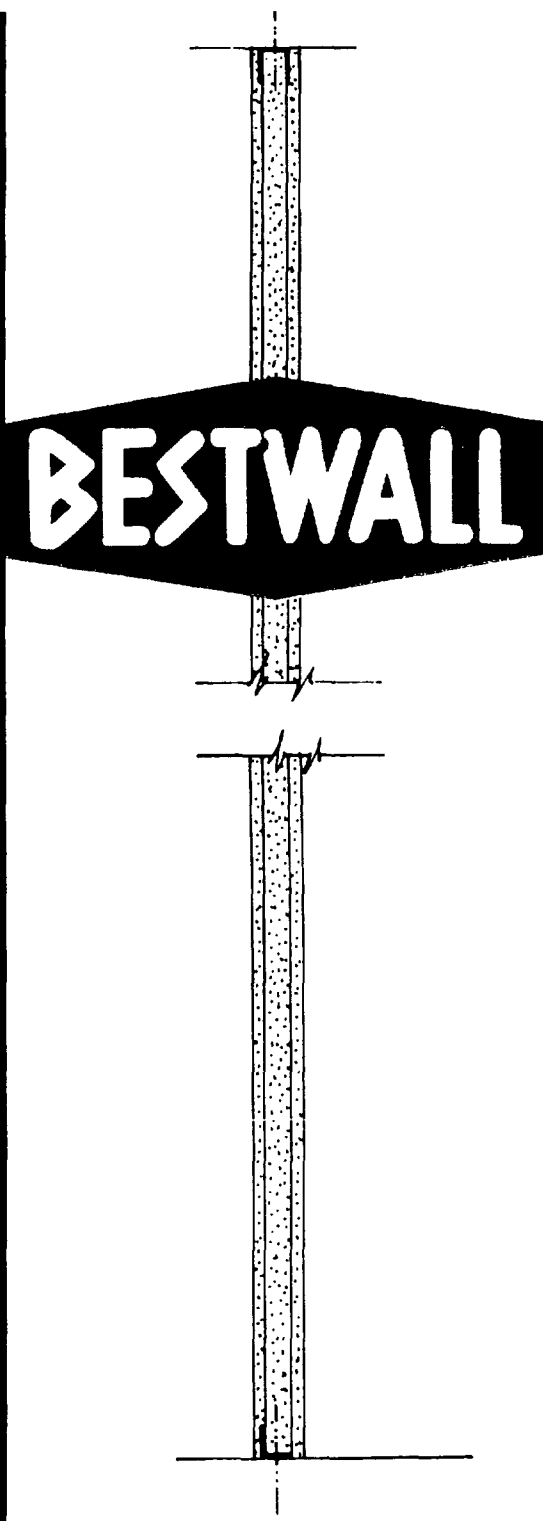


FIG. 3
R 2717-22



BESTWALL

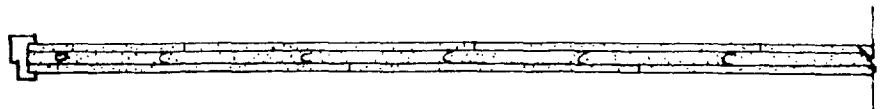
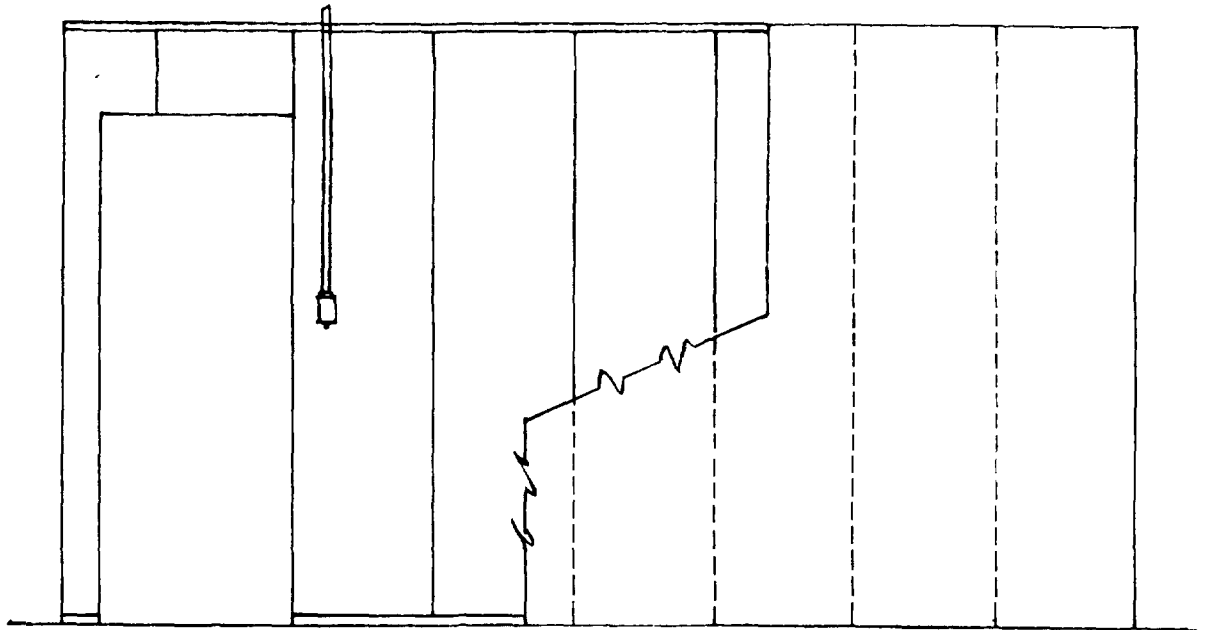
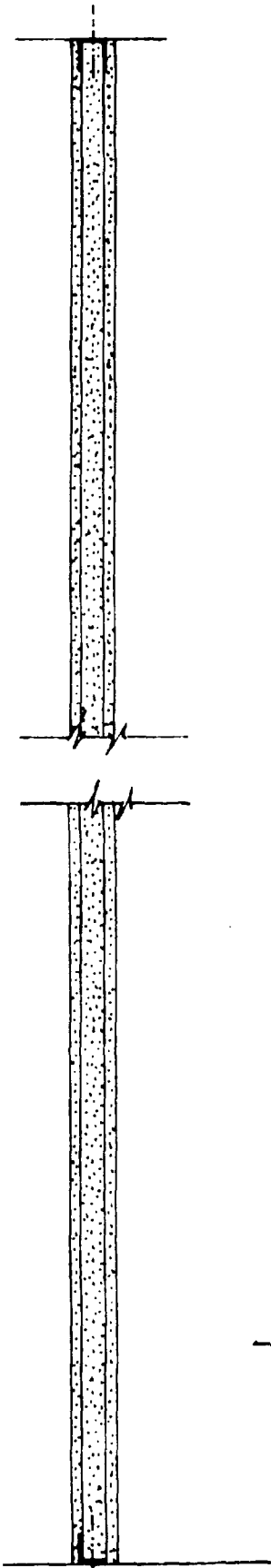
HUMMER SYSTEMS

SGP 0028674

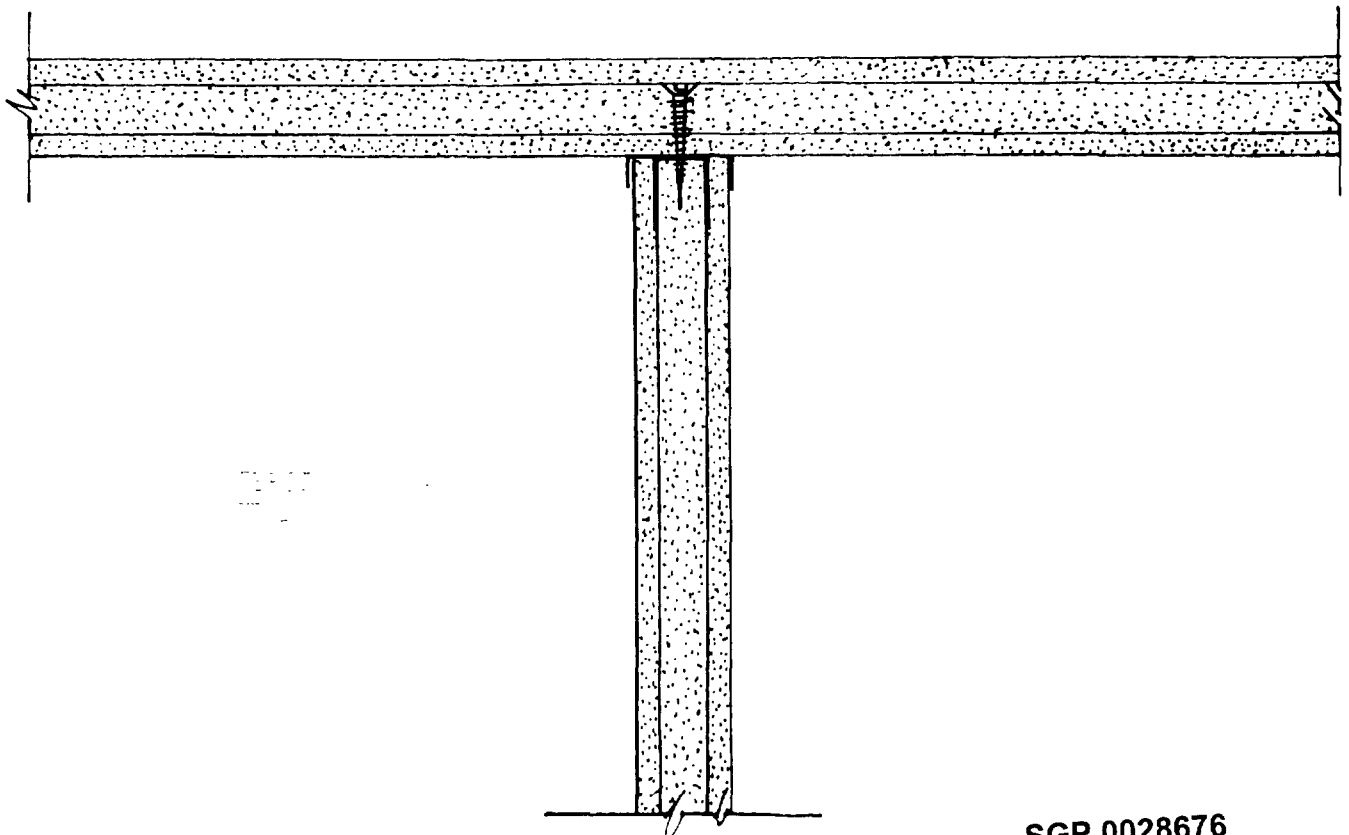
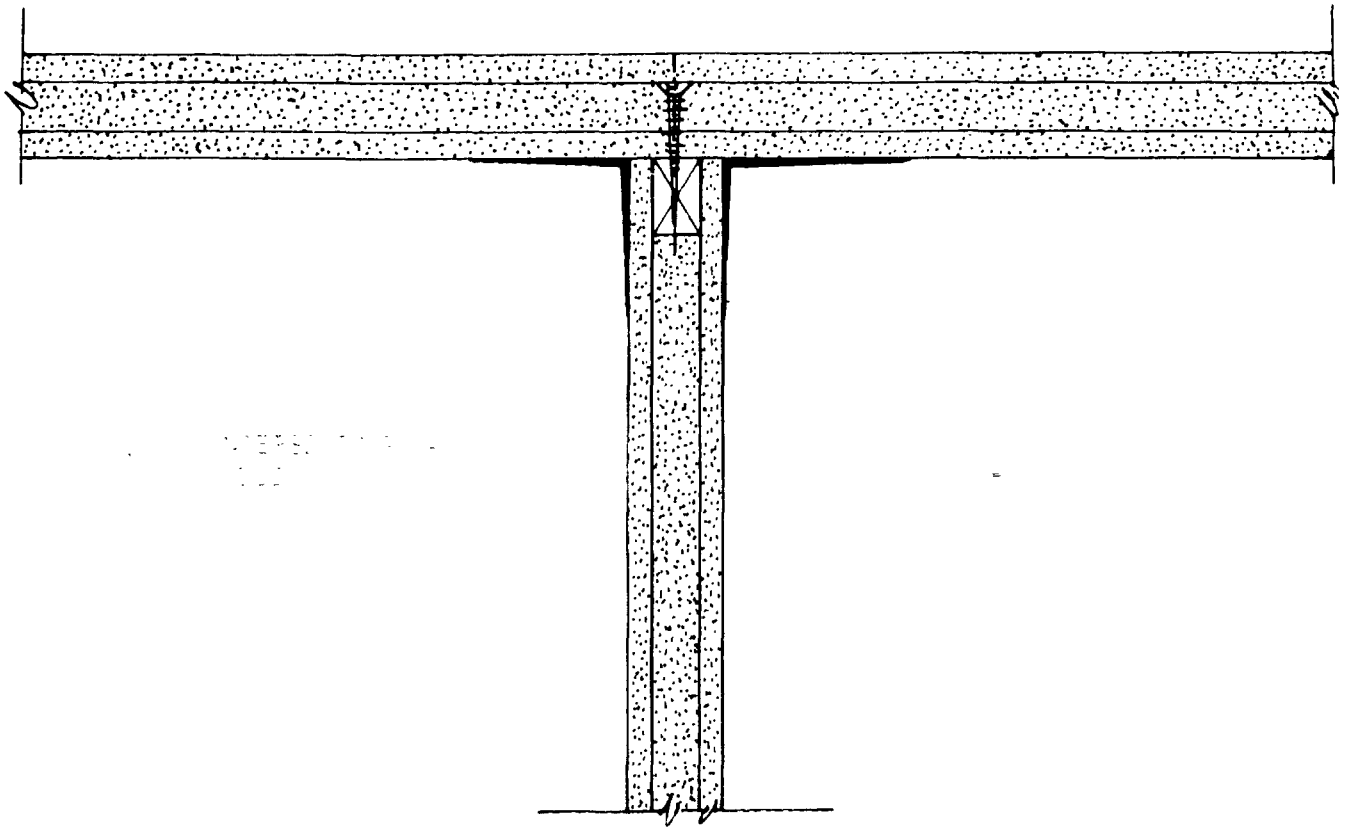
2" SOLID

This laminated non-load bearing Gypsum partition system consists of 1" homogeneous core board with face plies of 1/2" Bestwall Gypsum Wallboard.

- FIRE RESISTANCE—One hour with Bestwall Gypsum Wallboard, Two hours with Bestwall Firestop.
- SOUND TRANSMISSION LOSS—36 Decibels (Tested 1958).
- STRENGTH—Standard "Bump" tests show partition equal to 1/2" gypsum board over 2" x 4" wood studs 16" o.c.
- LAMINATED CONSTRUCTION — Smooth monolithic walls created by unitized lamination of multi-ply of Gypsum Wallboard.
- EXTRA USABLE FLOOR SPACE—26 sq. ft. more than 2" x 4" stud wall construction for every 100 lin. ft. of partition.

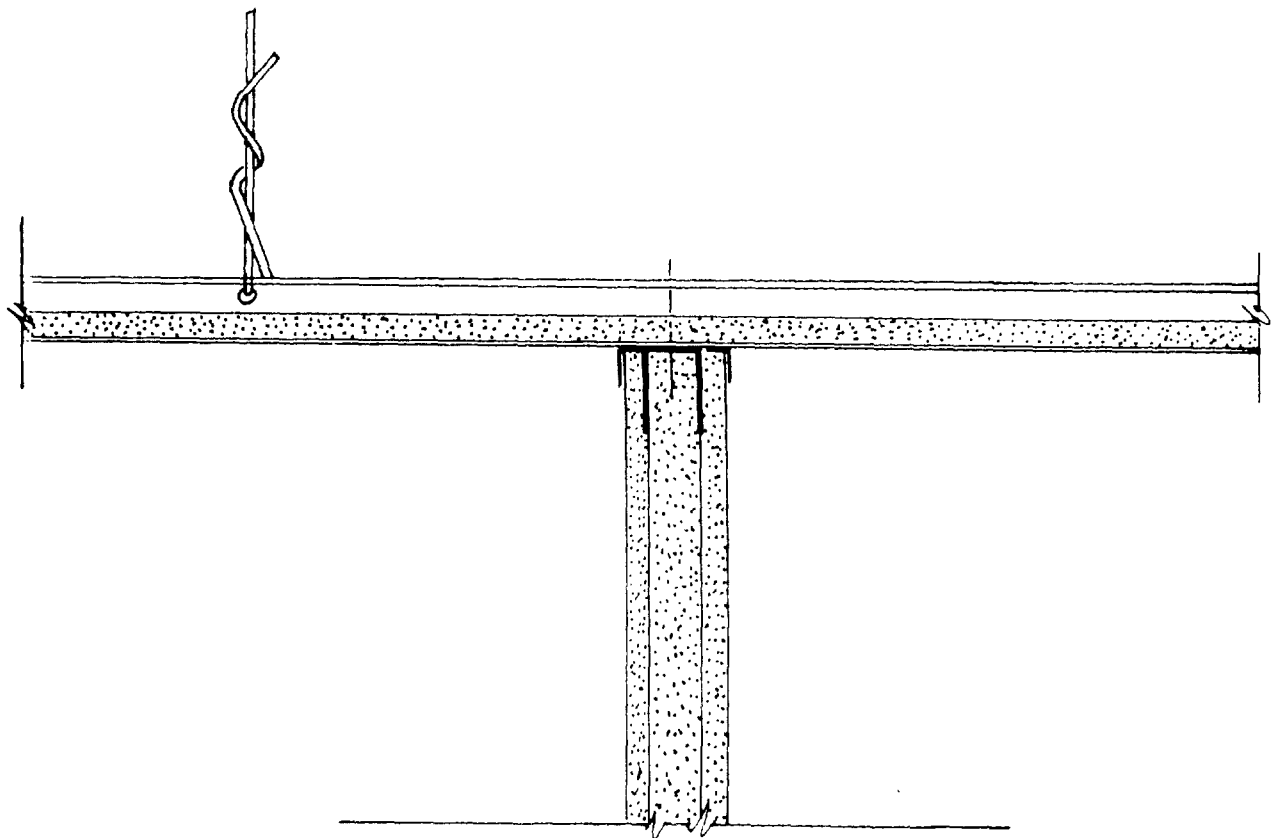
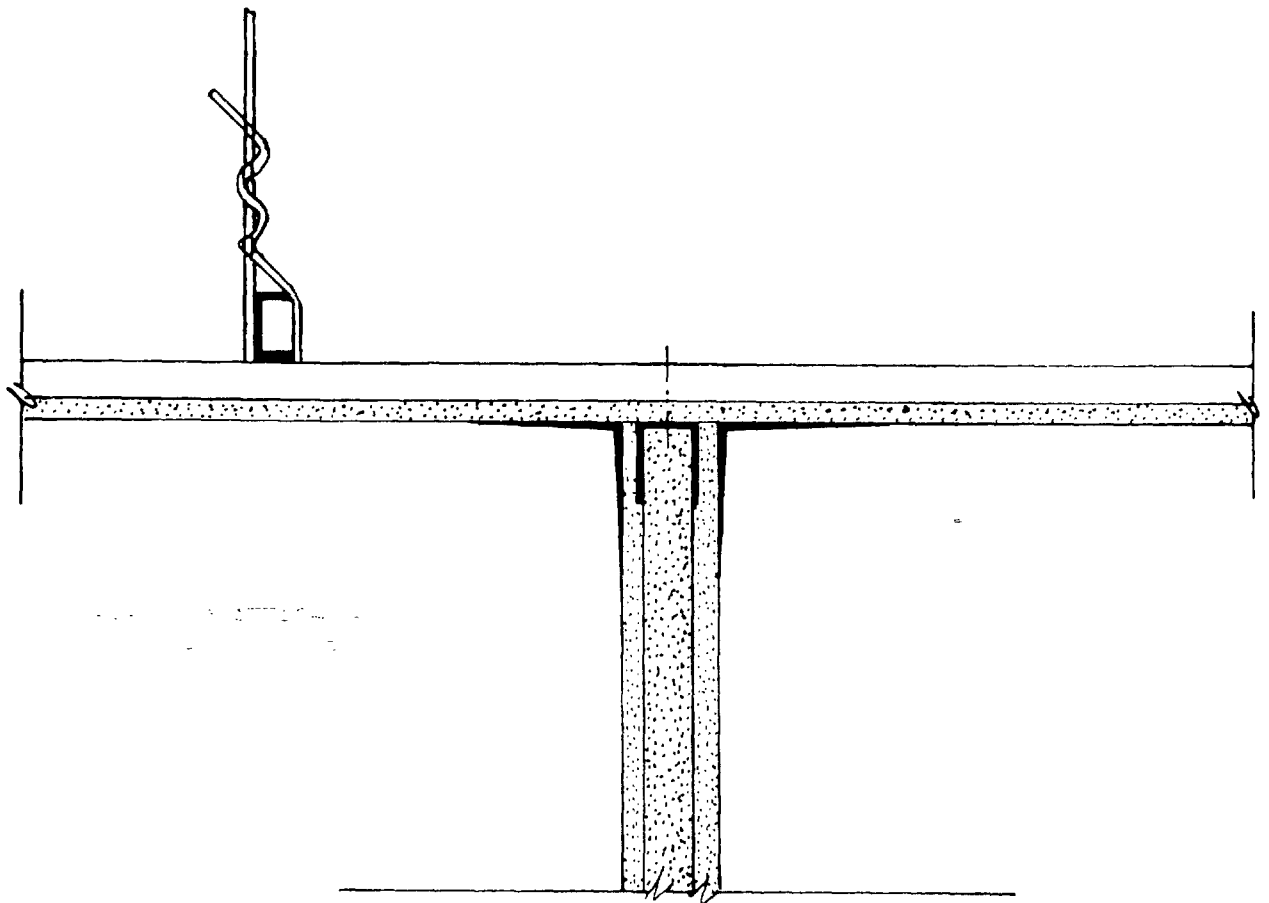


SGP 0028675



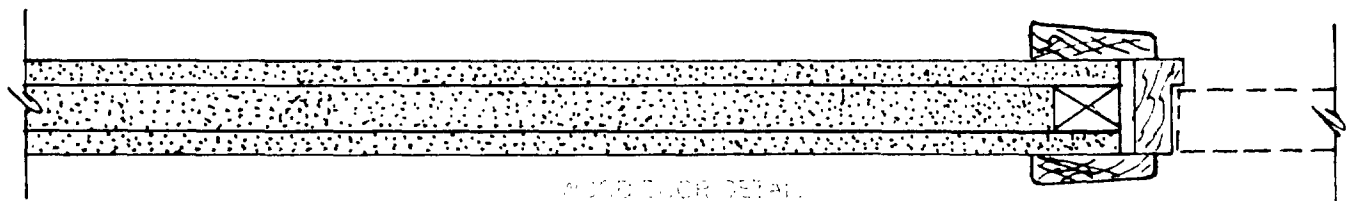
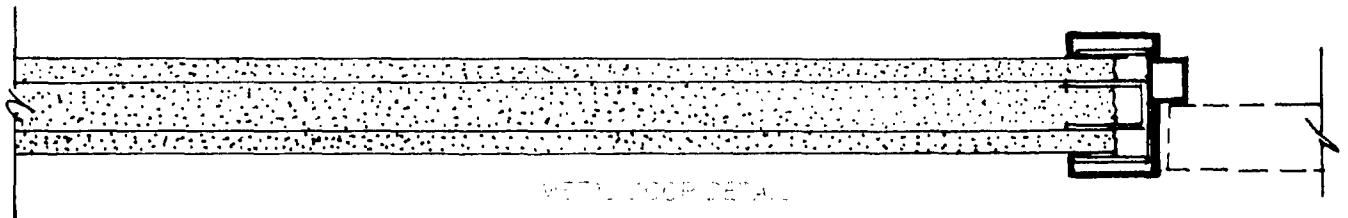
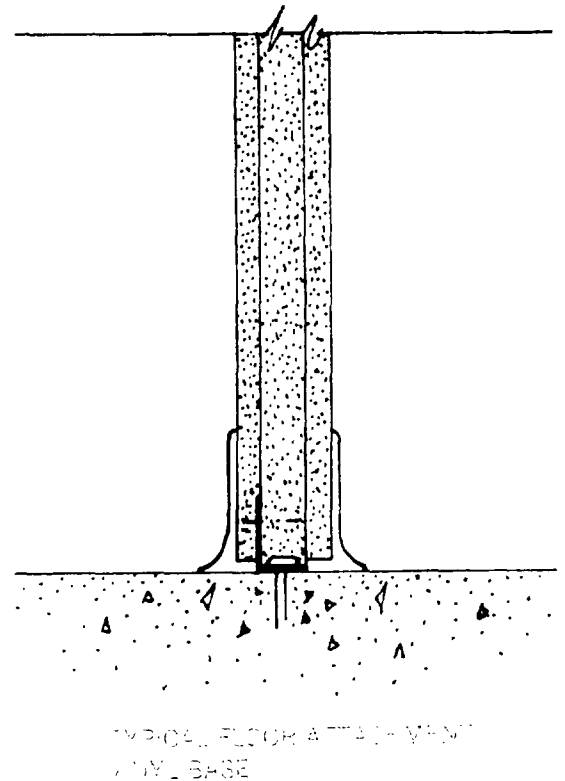
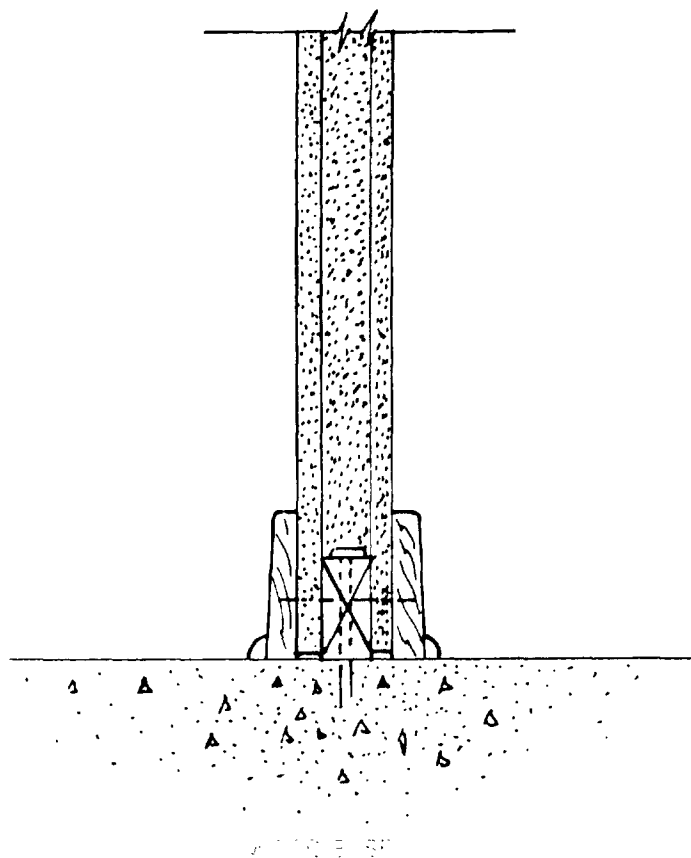
SCALE 3" = 1'0"

SGP 0028676



SCALE 3" = 1'0"

SGP 0028677



SCALE 3" = 1'0"

SYSTEMS ENGINEERING

SGP 0028678

Bestwall research and engineering combine Bestwall Glass Fiber Reinforced Gypsum Wallboard with the most comprehensive and advanced techniques in gypsum drywall construction. These include single ply, laminated plies, metal studs, screw application and movable partitions with and without metal framing. Each system tailors space to your requirements

with substantial savings on material and labor.

A staff of Bestwall Systems Engineers is available from coast-to-coast to assist you in quantity survey, detailing and installation of drywall systems to help you meet your requirements.

For detailed data, check your Sweet's File or write directly to the Bestwall Gypsum Company.

BESTWALL HUMMER SYSTEMS

2" SOLID LAMINATION

FEATURES:

1. Fire Resistance: One hour with Bestwall Gypsum Wallboard.
Two hours with Bestwall Fire-stop.
2. Sound Transmission Loss: . 36 Decibels (Tested 1958).
3. Strength: Standard "Bump" tests show partition equal to 1/2" gypsum board over 2" x 4" wood studs 16" o.c.
4. Laminated Construction: . . Smooth monolithic walls created by unitized lamination of multi-ply of Gypsum Wallboard.
5. Extra Usable Floor Space: . 26 sq. ft. more than 2" x 4" stud wall construction for every 100 linear ft. of partition.

SPECIFICATIONS:

All gypsum wallboard and joint system materials used, including laminating compound, shall be manufactured by the Bestwall Gypsum Company and shall be installed by a Bestwall Hummer licensed contractor in a first-class workmanship manner.

Floor and Ceiling Runners: Use 1" x 1 5/8" wood runners or special shape sheet metal runners accurately aligned and

securely attached with suitable fasteners to floor and ceiling constructions 2' on center.

Coreboard: 1" thick 24" wide tongue and groove edge Bestwall coreboard (or 2 layers 1/2" thick 48" wide square edge backer ship lapped) cut accurately to fit in floor and ceiling runners and installed vertically. Where partitions intersect, coreboard panels shall be nailed together with heavy nails 2' on centers.

Face Board: Use 1/2" thick tapered edge Bestwall Gypsum Wallboard, 4' wide, floor to ceiling length (12' max.) applied vertically with joints off those in coreboard (minimum 6").

Laminating Compound: See Bestwall Product Sheet SGP 002867. Apply laminating compound to back of face board with serrated knife or to face of coreboard with a mechanical glue spreader.

Face Fasteners: Use 1 1/2" long Bestwall screws 2 foot on centers, both edges at vertical joints. Drive 1 1/2" finishing nails down at 45° angle in center of face board 2' on centers and at other points needed to hold face and board in place until glue sets; after glue dries, counter sink nails.

Openings: Door and borrowed light openings shall be left accurately located in coreboard and face board for 3 (or 4) part frames to be set in after completion of wall. Single piece door frames shall be accurately set (by others) before coreboard which must then be started from frame.

Joint Treatment and Decorating: See Bestwall Product Sheet SGP 002867.

DISTRIBUTION

ALBANY, N.Y.
The Albany Building
Albany, N.Y.

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BESTWALL GYPSUM COMPANY
ARDMORE, PENNSYLVANIA

SGP 0028679

Partitions

SGP 0028680

**C. Ceiling
Systems**

SGP 0028681



NEW IMPROVED BESTWALL FIRESTOP

The Lowest Cost 2-Hour Fire Resistive Floor And Ceiling In Single Layer Application

Now from the Bestwall Gypsum Company and available only through the Bestwall Certain-teed Sales Corporation comes New Improved Bestwall Firestop. What's new about it? Plenty! There's substantially greater glass fiber reinforcement . . . more than ever before. This means increased fire ratings providing increased protection . . . possibly reduced fire insurance premiums . . . additional strength minimizing breakage in handling and installation . . . better nailing qualities . . . all available to the customer at no increase in price.

The Original $\frac{5}{8}$ " fire rated gypsum wallboard (Type "X") had a one-hour fire resistance in single layer application over wood or steel framing in walls and ceilings. Now through greater glass fiber reinforcement, its fire resistance has been increased to permit two hours when used in a single layer application in incombustible floor and ceiling assemblies.

In an Official Fire Test at Underwriters' Laboratories a single layer of $\frac{5}{8}$ " thick New Improved Bestwall Firestop was used as the ceiling beneath a concrete floor on steel bar joists (see reverse side for details) with sheet metal furring channels 24" on center, NOT 12", and drywall screws 12" on center, NOT 8".

The result: The lowest cost two-hour fire resistive incombustible floor and ceiling assembly available today! This construction with New Improved Bestwall Firestop passed the hose stream and double overloading tests, as well as the fire resistance test, which actually ran two hours and twenty minutes, with no joint finishing treatment.

All Bestwall Firestop, including the $\frac{5}{8}$ " and $\frac{1}{2}$ " thicknesses and Firestop Backer, is being manufactured with this improved glass fiber reinforcement all Bestwall Firestop users will benefit from this improvement at no increase in price. Improved Bestwall Firestop is available only from the Bestwall Certain-teed Sales Corporation.

For additional information, including news about future tests to be conducted on New Improved Bestwall Firestop, contact the nearest sales office, located in principal cities throughout the United States. A staff of Bestwall Systems Engineers is available from coast-to-coast to assist in quantity survey, detailing and installation of Firestop floor, ceiling and wall systems.

No. 2467

OCTOBER 15, 1964

COMMONWEALTH OF PENNSYLVANIA



CERTIFICATE OF APPROVAL

THIS IS TO CERTIFY THAT

*The Industrial Board of the Pennsylvania Department
of Labor and Industry has examined
and approved*

"FLOOR AND CEILING DESIGN" WITH A 2 HR. FIRE RESISTIVE RATING. THE
ASSEMBLY WILL CONSIST OF CEILING AND FLOOR CONSTRUCTION ON WOOD JOISTS
WITH TWO LAYERS OF 5/8" BESTWALL FIRE STOP WITH RESILIENT CHANNEL.

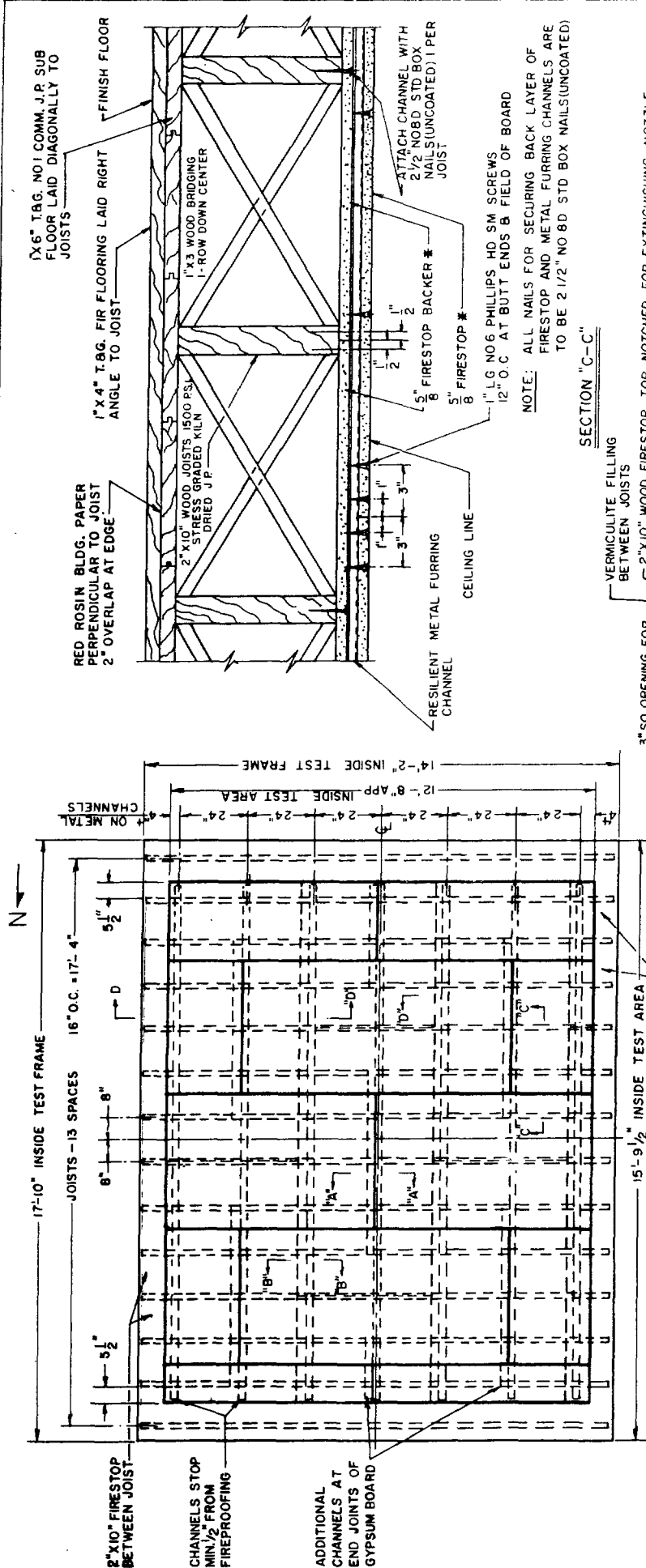
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of the

BESTWALL GYPSUM COMPANY

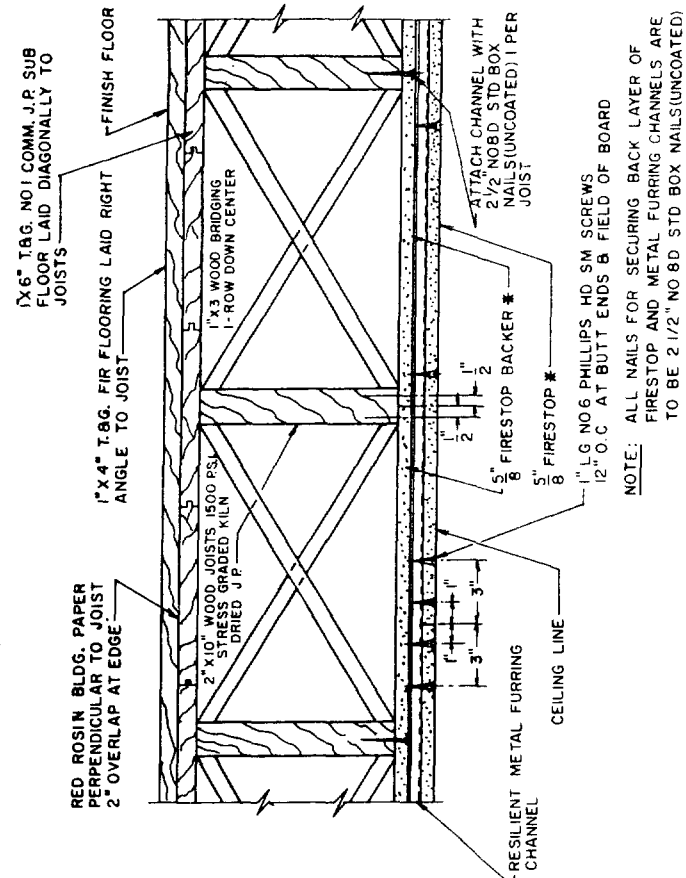
PAOLI, PENNSYLVANIA

R. Paul Lessy
Secretary

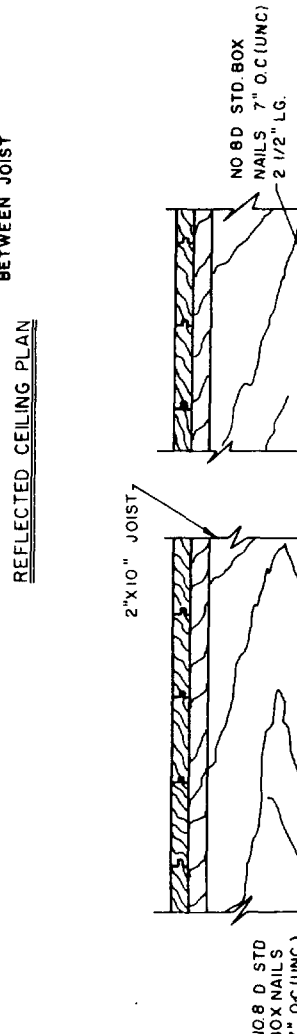
R. PAUL LESSY



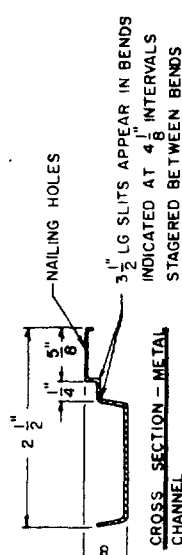
REFLECTED CEILING PLAN



SECTION "C-C"



LISTED BY U L INC *	
DESIGN NO. 217-2 HRS.	
BESTWALL GYPSUM CO. PAOLI PA	
CEILING & FLOOR CONSTRUCTION ON JOIST TWO LAYER 5/8" BESTWALL FIRESTOP WITH RESILIENT CHANNEL	
R 2717	64K2179
DATE	8-17-64
DRN	CNO
SCALE	T-122
DWG NO	



CROSS SECTION - METAL CHANNEL

**D. Steel Column
Fireproofing**

SGP 0028686

BESTWALL GYPSUM COMPANY

GYPSUM WALLBOARD MANUAL

Section 7

1965 EDITION

Sub-Section D

STEEL COLUMN FIREPROTECTING

The system for applying 5/8" Bestwall Firestop around a steel column will be listed by Underwriters' Laboratories under "Column Protection".

Designs

- 1 - (1-Hour) not tested - estimated - 1 layer 5/8" Firestop
- 2 - (2-Hour) U. L. Tested Design No. 8 - 2 layers 5/8" Firestop
- 3 - (3-Hour) U. L. Tested Design No. 18 - 3 layers 5/8" Firestop
- 4 - (4-Hour) Not tested - Estimated - 4 layers 5/8" Firestop

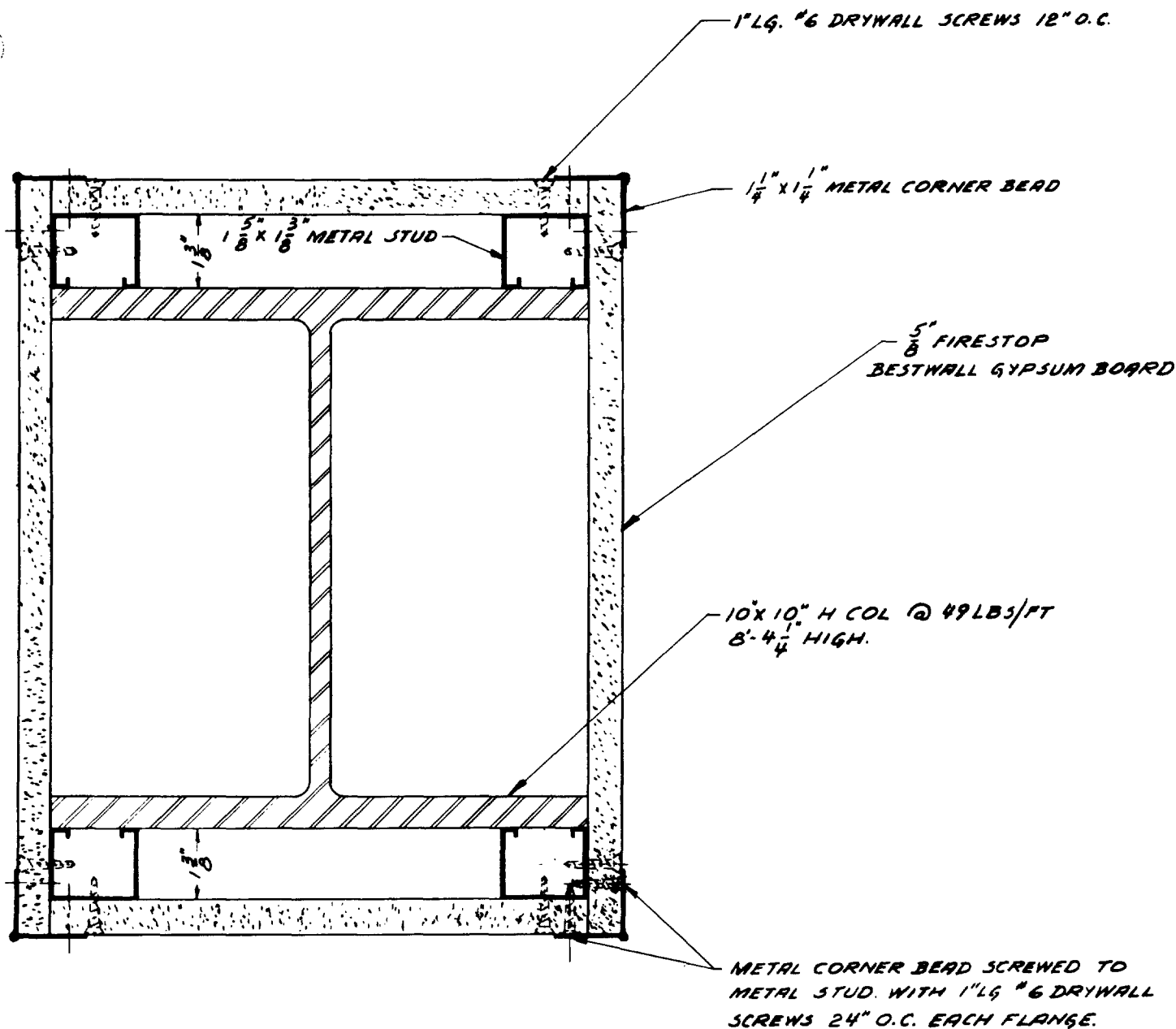
Application

- 1 - One layer or the base layer is screwed to two 1-5/8" x 1-3/8" metal screw stud. 1" lg #6 drywall screw 24" O. C.
- 2 - First or base layer may be completed on the floor. Stood up.
- 3 - Opposite sides are then screwed to the 1-5/8" x 1-3/8" metal screw stud. 1" lg #6 Drywall Screws, 24" O.C.
- 4 - 2nd, 3rd or 4th layers of 5/8" Firestop are screwed to the metal studs with the various length drywall screws.
- 5 - Corner bead is nailed to the four outside corners only. 6d nails - 12" O.C.

Advantages

- 1 - Simplicity of erection
- 2 - The sides are independent of the column and might be held out further if necessary so that piping may be placed in the web sections or on the face of the column.
- 3 - No wire ties.
- 4 - Corner beads on the outside corners only.
- 5 - Less screws on single or first layer of gypsum wallboard (24" O.C.)

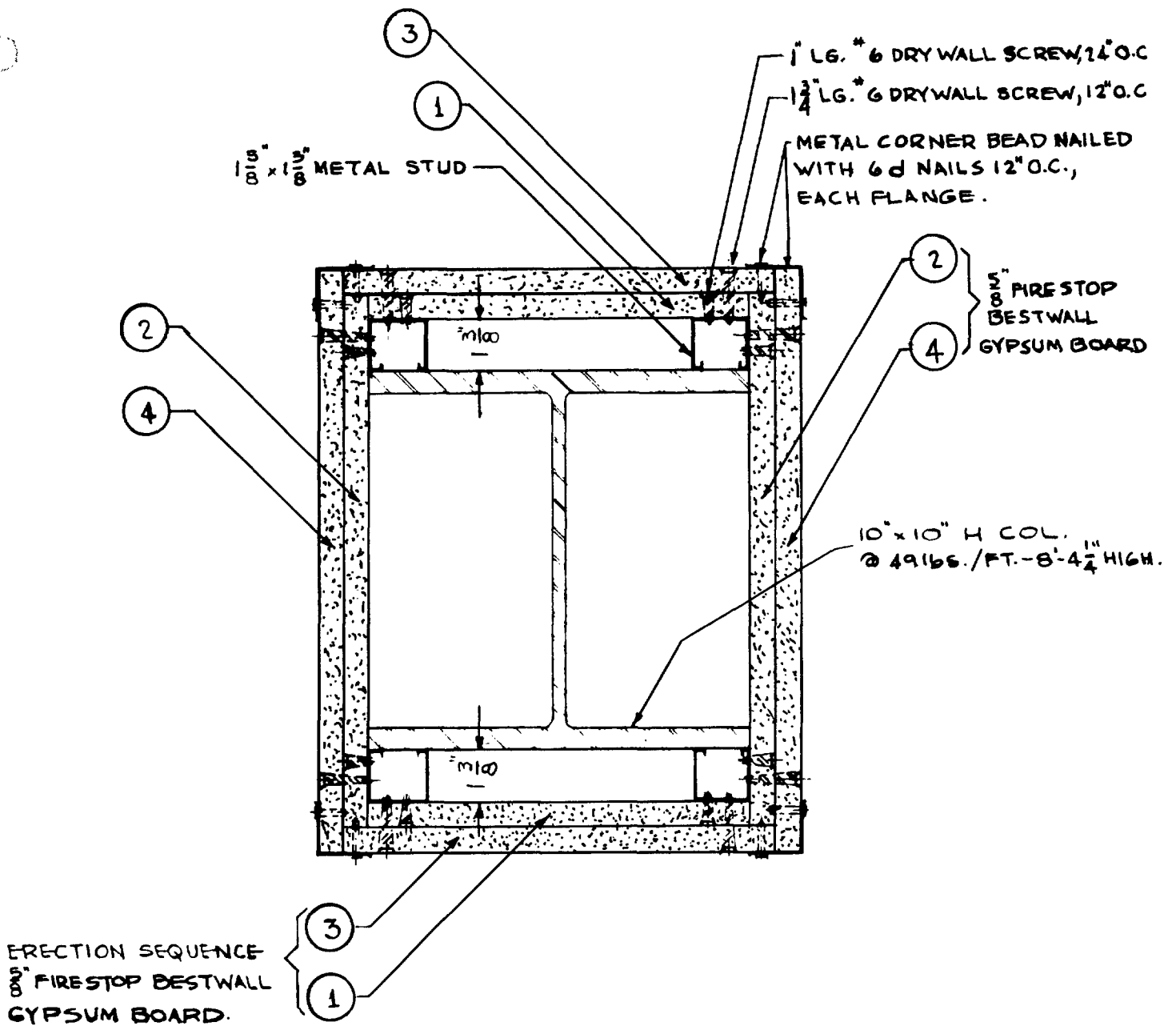
SGP 0028687



ESTIMATED - 1HR.

SECTION THRU FIREPROOFING & COLUMN

BESTWALL GYPSUM COMPANY PAOLI PA.		
5" FIRESTOP BESTWALL GYPSUM BOARD. SINGLE LAYER FIREPROOFING ENCASUREMENT ON STEEL COLUMN		
DATE: 4-17-64	SCALE: 6"=12"	
DRN. BY T.P.	CHK'D BY	DWG NO. T-120
		SHEET NO 1 OF 1

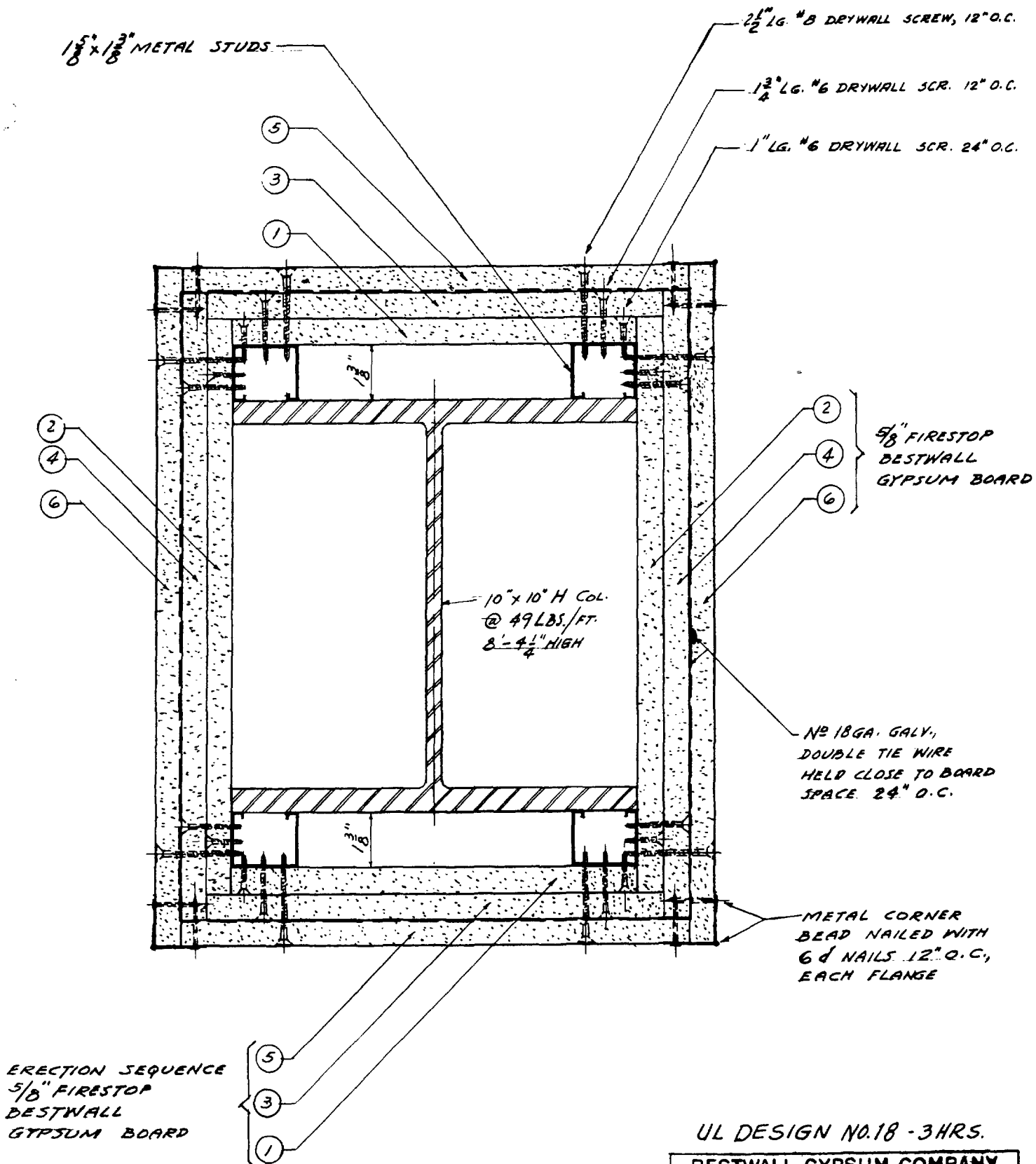


UL DESIGN NO. 8 - 2 HRS.

SECTION THRU FIREPROOFING & COL.
SCALE 3" = 12"

BESTWALL GYPSUM COMPANY PAOLI PA.			
5" 8" FIRE STOP BESTWALL GYPSUM BOARD FIREPROOFING ENCASE- MENT ON STEEL COLUMN			
DATE: 2-3-64		SCALE: AS NOTED	
DRN. BY H.K.K.	CHK'D BY	DWG. NO. T-118	SHEET NO 1 OF 1

SGP 0028689



SECTION THRU FIREPROOFING & COLUMN

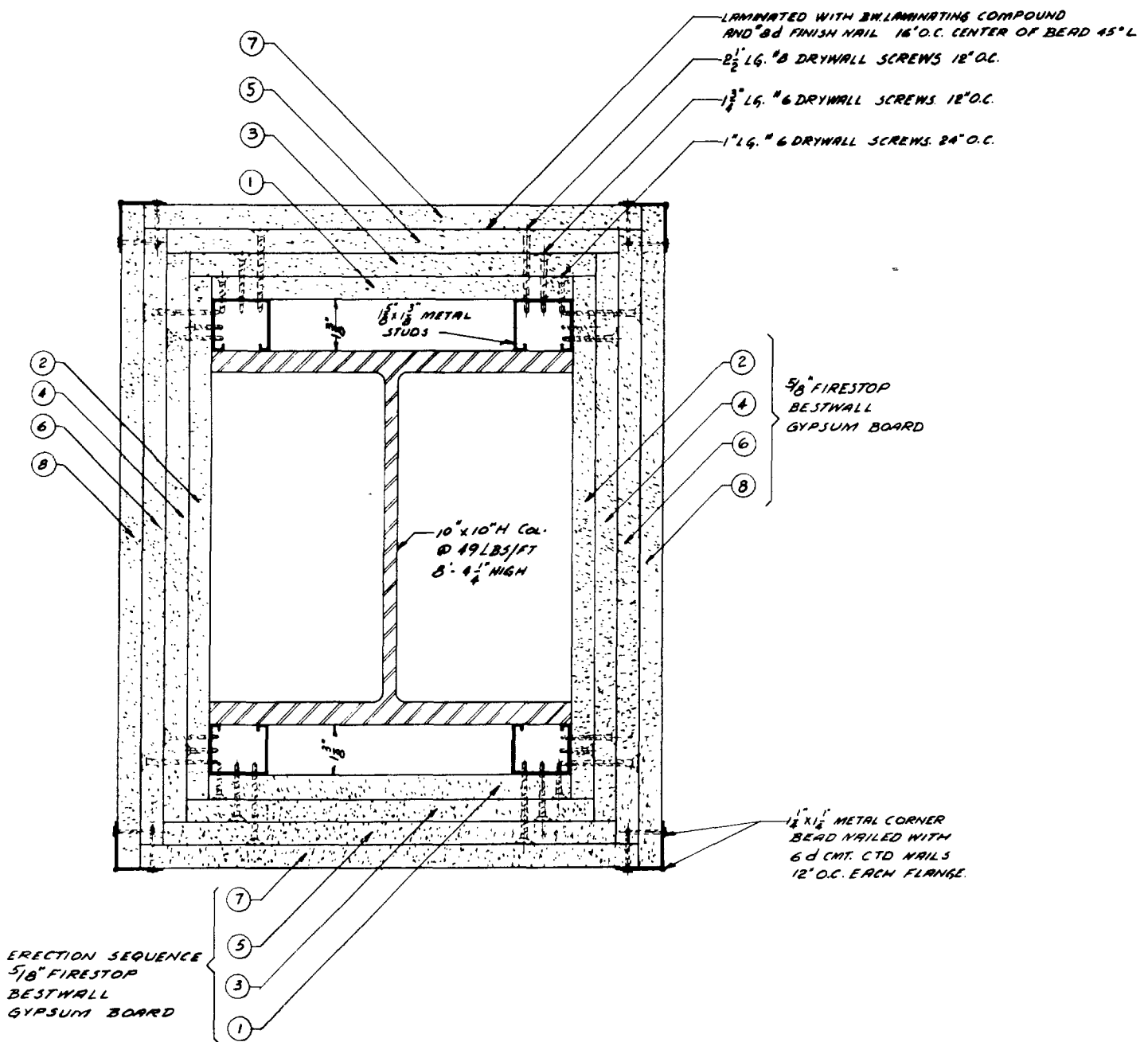
SCALE: 6" = 1'-0"

UL DESIGN NO.18 - 3HRS.

BESTWALL GYPSUM COMPANY
ENGINEERING DEPT.

5/8" FIRESTOP BESTWALL GYPSUM BOARD
FIREPROOFING ENCASEMENT
ON STEEL COLUMN

DATE: 11-5-63	SCALE: 6" = 1'-0"	SHEET NO 1 of 1
DWN. BY J.R.M.	CH'K'D. BY DWG. No. T-114	



ESTIMATED - 4 HRS.

SECTION THRU FIREPROOFING & COLUMN

BESTWALL GYPSUM COMPANY PAOLI PA.			
5/8" FIRESTOP BESTWALL GYPSUM BOARD. FIREPROOFING ENCASUREMENT ON STEEL COLUMN			
DATE: 4-16-64		SCALE: 6"=12"	
DRN. BY T.P.	CHK'D BY	DWG. NO. T-119	SHEET NO 1 OF 1

SGP 0028691

**E. Metal and
Assessing**

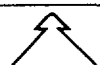
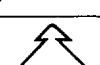
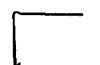
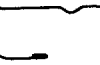
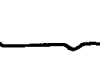
SGP 0028692

CONSULT YOUR

BESTWALL

SYSTEMS ENGINEER

BESTWALL METAL CORNERS AND METAL CASINGS**PACKAGING INFORMATION:**

BESTWALL NUMBER	SUPPLIERS NAME	NAME	SECTION	APPROX. WEIGHT # / M FT.	GROUNDS OR FLANGE WIDTH	STANDARD LENGTHS	QUANTITY PER CRATE*
100	220	metal corner (A)		115#	1" x 1"	8'-0"	63 pcs.—504 ft.
100-S	220						
DL-100	220	metal corner		130#	1 1/4" x 1" 1 1/8" x 1 1/8"	8'-0" 8'-0"	63 pcs.—504 ft.
DL-100-S	220						
DLL-100	220	metal corner		145#	1 1/4" x 1 1/4"	8'-0"	63 pcs.—504 ft.
DLL-100-S	220						
101	108	channel edge metal casing		120#	3/8" - 1/2" - 5/8"	7'-0" 10'-0"	86 pcs.—602 ft. 60 pcs.—600 ft.
102	106	angle edge metal casing		120#	3/8" - 1/2" - 5/8"	7'-0" 10'-0"	86 pcs.—602 ft. 60 pcs.—600 ft.
102-S	133			140#			
103	107	recessed edge metal casing		120#	3/8" - 1/2" - 5/8" (adjustable)	7'-0" 10'-0"	86 pcs.—602 ft. 60 pcs.—600 ft.
103-S	134			140#			
104	101	round nose metal casing		170#	3/8" - 1/2" - 5/8"	7'-0" 10'-0"	86 pcs.—602 ft. 60 pcs.—600 ft.
105	102	square nose metal casing		170#	3/8" - 1/2" - 5/8"	7'-0" 10'-0"	86 pcs.—602 ft. 60 pcs.—600 ft.
				230#	3/4"	8'-0"	50 pcs.—400 ft.
WATER STOP	103	sheet metal section		—	1/2" - 5/8" - 3/4"	5'-6"	20 pcs.—110 ft.
WATER STOP	103	zinc section		—	1/2" - 5/8" - 3/4"	5'-6"	20 pcs.—110 ft.

All casing items made of Hot Galvanized .018" steel, except 104, 105 and 105-S which are .020" steel and Water Stop Sections available in .018" galvanized or .022" zinc.

D-100, DL-100, DLL-100 available as electrogalvanized .0157" steel. On special orders to meet Government specifications .0172" steel available.

*Some items available in tubes with smaller quantity. Consult price list.

BESTWALL GYPSUM COMPANY • 120 E. LANCASTER AVENUE • ARDMORE, PENNSYLVANIA

SGP 0028693