

WAP
November 30, 1959

PLAINTIFF'S EXHIBIT

GP-1005

TO: All Sales Managers
All Salesmen

GENERAL SALES BULLEYIN #220

CC: MESSRS.

SUBJECT: FIRESTOP

Malcolm Meyer - President

C. E. Berzelius - Vice President

RE: Factory Mutual
Insurance Companies

BY: C. E. Abbey - cc

The Underwriters' Laboratories is a nonprofit testing agency set up to determine the fire risk, burglary risk, or other casualty involved with various building materials, assemblies, pieces of equipment, etc. and assist insurance companies in properly evaluating the items involved. They have the support of and work with the National Board of Fire Underwriters' which is essentially a trade organization of stock Fire Insurance Companies.

A group of Mutual Fire Insurance Companies specializing in fire insurance on factory construction, formed an Association of Factory Mutual Fire Insurance Companies many years ago. They have their testing facilities (the Factory Mutual Engineering Division) located in Norwood, Mass., outside of Boston. Many times this group will accept test work performed by the Underwriters' Laboratories. At other times, they will run their own tests as they, the technical advisors of the Factory Mutual Insurance Companies, issue technical bulletins to these member companies evaluating the risk involved.

Forwarded herewith is a copy of a "Loss Prevention Data" sheet, "Construction 1-36", dated July, 1959, distributed by the Factory Mutual Engineering Division. The title is "Fire Barriers Using Type X Gypsum Board". This is the general term applied to a Firestop type board under ASTM definitions.

The purpose in forwarding this sheet is to show that the Factory Mutual Insurance Companies are officially aware of Firestop type board and should, therefore, reflect the use of Firestop in constructions where fire resistance is necessary. Notice that it includes general constructions that have been tested with most of the competitive type materials and has one or two that are limited specifically to Firestop. For instance, Bestwall is the only manufacturer of this type material to make and test a 3/8" thick Firestop board. Presently 3/8" Firestop is not being manufactured and is not available.

Of great importance is the listing under Table I, "Fire Resistance Insulated Metal Wall Panels". Essentially, these are multiple layers of 1/2" thick Firestop type boards, faced with metal. Some of them are three, some four and some five sheets in a solid section; others have two thicknesses on each side of the construction. Many of the metal clad wall manufacturers are doing a great deal of promotion of this type construction. These walls are important in light

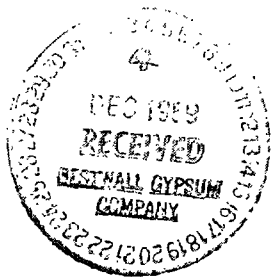
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steel frame buildings and in warehouse type buildings, both new and remodeled where two and three hour separation **may** be required under building codes because of the areas involved or occupancy.

Be sure you understand this enclosure and follow up to see that 1/2" thick Firestop Bestwall is used on these metal clad walls for erection. While some of the original tests were made with Firestop board, Underwriters', in their standard procedure, have extended label service to any 1/2" thick fire rated gypsum wallboard labeled. One instance where such a partition was used in remodeling was in an airplane hanger, requiring several carloads in one wall, 30 to 40 ft. high and over 3,000 ft. in length.

In order to have this material for ready reference, it is suggested you file both the bulletin and the enclosure in your Gypsum Products Manual directly after the Bestwall Firestop competition booklet, 59167, and directly in front of the Bestwall Hummer System "A" booklet. This is in Chapter IV, Building Materials.





FIRE BARRIERS USING TYPE X GYPSUM BOARD

Gypsum boards having increased fire resistance are produced by most gypsum board manufacturers. Designated as Type "X" (special fire retardant), they are similar to the standard type in appearance and dimensions but have a different composition which provides the improved fire resistance. They are used as the core of insulated metal wall panels and as sheathing for wood framed walls, partitions, and ceilings with resulting improved fire resistance ratings as indicated

below. All the listed ratings were determined by tests conducted in accordance with A S T M Specification E119, the standard test procedure for determining the fire resistance of walls and ceilings.

INSULATED METAL WALL PANELS

Two types of insulated metal wall panels are currently available. Both have metal exterior facings but use different insulating materials in the core. One type which is commonly used for exterior building walls has little or no fire resistance. It utilizes a glass fiber blanket insulation as the core material and is generally 3-1/4-in. or less in overall thickness.

The other type, which has fire resistance qualities, utilizes several layers of Type X gypsum board as the core material. The panels are assembled at the job site generally using 1-1/2-in. deep, 18 gauge steel facing sheets of various configurations and four 1/2-in. thicknesses of Type X board, all held in place with mechanical fasteners. They have an overall thickness of at least 5 inches. The manufacturers, typical cross sections, fire test data, and fire resistance ratings are given in Table I.

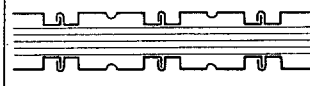
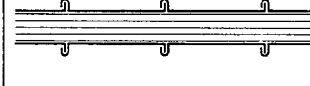
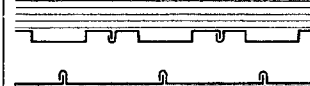
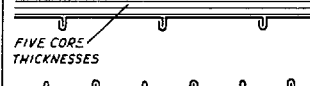
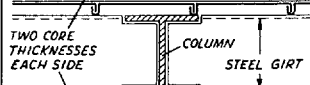
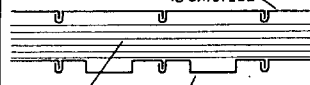
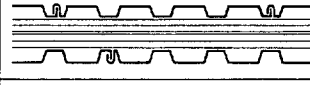
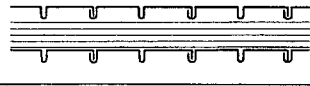
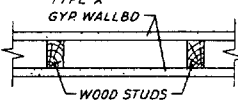
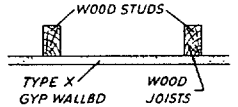
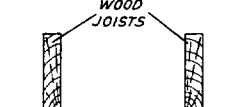
TABLE I. FIRE-RESISTANT INSULATED METAL WALL PANELS		
Panel	Actual End Point of Test (Time)	Assigned Fire Resistance Rating
FENESTRA, INC. "FP" FIRE PARTITION 	2 hrs 34 min	2-1/2 hrs
R. C. MAHON CO. "FIRE WALL" 	2 hrs 29 min	2 hrs
	2 hrs 12 min	2 hrs
	3 hrs 19 min	3 hrs
	3 hrs 13 min	*3 hrs
GIRTS AND COLUMNS ARE SUPPORTING MEMBERS, NOT PART OF PANEL 		
	2 hrs 44 min	2-1/2 hrs
H. H. ROBERTSON CO. "Q" PARTITION 	2 hrs 22 min	2 hrs
WALKER SUPPLY & MFG. CO. "WALCON" INSULATED METAL WALL PANELS 	2 hrs 5 min	2 hrs
*3-hr rating applies when column acts to support the panels only. When the column is a part of the building framing system, the assigned rating is 2 hrs.		

TABLE II - FIRE RESISTANCE RATING WITH TYPE X GYPSUM BOARD SHEATHING

Construction	Application of Sheathing	Safe Fire Resistance (hrs)
PARTITIONS		
	3/8-in. sheet, one each side	1/2
	3/8-in. sheet, two " "	1
	1/2-in. sheet, one " "	3/4
	5/8-in. sheet, one " "	*1
	5/8-in. sheet, two " "	2
	*1 hour with steel studs also	
	1/2-in., one sheet	1/4
	5/8-in., one sheet	1/3
CEILINGS		
	3/8-in., one sheet	1/2
	1/2-in., one sheet	3/4
	5/8-in., one sheet	1
	1/2-in., one sheet	1/4
	5/8-in., one sheet	1/3

The insulated metal wall panels listed in Table I are suitable for installation at Factory Mutual insured locations as nonload-bearing fire barriers wherever fire severity and duration do not require a wall having a fire resistance rating greater than listed in the table.

Where structural framework supporting the panels is subject to the same exposure as the panels, the framework should have equivalent fire resistance. The framework should also be capable of remaining in place when subject to forces resulting from a major collapse of structural framing due to fire on either side of the wall.

TYPE X GYPSUM BOARD SHEATHING

Type X gypsum board, applied as sheathing to wood stud partitions, wood-joisted ceilings, and one face of wood stud walls, provides fire resistance for the period indicated in Table II. Stud or joist spacing should not exceed 16 inches.

Other wall, floor and ceiling constructions using Type X boards as components have been tested and

rated. They are acceptable for their respective ratings but are not included here because of their limited application.

TYPE X GYPSUM BOARD MANUFACTURERS

The following listed manufacturers, with the indicated trade names produce Type X gypsum board.

Barrett Division,	
Allied Chemical Corp.	Fire Wall
Bestwall Gypsum Co.	Firestop Bestwall
Blue Diamond Corp.	Fire Halt
Celotex Corp.	Celo-Rok Fire Resistive
Flintkote Co.	Fire-Ex
Kaiser Gypsum Co., Inc.	Null-A-Fire
National Gypsum Co.	Fireshield
Pabco Building Materials,	
Division of Fiberboard	
Paper Products Corp.	Flame Curb
Union Gypsum Co.	Blaz Blok
United States Gypsum Co.	Sheet Rock Fire Code 45-60

