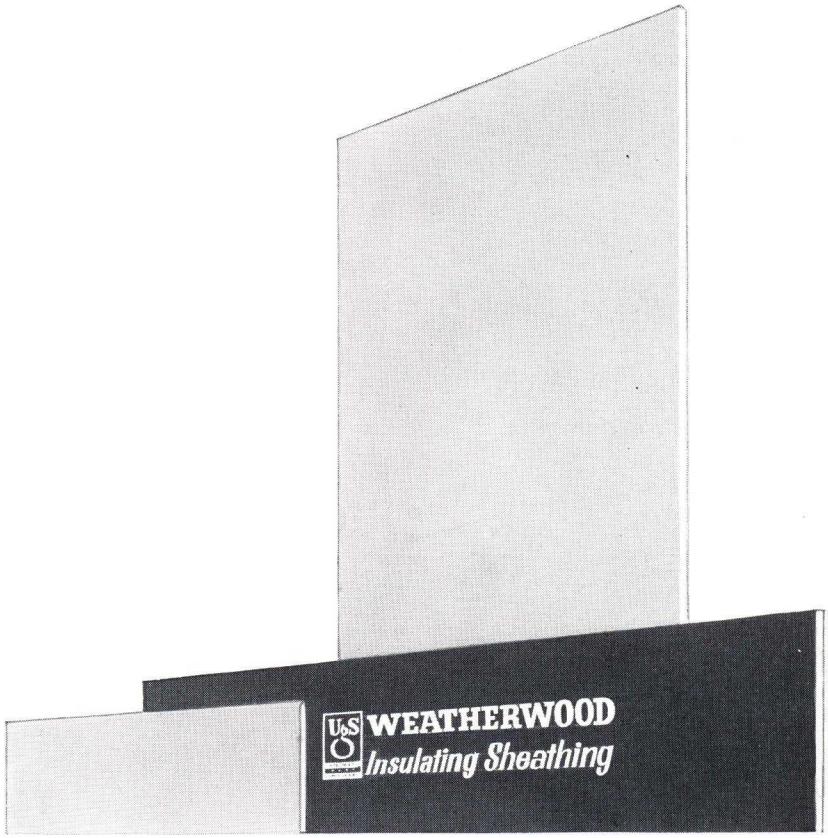
TECHNICAL INFORMATION

WEATHERWOOD

REG. U. S. PAT. OFF

STRUCTURAL INSULATION



AUGUST, 1951

AIA FILE NUMBER 37-A

United States Gypsum

For Building • For Industry

Gypsum • Lime • Steel • Insulation • Roofing • Paint

UNITED STATES GYPSUM

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

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®

WEATHERWOOD STRUCTURAL INSULATION

DESCRIPTION

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

FUNCTION AND UTILITY

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

Insulating Value. The "k" value of WEATHERWOOD Insulation is 0.33 and its resistivity compares with approximately 38" of stone concrete. See the Heat Transmission Coefficient Table on opposite page.

Light Weight. The 25/32" thickness weighs approximately 1200 pounds per M square feet. The ½" thickness weighs approximately 725 pounds per M square feet. WEATHERWOOD insulation is easily handled by one man.

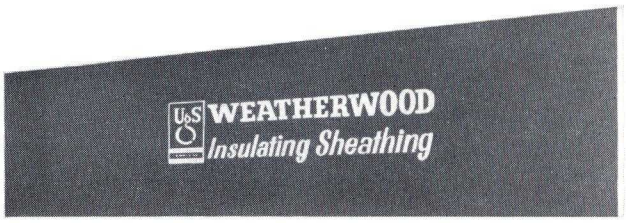
Tensile Strength. WEATHERWOOD Structural Insulating products conform in tensile strength, transverse strength, and modulus of rupture with Federal Specification LLL-F-321b. This specification requires a minimum tensile strength of 175 pounds per square inch for building board, sheathing and lath.

WEATHERWOOD ASPHALT-COATED SHEATHING

An insulating exterior wall sheathing surface coated on all sides, edges and ends with asphalt. In addition the mat is integrally treated to make it weather resistant. The 2' x 8' size is 25/32" thick with long edges tongued and grooved. Other sizes, 4' wide by 8', 9', 10' or 12' long, have square edges and are either 25/32" thick or ½" thick.

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

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



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

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

COSTS

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

WEATHERWOOD PLASTER BASE

An interior insulating lath for plaster in sheets 18" x 48" and ½" thick. Long edges have "V" joints. Ends are square. All face edges beveled.

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

Sound Insulation. Tests made by a nationally known and recognized testing laboratory indicate that a standard wood stud partition with fiber board insulating lath and ½" of plaster both sides, has a sound transmission loss of 40.9 decibels. This is approximately equal to a 4" hollow clay tile partition, plaster both sides.

WEATHERWOOD BUILDING BOARD

An all-purpose insulating board made in two thicknesses: ½" and 1". Sheet sizes are 4' wide by 6', 7', 8', 9', 10' and 12' long.

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

LIMITATIONS OF USE

1. Supports should not exceed a centering of 16".
2. WEATHERWOOD plaster base is designed to receive gypsum plaster and should not be used as a base for other plaster.
3. Where exterior wood siding is applied over WEATHERWOOD sheathing, such siding must be nailed through the sheathing and into the framing members.
4. Resin emulsion and casein paints, such as TEXOLITE*, may be applied to WEATHERWOOD Building Board without sizing. For lead and oil coatings, the surface should be sized to conserve paint.

WEATHERWOOD STRUCTURAL INSULATION

TECHNICAL DATA

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

MATERIAL	DESCRIPTION	Conductivity* or Conductance		Resistance* Per Inch Thickness	Resistance* For Thickness Listed
		(k)	(C)	$\frac{1}{k}$	$\frac{1}{C}$
25/32″ WEATHERWOOD Asphalt-Coated Sheathing		.33	.42	3.03	2.37
½″ WEATHERWOOD Asphalt-Coated Sheathing		.33	.66	3.03	1.51
½″ WEATHERWOOD Plaster Base		.33	.66	3.03	1.51
¾″ WEATHERWOOD Plaster Base		.33	.42	3.03	2.37
½″ WEATHERWOOD Building Board		.33	.66	3.03	1.51
1″ WEATHERWOOD Building Board		.33	.33	3.03	3.03
AIR SPACES (Bounded by ordinary materials)	Vertical ¾″ or more in width		1.10		0.91
EXTERIOR FINISHES (Frame Walls)					
Brick Veneer	4″ thick (nominal)		2.27		0.44
Wood Shingles			1.28		0.78
Yellow Pine Lap Siding			1.28		0.78
INTERIOR FINISHES					
Gypsum Plaster		3.30		0.30	
Gypsum Board—½″	Plain or Decorated		2.82		0.35
Gypsum Lath & Plaster	Plaster Thickness ½″		2.40		0.42
Insulating Board		0.33		3.03	
Plaster Base, ½″ Thick	Plaster Thickness—½″		0.60		1.67
Metal Lath and Plaster	Plaster Thickness—¾″		4.40		0.23
Wood Lath and Plaster			2.50		0.40
MASONRY MATERIALS					
Brick	Common		1.25		0.80
Brick	Face		2.30		0.43
3″ Clay Tile (Hollow)	1 Air Cell Direction Heat Flow		1.28		0.78
4″ Clay Tile (Hollow)	1 Air Cell Direction Heat Flow		1.00		1.00
6″ Clay Tile (Hollow)	2 Air Cell Direction Heat Flow		0.64		1.57
8″ Clay Tile (Hollow)	2 Air Cell Direction Heat Flow		0.60		1.67
10″ Clay Tile (Hollow)	2 Air Cell Direction Heat Flow		0.58		1.72
12″ Clay Tile (Hollow)	3 Air Cell Direction Heat Flow		0.40		2.50
Concrete	Light Weight Aggregate	2.50		0.40	
Concrete	Sand and Gravel Aggregate	12.00		0.08	
3″ Concrete Blocks	Hollow—Cinder Aggregate		1.28		0.78
4″ Concrete Blocks	Hollow—Cinder Aggregate		1.00		1.00
8″ Concrete Blocks	Hollow—Gravel Aggregate		1.00		1.00
12″ Concrete Blocks	Hollow—Gravel Aggregate		0.80		1.25
8″ Concrete Blocks	Hollow—Cinder Aggregate		0.60		1.66
12″ Concrete Blocks	Hollow—Cinder Aggregate		0.53		1.88
3″ Gypsum Tile	Hollow		0.61		1.64
4″ Gypsum Tile	Hollow		0.46		2.18
ROOFING MATERIALS					
Asphalt Shingles			6.50		0.15
Built-up Roofing	Assumed Thickness—⅜″		3.53		0.28
Heavy Roll Roofing			6.50		0.15
Wood Shingles			1.28		0.78
SHEATHING					
Gypsum—½″			2.82		0.35
Insulating Board—25/32″			0.42		2.37
Fir & Yellow Pine (1″)	Actual Thickness—25/32″		1.02		0.98
SURFACES					
Still Air	Ordinary Non-Reflective Materials		1.65		0.61
15 MPH Wind Velocity	Ordinary Non-Reflective (Vertical) Mat'ls.		6.00		0.17
WOODS					
Maple or Oak		1.15		0.87	
Yellow Pine or Fir		0.80		1.25	
Fir Sheathing—Building Paper and Yellow Pine Lap Siding			0.50		2.00

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

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

WEATHERWOOD STRUCTURAL INSULATION

SPECIFICATIONS

WEATHERWOOD ASPHALT-COATED SHEATHING

SCOPE

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

MATERIALS

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

Nails shall be galvanized, 7/16" head diameter, 1¾" long roofing nails for 25/32" sheathing, and 1½" long for ½" sheathing.

APPLICATION

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

Apply 25/32" or ½" by 4 ft. wide sheathing with long dimension parallel with the supports. Sides and ends shall abut the vertical framing members, top and bottom plates or headers. Fit snugly around all window and door openings.

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

Nail to intermediate studs first. Nails shall be not less than ⅜" from edges or ends of sheathing.

OPTIONAL INCLUSION

1. Use of wood siding over WEATHERWOOD Asphalt-Coated Sheathing. Apply siding directly over sheathing, securing it with nails driven through sheathing and into studs. Nails shall have a minimum penetration of 1¼" into the studs. End joints of siding shall be over centers of studs.

2. Use of masonry veneer over WEATHERWOOD Asphalt-Coated Sheathing. Masonry ties shall be attached with nails driven through the sheathing into the studs, approximately 12" on centers, vertically, using nails of sufficient length to penetrate 1¼" into the studs. (At least 6d common nails.)

3. Use of wood, asbestos cement or slate shingles over WEATHERWOOD Asphalt-Coated Sheathing. (1) Apply 1"x2" wood furring strips horizontally over the sheathing spaced to correspond to the shingle exposure. Secure strips with nails driven through sheathing, using nails of sufficient length to provide at least 1¼" penetration into studs (at least 8d common). Use at least one nail at each intersection of stud and furring. (2) Refer to Sweet's catalog 12b/Un for method of attaching straight edge asbestos shingles by means of U.S.G. SHADOW-LOCK Attachment System.

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

WEATHERWOOD PLASTER BASE

SCOPE

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

MATERIALS

Insulating board lath shall be WEATHERWOOD Plaster Base (½") (¾") thick by 18" x 48", manufactured by United States Gypsum Company.

Accessories, including Cornerite and Cornerbead, shall be manufactured by United States Gypsum Company. Nails shall be (1⅛") (1¾") 13 gauge blued 5/16" flathead, lath nails. (Note: *Specify 1⅛" nails for ½" lath, 1¾" nails for ¾" lath.*)

APPLICATION

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

WEATHERWOOD BUILDING BOARD

SCOPE

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

MATERIALS

Insulating board shall be (½") (1") WEATHERWOOD Building Board, manufactured by United States Gypsum Company.

For half-inch board, nails shall be 4d 1½" common nails where covered by moulding or batten strips. Where exposed, nails shall be 1½", 17 gauge, 3/32" head fibre board nails. For one-inch board, nails shall be ½" longer.

ERECTION

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

WEATHERWOOD Building Board shall be securely nailed to all supports. Nails shall be spaced not more than 3" apart, and placed not more than ⅜" from edges and ends of board. Nails shall be driven "home," with heads slightly below the surface.