



FIBRE INSULATION BOARDS

THE WESTERN INDIA PLYWOODS LTD.

WIP's Fibre Insulation Board is soft, resilient, light coloured sheet material 8 to 12 mm thick, manufactured from wood fibres. WIP's Fibre Insulation Boards are grooved or drilled to improve their sound absorbing capabilities and then used as acoustic boards. They are used for ceilings and wall linings particularly where reflected sound is to be reduced. The Fibre Insulation Boards of our company are in great demand and suitable for every requirement of Fibre Insulation Board as well as various types of insulation boards. Our Fibre Insulation Boards are highly suitable for ceiling, partitions and panels Fibre Insulation Boards of WIP are comparable with the best in the world.

Related Documents:

IS 3348: 'Fibre Insulation Boards' and BS 1142 Part 3: 1972 'Insulating Board-Softboard' include all available International Standards and give the procedure for sampling. They also define five tests levels which insulating board must satisfy. These are density, bending strength, water absorption, thermal conductivity and sound absorption .

Description:

Composition and Manufacture: Wood Chips are ground and pulped to fibres which are then felted to form a continuous sheet. After cutting to approximate size, the sheets are passed through a drying oven. These sheets are then trimmed to required sizes.

Improved acoustic properties are obtained by grooving insulation boards to certain depth in various patterns.

Sizes generally available are:

Sheets: 2440mm x 1220mm (8' x 4') and 1220mm x 1220mm (4' x 4')
Thickness available are 8mm, 9mm, 10 mm and 12mm.

Production tolerances: Permissible deviations in length, width and thickness from manufacturers stated size are as per those given in Table 1 in IS 3348 and Table 1 in BS 1142: Part 3. Smaller tolerances than those specified can be obtained by agreement.

Weight: Weight of boards varies according to brand. Typical weights (kg/m²) are 2.7-2.8 for 9mm thickness and 3.2-3.7 for 12mm

Density: Generally within the range of 260 to 330 kg/m³ as per IS: 3348 maximum is 400 kg/m³ as per BS 1142 maximum is 350 kg/m³.

APPEARANCES:

Surface texture: Varies from smooth to dimpled.

Colour of most boards is various shades of brown to light brown . Some boards are coated with a white primer for painting.

CLIMATIC EFFECT:

WIP's Fibre Insulation Boards are hygroscopic in nature. Their dimensions change in response to changes in humidity. If these dimensional changes take place after the boards have been fixed, they may cause bowing or gaps at joints. The moisture content of the boards are conditioned by placing the boards in the room where they are to be fitted for 24 to 48 hours to attain the same moisture content.

BEHAVIOUR IN USE:

The data presented in the following table gives approximate values from laboratory test results.

STRUCTURAL PROPERTIES

Property	Thickness (mm)	Range of Values	IS 3348-1965 min. Value
Density (kg/m ³)		270-330	400 max.
Modulus of Rupture (Kg/cm ²)	8 to 9		20
	12		20
Tensile strength, (kg/cm ²)			
Parallel to Surface	12	15	
Perpendicular to Surface	12	3	
Water absorption (2hrs)	9		30
	12		30

GASES-WATER VAPOUR:

Water vapour permeability: of 12mm natural insulating board is approximately 1.2 to 3.4g/sMN Board with surfaces of aluminium foil or PVC provide a vapour barrier. Vapour barriers can also be provided by two coats of flat paint to give permeability of 0.067g/ sMN and by a gloss paint system to give a value of 0.027g/sMN. (A material is considered to be a vapour barrier when its water vapour permeability does not exceed 0.067g/sMN.)

LIQUIDS-WATER:

Water absorption: The thermal insulation properties of boards are considerably reduced if they become wet and some boards, because of their porous nature, readily absorb water. It is therefore necessary that boards or

tiles are kept dry both before and after fixing. IS 3348, specifies a water absorption test for these boards and gives the following maximum mean water absorption values to which WIP's Fibre Insulation Board easily conforms.

Water Absorption Type of board	Nominal Thickness mm	Maximum* mean water Absorption at 27⁰ + 2⁰C
Fibre insulation Board, ordinary	8 to 9	30
	12	30
Effect of relative humidity change from 33% to 90% at 20 ⁰ C		
% Increase in Length & Width		% Increase in thickness
Approx. value	BS 1142 max.	BS 1142 max
0.27-0.34	0.40	7.0

Uses of WIP's Fibre Insulation Boards

Fibre Insulation Boards which have been grilled or drilled to improve their sound absorbing capabilities are used as acoustic boards. They are used as ceiling and wall linings and carpet underlays particularly where reflected sound is to be reduced , eg. in recording studios and auditorium.

WIP's Fibre Insulation Boards are aesthetically covered with attractive fabrics serves as a practical and unobtrusive display board, ideal for window dressing and other displays in all kinds of stores, schools, homes and offices. It is also used as core material for partitions and doors, for partition panels, and as anti-drum lining for metal partitions and machine casings. Another fast growing application is pin board (a smaller size ready to use display or notice boards.)

Due to its resilient nature **WIP's** Fibre Insulation Boards is used as base material for expansion joint fillers.

THERMAL:

The thermal insulation characteristics of fibre insulating boards are given in IS 3348.

Thermal conductivity (k): shall not be more than 5.6 kcal/ cm/m² h⁰c (or 0.65 mW/cm deg.)

Against the BS 1142 max: mean k-value: 0.058 W/m⁰C, the thermal conductivity (k) is 0.044 - 0.050 W/m⁰C.

BIOLOGICAL:

Vermin infestation: Board will not normally be attacked by rodents or wood boring insects common in India. Boards can be anti-termite treated.

Fungal resistance: Like other fibre building boards **WIP's** Fibre Insulation Boards are not susceptible to attack by rot fungi and microfungi under normal circumstances of use. Superficial mould growth is not readily supported on any type of insulating board.

ACOUSTIC:

Sound Insulation: Against impact, sound transmission to the standards of building regulations is obtained when a resilient soft board layer is incorporated in the construction.

Sound absorption: A plain Fibre Insulation Board has some sound absorption characteristics and will reduce reflected sound when used as wall or ceiling lining or as a cavity lining or backing to other materials.

Sound absorption co-efficient when determined by the standing wave method shall be as follows as per IS: 3348.

Sound Absorption Co-Efficient.	
Frequency c/s	Absorption Co-Efficient Min.
125	0.1
250	0.1
500	0.2
1000	0.3
2000	0.5

Typical Sound Absorption Co-Efficients								
Type of Board	Thickness (mm)	Cavity Behind Board (mm)	Absorption Co-Efficient					
			Frequency (Hz)					
			125	250	500	1000	2000	4000
Plain Insulating board	12	152.4	0.13	0.56	0.15	0.13	0.17	0.20
Acoustic board: (as per perforations)					-	-	-	-
Regular	12	152.4	0.09	0.67	0.47	0.61	0.73	0.80
Regular	12	25.4	0.20	0.30	0.35	0.55	0.70	0.70
Regular	12	Solid	0.10	0.20	0.40	0.50	0.45	0.50
Micro	12	19.1	0.19	0.68	0.46	0.65	0.73	0.61
Micro	12	Solid	0.11	0.28	0.67	0.65	0.71	0.59

WORKING CHARACTERISTICS:

WIP's Fibre Insulation Board is a light weight, easily handled material which can be readily cut with a sharp knife or sawn with hand or machine saws. Special cutting tools are available for chamfering. It can be bonded with all wood working adhesives and nailed in the manner of other wood based sheet materials. It can be decorated easily with all commercial paints and coatings and can readily be faced with other sheet materials.

DURABILITY:

WIP's Fibre Insulation Board has good durability. It will be damaged if subjected to high impact loads. Thermal insulation value is reduced if the board gets wet.