

DIFFUTHERM & DIFFUBOARD

External Wall Insulation Board that can be
Rendered Directly - ETICS



Construct. Insulate. Relax.



Diffutherm & Diffuboard Characteristics Produced According to EN 13171

Pavatex-Diffutherm and Diffuboard External Wall Insulation (EWI) wood fibre boards are water resistant, but breathable, and are installed onto the outside of new or existing external walls, which can be constructed from solid or cavity masonry or timber frame constructions. Diffutherm (60 to 120mm thick) is composed of multiple board layers of different densities to give an optimal insulation solution. Diffuboard (40mm thick) is a denser board and is ideal to use on prefabricated timber elements as well as on-site. Diffutherm and Diffuboard offer superior thermal resistance when installed externally as the entire structure is wrapped in insulation so cold bridges through junctions are avoided e.g. where the wall meets the roof. The Diffutherm and Diffuboard boards are then rendered with a breathable render e.g. lime, clay or mineral based renders, so as well as improving the energy efficiency of the building, it can also update the property cosmetically. The CE marked Pavatex wood fibre boards are produced from renewable, natural raw materials sourced from FSC and PEFC certified timber off-cuts from local sawmills, so they ensure a healthy, comfortable indoor climate.

Diffutherm and Diffuboard boards have a favourable Vapour Diffusion Factor so they are designed to be used in diffusion-open or breathable constructions. This ability hinders the accumulation of interstitial condensation, thereby protecting the structure of the building by keeping it dry and preventing mould growth, wet rot and dry rot. This is particularly important in older historic or heritage buildings with solid walls where the breathability of the structure is critical. A ventilated cavity is not required between the insulation and the walls as this would adversely affect the performance of the insulation system.

Diffutherm and Diffuboard's high density ensures very good acoustic insulation values and so reduces airborne noise e.g. traffic or airplane noise, travelling through the external walls. Wood fibre is the densest, and has the highest thermal capacity ($c = 2,100 \text{ J/kgK}$), of all insulation materials which means that it adds thermal mass to the building and so protects the interior living space from overheating. It does this by storing the heat from the sun for as much as 10-12 hours when it will then be released as temperatures drop, whereas other insulation materials can only provide 5-8 hours lag time. This is particularly important in timber and metal framed buildings and in contemporary buildings which have a lot of south and west facing glazing which all tend to overheat in the summer. Likewise the internal heat during the winter will be stored during the day and will then be released at night-time as the building cools.

Diffutherm & Diffuboard

Thickness (mm)	Weight (kg / m ²)	Overall Board Size (cm)	Coverage Area (cm)	No. Boards per Pallet	M ² per Pallet - Coverage	KG per Pallet	Edge Profile
40*	7.80	145 x 58	143 x 56	56	44.84	397	Tongue & Groove
60	10.98	145 x 58	143 x 56	36	28.83	362	Tongue & Groove
80	15.20	145 x 58	143 x 56	28	22.42	388	Tongue & Groove
100	19.20	145 x 58	143 x 56	22	17.62	385	Tongue & Groove
120	23.10	145 x 58	143 x 56	18	14.41	381	Tongue & Groove

* Note: 40mm is called Diffuboard

Diffutherm Reveal Board

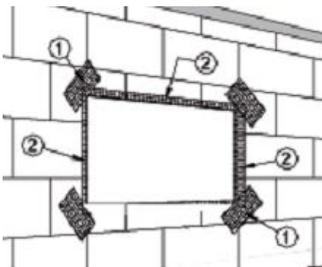
Thickness (mm)	Weight (kg / m ²)	Overall Board Size (cm)	Coverage Area (cm)	No. Boards per Pack / per Pallet	M ² Per Pack / per Pallet	KG per Pallet	Edge Profile
20	3.6	120 x 60	120 x 60	8 / 96	5.76 / 69.12	264	Square Edge
40	7.2	120 x 60	120 x 60	4 / 48	2.88 / 34.56	264	Square Edge

Technical Details	Diffutherm	Diffuboard
Density (kg / m ³)	190	195
Declared Thermal Conductivity λ D (W/mK)	0.043	0.044
Vapour Diffusion Factor μ	5	3
Specific Heat Capacity - C (J/kgK)	2100	2100
Tensile Strength Perpendicular to Plane of Board (kPa)	10	25
Compression Strength at 10% (kPa)	80	200
Fire Behaviour (EN 13501-1)	Class E	Class E
Building Material Class (DIN 4102-1)	B2	B2
Waste Code According to European Waste Catalogue	030105 - 170604	030105 - 170604
Identification Code	WF-EN13171-T5-CS(10/Y)80 -TR10-WS1,0-MU5-AF100	WF-EN13171-T4-CS(10/Y)200 -TR25-WS1,0-MU5-AF100

Application

The Diffutherm and Diffuboard wood fibre boards are mounted onto walls which must be dry and flat because air gaps between the insulation and the wall may reduce the effectiveness of the insulation. If the walls have undulations of about 8mm or more, then they must first be levelled out with a lime parge coat. If the existing render has broken away in parts or is in poor condition it needs to be removed and rendered with new vapour-open render. The same applies if the existing render has a high cement content which is not vapour-open.

The external wall insulation boards must be at least 40 mm thick on the walls and 20 mm thick around window and door reveals. The panels can be cut with normal timber cutting tools e.g. an electric circular saw, a jigsaw using Pavatex jigsaw blades or an insulation knife. It is recommended to use suction equipment to minimize dust. If a hole or gap occurs in the wood fibre due to a construction error, ensure that it is filled in with small pieces of wood fibres and apply a reinforcing mesh patch at least 200 mm larger than the damaged area. Keep the boards dry when in storage and protect the edges from damage. Do not stack any more than 2 pallets on top of each other.



The board joints should not align with the corners of the windows or doors as it will weaken the strength of the Diffutherm or Diffuboard systems. Fix a reinforcing mesh strip diagonally at the corners and all around the window and door openings – see the drawing. The door and window reveals must be insulated too with 20 or 40 mm thick reveal boards. These should be bonded to the window or door reveals using the lime render base coat, MC55W, by applying this to the back of the render board with a trowel. There must be an airtight fit around these thermal weak points so seal around the edges with ISO-BLOCO expanding sealing tape.

Externally: Fix the base rails at a minimum of 30 cm above ground level so that the wood fibre boards do not get permanently moistened from driving rain. A waterproof insulation, e.g. XPS insulation, should be fitted below this base rail and it must be rendered with a different render base coat called HM50. The Diffutherm and Diffuboard insulation boards must be in perfect condition and they are laid in a brick-work formation with the vertical joints staggered by a minimum of 30 cm so there are no cross joints. The joints must be a tight fit and the horizontal tongues must face upright towards the roof so that rain will not sit in the grooves. All openings, corners and penetrations should be sealed with ISO-BLOCO expanding seal tape to ensure a weather tight joint. The wood fibre insulation boards can be protected from very heavy rain with a tarpaulin – otherwise the wood fibre boards must be allowed to dry before they are rendered.

Fixing into Timber Frame Construction Externally

Plastic insulation fasteners with a washer are inserted into the Pavatex boards until they are flush with the surface. They must be anchored into the timber structure by at least 40 mm and the maximum vertical distance between the fasteners is 250 mm on each stud.

Fixing into Masonry Construction Externally

The plastic insulation fixings with a washer must be anchored into the masonry substrate by 35 mm minimum excluding the depth of render. Generally each board is secured with nine fixings per board but more are required at edges, openings and penetrations.



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