

# PAVATHERM

## Wood Fibre Insulation for Internal Use on Stud Walls, Roofs, Floors and Ceilings



Construct. Insulate. Relax.



## Pavatherm Characteristics

Produced According to EN 13171

**Pavatherm** wood fibre thermal insulation rigid panels have a variety of interior uses, for example they can be used flush against rafters and stud walls, as well as insulating the cavity between the rafters, studs and suspended floor joists. Because the 40-100mm thick boards are square edged they are best used in combination with a tongue and groove wood fibre board to ensure a wind-tight and improved thermal performance when used flush against studs and rafters. Thanks to their high density they also improve the acoustic insulation of walls, suspended floors, ceilings and roofs. When the Pavatherm insulation panels are fixed flush to the inside of studs or rafters they will significantly reduce thermal bridging through the timber elements and so will save on energy costs.

Pavatherm boards are natural, breathable rigid insulation boards with a high thermal mass and a long thermal lag time. This means they keep buildings warmer in winter and cooler in summer in all climates. Pavatherm has a specific heat capacity of 2100 J/kgK which is very favourable compared to mineral wool (800 J/kgK approx) or expanded polystyrene insulation (1400 J/kgK approx). It is very important to take summer heat protection into account particularly if the attic space of a house is to be used as a living or working space or if the property has a lot of south facing glazing which often contributes to excess solar gain during the warm weather. The building will remain at a more ambient, comfortable temperature all year round, because the excess heat will be stored in the wood fibre, and released slowly as the temperature drops.

Pavatherm insulation boards, with a vapour diffusion factor of  $\mu = 3$ , are open to diffusion and ensure effective water vapour transmission through the structure, to provide a comfortable, healthy living space. The condensation will not get trapped in the middle of the structure which could cause mould growth, wet rot or dry rot.

The CE marked Pavatex wood fibre insulation panels are made from new timber off-cuts sourced from local sawmills. In turn this timber is sourced from sustainable FSC and PEFC certified forests and the wood fibre boards are made almost entirely from natural raw materials and so will not emit any toxic chemicals into the interior environment as denoted by their Natureplus certification. The wood fibre boards are carbon negative, which means that during their lifetime, they will store more carbon dioxide than they will emit during their manufacture, shipping and disposal.

## Pavatherm

Thickness (mm)	Weight (kg / m <sup>2</sup> )	Board Size (cm)	No. Boards Per Pallet	M <sup>2</sup> per Pallet	KG per Pallet	Edge Profile
40	4.6	110 x 60	112	73.92	360	Square Edge
60	6.9	110 x 60	72	47.52	348	Square Edge
80	9.2	110 x 60	56	36.96	360	Square Edge
100	11.5	110 x 60	44	29.04	354	Square Edge
120*	13.8	110 x 60	36	23.76	348	Square Edge
140*	16.1	108.5 x 58.5	32	20.31	360	Shiplap
160*	18.4	108.5 x 58.5	28	17.77	360	Shipap

\* Available in full pallets only and allow 2-3 weeks for delivery

Technical Details	Pavatherm
Density (kg / m <sup>3</sup> )	110
Declared Thermal Conductivity $\lambda$ D (W/mK)	0.038
Vapour Diffusion Factor $\mu$	3
Specific Heat Capacity - C (J/kgK)	2100
Tensile Strength Perpendicular to Plane of Board (kPa)	2.5
Compressive Stress at 10% Compressive Deformation (kPa)	50
Fire Behaviour (EN 13501-1)	Class E

## Application

### Insulating Roofs and Stud Walls Internally

Pavatherm can be installed below the roof rafters or to the inside of timber or metal stud walls in renovation projects, to very effectively reduce the risk of thermal bridging. It will supplement the cavity insulation to provide lower U-Values. In addition the Y-Values will be improved due to addressing the thermal bridging and this combined with good airtightness will help to achieve Building Regulation requirements. Pavatherm can also be placed in between the rafters or studs, if cut carefully to ensure a tight fit. This will provide excellent airborne sound insulation too. Pavatherm is also very effective when used on the inside of Cross Laminated Timber (CLT) structures. It must be finished with plasterboard or a similar finishing board – if a plastered finish is required Pavatherm-Combi can be used. The square cut edges of the Pavatherm (40 – 100mm) boards mean that it is the most economical of all the wood fibre boards. It also has a very good thermal conductivity of 0.038 W/mK.

If insulating masonry walls internally, we recommend using Pavadentro or Pavadry which are specifically made for this purpose as they control the passage of water through the structure, due to their integral mineral layer.

### Insulating Roofs, Stud Walls and CLT Buildings Externally

In new build or extensive renovation projects it is recommended to insulate roofs, stud walls and CLT buildings from the outside so that the complete building structure is insulated. This will greatly diminish the risk of heat leakage through the junctions such as where the wall meets the roof and in the corners. The square edged Pavatherm wood fibre boards can be used for this purpose but because they are not water resistant, they must be covered over straight way with either the water resistant Pavatex sarking boards such as Isorooft, Isolair or Pavatherm-Plus or with the Pavatex ADB Vapour Control Membrane. This solution can be more economical if a thick sarking board layer is required and it will provide rain protection during construction. The cavity between the studs or rafters can then be fully filled with Pavatherm or Pavaflex insulation to provide low U-Values. An airtightness membrane or taped OSB boards for airtightness must be fitted to the internal side of the insulation. Due to excellent Y-Values as a result of the thermal bridges being totally insulated, and good airtightness, the Building Regulations will be easier to meet with less stringent U-Values than if the thermal bridging was not addressed. This means that a thinner building frame can be used saving costs.

Pavatherm wood fibre will protect the property from overheating during summer-time which is particularly critical in buildings where the loft space is used for living accommodation and in dormer bungalows, as well as in buildings with lots of south facing windows. In addition the sound insulation of the building fabric will be greatly enhanced.

### Insulating Timber Joist Floors

Pavatherm can be used to insulate between the joists of suspended timber or metal joist floors as well as below the joists so long as there is a ventilation space below it, to ensure that the water vapour can be released. The dense wood fibre boards will also reduce airborne noise transmission through floors. Pavatherm does not have enough compression strength though to use on top of floors. It is not recommended to use wood fibre insulation boards over concrete ground floors as there will be no ventilation present to enable the boards to release the water vapour as it is absorbed from the concrete floor and ground.

### Cutting and Storing the Wood Fibre Softboards

The panels can be cut with normal timber cutting tools e.g. a jigsaw with Pavatex blades, a circular saw or reciprocating saw. 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 wood fibre pieces. Keep the boards dry when in storage and protect from damage. Do not stack any more than 4 pallets on top of each other.



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