



NUHPANEL | PIRBOARD

PIR THERMAL INSULATION BOARDS

PIRBOARD

Rigid polyisocyanurate insulation boards. One PIR core, four facings, 20 to 200 mm.



PIRBOARD AL

Aluminium foil



PIRBOARD GF

Glass fibre tissue



PIRBOARD KR

Kraft paper



PIRBOARD ULTRA

High density core



PRODUCT RANGE

Four boards, one core

All four boards share the same PIR core: 0.022 W/mK, and B-s1-d0 (system) reaction to fire. What separates them is the facing, and the facing decides where the board can be used.



PIRBOARD AL

Aluminium foil, both sides

Density 33 - 40 kg/m³

Acts as a vapour barrier and cuts radiant heat transfer. The choice for duct insulation, plant rooms and anywhere vapour has to be controlled.



PIRBOARD GF

Glass fibre tissue, both sides

Density 33 - 40 kg/m³

Takes mortar, screed and adhesive directly. Used on roofs and terraces where the board is covered by a further layer.



PIRBOARD KR

Kraft paper, both sides

Density 33 - 40 kg/m³

The most economical facing, for closed and protected build-ups. Must be kept dry on site; a wet kraft facing loses both bond and vapour control.



PIRBOARD ULTRA

High density core

Density 80 - 130 kg/m³

The high compressive strength option, for restricted sections, floor build-ups and refurbishment where load is carried over the insulation layer.

Common to the whole range

0.022

W/mK conductivity

B-s1-d0

reaction to fire (system)

20 - 200

mm thickness, ten steps

1200 x 2400

mm board size

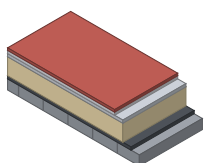
Where it is used

- **Duct and services insulation**
Mainly with PIRBOARD AL.
- **Floor build-ups**
Above or below the slab, where the section is limited.
- **Cold rooms and plant spaces**
As a complementary insulation layer.
- **Roof and terrace insulation**
With PIRBOARD GF, where the board is covered.
- **Internal wall insulation**
Retrofit work on existing buildings.
- **Prefabricated and modular units**
Light, thin, closed cell.

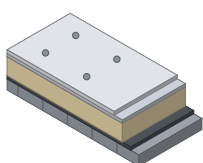
SYSTEMS

Flat roof build-ups

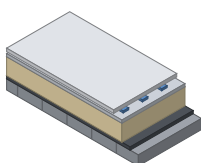
The five flat roof systems PIRBOARD is specified in. The facing decides which of them the board suits.



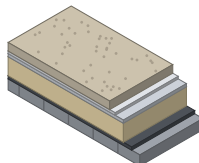
Liquid applied



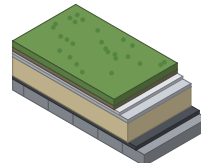
Mechanically fastened



Adhered



Gravel ballasted



Green and utility roof

Choosing the facing

Application	Facing	Why
Board left exposed, or vapour control needed	AL	Aluminium foil acts as a vapour barrier
Mortar, screed or adhesive applied over the board	GF	Glass fibre tissue takes the bond
Closed build-up, covered by a further layer	KR	The most economical facing
Load carried over the insulation layer	ULTRA	High density, high compressive strength

On site

- PIR board is not a load-bearing element. Where load is applied, the screed or slab above carries it, not the board.
- Stack on flat, firm ground and keep dry. Kraft faced boards must be protected from rain.
- Cut with standard hand tools; a saw or a sharp blade is enough.
- Seal the joints with aluminium tape or a suitable mastic. A single open joint undoes most of what the thickness gains you.

WHY INSULATION MATTERS

The role of thermal insulation

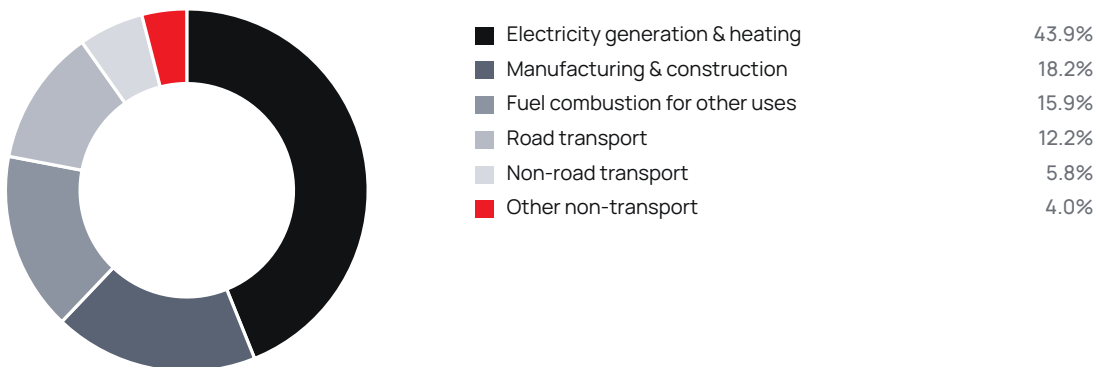
Thermal insulation blocks or slows the heat flow through the building envelope, which results in energy saving. It is therefore central to most green building design.

Global trends in energy efficiency

The increase in the Earth's average surface temperature is significantly related to the level of greenhouse gases such as carbon dioxide in the atmosphere, which retain heat that would otherwise escape from our planet. Man-made structures, and especially buildings, contribute up to 30% of global annual greenhouse gas emissions and consume up to 40% of all energy produced around the globe.

Given that volume, and the inefficiencies of the existing building stock, emissions from buildings will more than double within the next 20 years if nothing is done. Improving the thermal performance of buildings is one of the most direct ways to reduce energy consumption, and thereby CO₂ emissions.

Sources of global CO₂ emissions



Green building concept

Green building refers to the incorporation of environmentally friendly and resource efficient processes and materials at each stage of construction, from the design of the structure through its operation in service to its eventual demolition and waste disposal.

Green building with PIRBOARD

Polyisocyanurate materials have the best thermal performance per given thickness of insulation among standard commercial products. Their very low weight also imposes a low load on the structure compared with equivalent insulation.

MATERIAL

PIR thermal insulation

Although many types of thermal insulation product are available, PIR materials are increasingly the best option, because of their clear advantages.

Thermal insulation in flat roof systems must have minimal environmental impact and must fulfil many requirements in terms of structural support and compatibility with other materials.

PIR is a rigid foam produced in a closed chemical process. This forms a uniform cellular structure, resulting in the lowest thermal conductivities and the highest insulation values.

Compared with other flat roof insulation

	PIRBOARD	Mineral wool	EPS
Excellent thermal performance	✓		
Resistant to high temperature ($\geq 200\text{ }^{\circ}\text{C}$)			
High compression strength ($\geq 100\text{ kPa}$)	✓		✓
Low water absorption capacity ($\leq 10\%$)			
Light weight	✓		✓
Closed cell foam structure			
Direct contact allowed to PVC single-ply membrane	✓	✓	
Suitable for adhered roof systems			
Suitable for green roof systems	✓		✓
Suitable for use with liquid applied membranes			
Insulation boards with rebated edges	✓		✓
Resistance to warm bitumen			
Resistant to fungal growth	✓		✓
Non-fibrous material			

Ticks reproduced from the source brochure; blank rows are as supplied.

DATA

Technical characteristics

	PIRBOARD AL	PIRBOARD GF	PIRBOARD KR	PIRBOARD ULTRA
Facing	Aluminium foil	Glass fibre tissue	Kraft paper	High density core
Core	PIR	PIR	PIR	PIR
Thermal conductivity	0.022 W/mK	0.022 W/mK	0.022 W/mK	0.022 W/mK
Reaction to fire	B-s1-d0 (system)	B-s1-d0 (system)	B-s1-d0 (system)	B-s1-d0 (system)
Density	33 - 40 kg/m ³	33 - 40 kg/m ³	33 - 40 kg/m ³	80 - 130 kg/m ³
Board size	1200 x 2400 mm	1200 x 2400 mm	1200 x 2400 mm	1200 x 2400 mm

The B-s1-d0 classification applies to the tested end-use system, in which the board is enclosed between metal facings, and not to the bare board on its own. Specify the system, not the board, when a reaction to fire class is required.

Thickness range

Ten steps, the same for all four boards. Thickness follows the target insulation value and the depth available in the build-up.

20	30	40	50	60	70	80	100	150	200
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mm



PIRBOARD under a single-ply membrane, large-span industrial roof

Not a load-bearing layer

PIR board carries no structural load. On trafficked terraces and service walkways the screed or slab above the board carries the load. Where load has to pass through the insulation layer, specify PIRBOARD ULTRA.

PERFORMANCE

Advantages of PIRBOARD

NUHPANEL PIRBOARDS sit underneath the waterproofing layer. They are CFC/HCFC-free polyurethane foam boards suited to the majority of flat roofing systems.

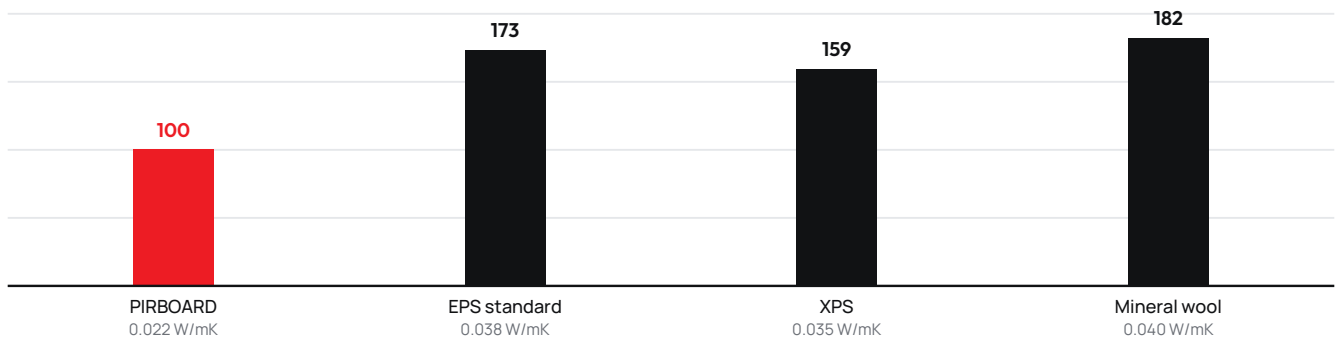
Excellent thermal insulation properties

With a thermal conductivity of 0.022 W/mK these are among the most thermally efficient insulation products available, so much thinner boards achieve the same or higher thermal resistance.

- Thinner metal sheet, or greater distance between supports.
- Lower volume of board delivered to site.
- Lower labour cost to install.
- Shorter mechanical fasteners.

Thickness required for the same thermal resistance

mm



What that saves on a real roof

Roof area m ²	PIRBOARD 100 mm m ³	PIRBOARD 100 mm t	Rock wool 180 mm m ³	Rock wool 180 mm t	Saved m ³	Saved t
1,000	100	3.2	180	30.6	80	27.4
2,000	200	6.4	360	61.2	160	54.8
5,000	500	16	900	153	400	137
10,000	1,000	32	1,800	306	800	274

INSTALLATION

One layer is enough

Thanks to the excellent thermal properties and board thicknesses up to 200 mm, NUHPANEL PIRBOARDS can generally be installed in a single layer.

- Lower labour cost for installation.
- Less adhesive than with expanded polystyrene boards.

Thinner insulation = shorter fasteners

PIR boards have excellent thermal properties, so thinner boards and shorter mechanical fixings can be used.

Compressive strength

Standard PIRBOARD is specified where the insulation layer carries no load. Where load has to pass through the insulation, PIRBOARD ULTRA is used: the same PIR core at 80 - 130 kg/m³ instead of 33 - 40 kg/m³.

Compatible with TPO, PVC and FPO membranes

Roof waterproofing membranes can be laid directly onto and in direct contact with PIRBOARD; no separation layers are needed. The integrated facers prevent direct contact between the membrane and the PIR foam.

Fire performance and weight

Good fire resistance

NUHPANEL PIRBOARD has a short-term temperature resistance of 250 °C and a long-term resistance of 90 °C.

- The boards do not melt.
- They do not support the spread of flame.
- When heated the surface hardens, unlike expanded polystyrene, which melts.
- The foam carbonises in flames, forming an oxygen barrier with a self-extinguishing effect.

Lower weight

At only 32 kg/m³ PIRBOARD is equivalent in performance to mineral wool at 170 kg/m³, which makes it ideal for refurbishment where the roof structure cannot take significant additional load.

PIRBOARD 100 mm

3.2 kg/m²

Mineral wool 180 mm

30.6 kg/m²

Class D relates to fire behaviour, where s1 is the best performance for smoke and d0 the best class for minimal burning droplets. Both matter in a fire: smoke is the biggest barrier during fire-fighting, whilst burning droplets spread it. Alternative EPS and XPS boards only meet Class E.

Weight of 1 m² of insulation board

kg/m²



Both thicknesses give the same thermal resistance.



GET IN TOUCH

Ask for a quotation

Tell us the roof area, the build-up and the membrane you plan to use; our technical sales team will come back with a specification and a price.

ADDRESS

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