



FOR FLAT ROOFS

Eco-Deck



Insulated decking for flat roofs



Polyisocyanurate (PIR) thermal insulation
tough, structural, pre-insulated roof decking





Applications

Pre-insulated roof decking for use on new roofs or upgrading the thermal performance of existing roofs.

EcoTherm Eco-Deck is suitable for use with mechanically fixed single-ply waterproofing membranes, mastic asphalt, roll & pour and adhered systems.

It provides a cost effective means of reducing CO₂ emissions and for compliance with Building Regulations/Standards. Eco-Deck achieves high performance insulation for warm flat roof structures.

Description

EcoTherm Eco-Deck comprises a fibre free rigid polyisocyanurate (PIR) insulation core, faced with an aluminium foil composite on both sides, bonded to 6mm exterior grade plywood on one side.



Product properties

DIMENSIONS

Available in standard sizes and thicknesses as shown below:

Width: 1200mm

Length: 2400mm

Thickness

Insulation core: 50 - 150mm

Plywood: 6mm

Weight: See table 1 for board weights

DURABILITY

PIR insulation is rot proof and durable, stable (will not sag or shrink), resists attack by mould and microbial growth and will not provide any food value to vermin. It will remain effective as an insulation system for at least the lifetime of the waterproofing covering.

Please note, durability is dependent on the method of application, the supporting structure and conditions of use.

COMPRESSIVE STRENGTH

Typically exceeds 150 kPa at 10% compression when tested to BS EN 826: 2013 (Thermal insulating products for building applications. Determination of compression behaviour).

RESISTANCE TO SOLVENTS

EcoTherm Eco-Deck's fibre free insulation core resists attack from alkalis, dilute acids, mineral oil and petrol. The insulation core is not resistant to ketonic solvents. Boards which have been in contact with harsh solvents, petrol, mineral oil or acids or damaged boards should not be used.

THERMAL CONDUCTIVITY

The thermal conductivity (λ -value) of the insulation is 0.022 W/mK.

The thermal conductivity (λ -value) of the plywood is 0.14 W/mK.

Thermal resistances of Eco-Deck as a composite board are shown in Table 1.

Typical U-values achieved with Eco-Deck are shown in table 1. EcoTherm PIR insulation lambda and thermal resistance values stated in this datasheet are in accordance with BS EN 13165: 2012 Thermal insulation products for buildings - Factory made rigid polyurethane foam products - Specification.

WATER VAPOUR RESISTANCE

The foil facings of Eco-Deck's insulation core have a high water vapour resistance and will, therefore, provide significant resistance to water vapour transmission. Exterior grade plywood has inherent moisture resistant qualities.

A Vapour Control Layer (VCL) can be achieved with use of a suitable water vapour resistant, non -setting, gun -grade mastic sealant, applied to the upper surface of all supporting timbers. A continuous bead of vapour resistant mastic sealant should also be applied between the outside -top corner of all roof perimeter joists and noggins, and adjacent upstands and parapets.

EcoTherm recommends a Condensation Risk Analysis (CRA) be completed for each project. Consideration should be given to BS 5250: 2011 Code of Practice for control of condensation in buildings and BS 6229: 2003 Code of Practice for flat roofs with continuously supported coverings.



Design considerations

Table 1

Thickness (mm)*	Weight per board with 6mm plywood (kg)	R-value (m ² K/W)	Typical U-values (W/m ² K) **
96	20.2	4.15	0.21
106	21.1	4.60	0.19
116	22.0	5.05	0.17
126	22.9	5.50	0.16
136	23.8	5.95	0.15
146	24.7	6.40	0.14
156	25.5	6.85	0.13

*Thickness includes 6mm plywood

**Typical U-value calculations are based on built up 3 layer bitumen waterproofing system, EcoTherm Eco-Deck at thickness stated above, timber joists at 400mm centres, plasterboard ceiling and plaster skim. Adjustments for fixings to be included once fixing centres / type have been confirmed.

The U-values quoted above are for guidance only. Detailed U-value calculations should be complete for each project by EcoTherm Technical Services. For instant U-value calculations 24/7 visit EcoTherm's online U-value calculator at www.ecotherm.co.uk

ENVIRONMENTAL

EcoTherm insulation is manufactured with a blowing agent that is CFC/HCFC free and has zero Ozone Depletion Potential (ODP) with a low Global Warming Potential (GWP). Eco-Deck corresponds to the BRE Global Green Guide generic specification which achieves a summary rating of A. Eco-Deck with a certified BRE Global Green Guide rating of A+ is available subject to enquiry.

EcoTherm Insulation is manufactured under an ISO 14001 Environmental Management System.

The manufacturing facility, at which EcoTherm Eco-Deck boards are produced, carries FSC® (FSC®- C109304) certification.



FIRE

The fire rating of any roof containing the boards will depend heavily on the type of deck and the nature of the roof waterproof covering. The designation of the roof covering must meet or satisfy the requirements of the national Building Regulations.

Finished with 3 layer built-up felt and chippings, the roof will attain an FAA rating when tested to BS 476-3: 2004 Fire tests on building materials and structures, classification and method of test for external fire exposure to roofs.

Further details on the fire performance may be obtained from EcoTherm Technical Services.

The fibre free insulation core achieves BS476-7: 1997 Class 1 rating for surface spread of flame.

ROOF LOADING

Depending on the chosen waterproofing system, Eco-Deck is suitable for use on roof decks that are subject to limited maintenance foot traffic. Walkways should be provided on roofs requiring regular pedestrian access. The roof should be boarded out with protective boarding whenever site work is to take place after the roof board has been laid and the roof made watertight.

ROOF WATERPROOFING SYSTEM

Eco-Deck is suitable for use with most single ply and bitumen based felt waterproofing systems.

When using Eco-Deck with mastic asphalt, it is recommended that an overlay of 20 mm cork roofboard is fixed to the plywood surface of Eco-Deck, using hot bitumen bonding or felt nailing, prior to the installation of the waterproofing. The cork roofboard acts as a heat soak for the mastic asphalt.

In the event of any doubt, please contact EcoTherm Technical Services to check compatibility of the proprietary system.

STANDARDS AND APPROVALS

EcoTherm Insulation is manufactured under an ISO 9001 Quality Management System (LPCB certificate 388 – 7QMS), ISO 14001 Environmental Management System (LPCB certificate - 388 – 7EMS) and BS OHSAS 18001 Occupational Health and Safety Management System (LPCB certificate 388 – 7HS). All certificates are available for download from www.ecotherm.co.uk

All EcoTherm insulation products have a CE Declaration of Performance available for download from www.ecotherm.co.uk

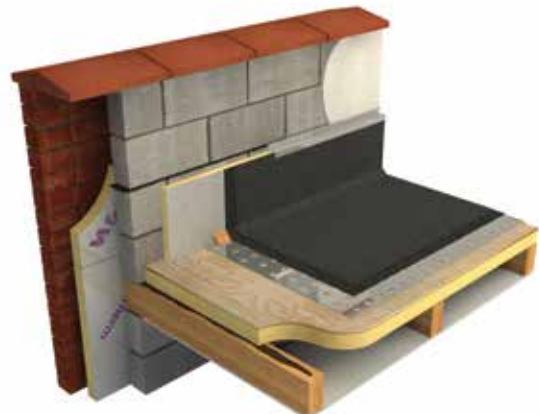
TYPICAL U-VALUES

EcoTherm Eco-Deck gives typical U-values as shown in table 1.

Project specific U-value calculations and condensation risk calculations are available free from EcoTherm Technical Services on request.

WIND LOADING

Wind loadings should be assessed in accordance to BS EN 1991-1-4:2005 + A1:2010 Eurocode 1, Actions on structures, General Actions, Wind Actions and the UK National Annex. EcoTherm recommend contacting the waterproofing manufacturer for a project specific wind uplift calculation.



FOR FREE TECHNICAL ADVICE
Call: 01268 597 213
 Email: technical@ecotherm.co.uk



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TYPICAL FIXING INSTRUCTIONS

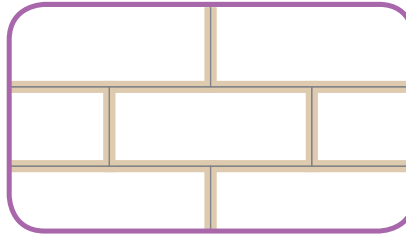
Roof area/deck should be clean and dry before installation of Eco-Deck boards. Roof should be constructed/laid to fall to all rainwater outlets. Alternatively, a tapered insulation system can be used - contact our tapered insulation partner Building Innovation Ltd at www.building-innovation.co.uk for further details.

When installing Eco-Deck over an existing roof, the condition of the existing waterproofing system must be assessed to ensure it is in good condition and water tight. If the waterproofing system is deemed not water tight, a Vapour Control Layer (VCL) should be installed before installing the insulation boards.

- Boards should be fixed to joists set at a maximum of 600mm centres.
- 50 x 50mm minimum timber noggins should be used to support all edges of boards which are not fully supported by a joist, or where they have been cut to fit openings etc.
- A vapour control layer can be achieved by applying a continuous bead of mastic (i.e. neutral curing silicone sealant) to the upper surface of all supporting timber (joists and noggins).
- Lay the boards plywood side up, lightly butted and all edges must be supported by a minimum of 20mm bearing onto the face of the supporting timber.
- Long edges of the board should run over the centre of the joist.
- Boards should be laid onto the mastic, and fixed with screws at 300mm centres down the line of each joist and / or noggin.
- The screws should be long enough to allow a minimum 35mm penetration of the supporting timber, and be positioned not less than 10mm from the edge of the board, or 50mm from the corner. Screw heads should finish flush with the plywood surface.
- Headed helical nails can also be used, follow manufacturer' installation guidelines.
- Where two boards are fixed to the same joist or noggin, the fixing centres should be staggered.
- Follow manufacturer' installation guidelines on the waterproofing membrane.
- A minimum 25mm upstand of insulation board (compatible with waterproofing membrane) should be installed around the roof perimeter.

LAYING PATTERN

Boards should be laid with edges butted and in a break bonded, staggered pattern. Long edges should always run over the centre of the joist. Always ensure all joints are supported by joists or noggins.



Site work

HANDLING

- Do not drop boards
- To cut use a fine toothed saw
- Wear eye protection
- Damaged boards should not be used

Cutting with power tools generates dust so should be kept to a minimum. Ideally all operations which produce dust should be carried out in well ventilated conditions; where possible a dust mask selected in accordance with BS EN 149 should be worn.

Ensure accurate trimming to achieve close butt joints and continuity of insulation, particularly around projections through the roof.

STORAGE

At no time should the insulation boards be left exposed to rain. Whenever work is interrupted, a night joint must be made to prevent water penetration. Packs are stretch wrapped in recyclable polythene. Store boards in a flat, dry area off the ground away from mechanical damage and sources of ignition. Boards should be completely covered with weatherproof sheeting. The boards must be kept dry at all times. The boards must be protected from prolonged exposure to sunlight and should be stored either under cover or covered with opaque polyethylene sheets.

HEALTH & SAFETY

Eco-Deck is chemically inert and safe to use, product safety information is available to download from www.ecotherm.co.uk

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Please consult EcoTherm for details of BBA certificate numbers for specific products
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