TOPLINE

FOR ROOFS

Eco-Metre

FOR FREE TECHNICAL ADVICE
Call: 01268 597 212/213
Email: technical@ecotherm.co.uk

Fixing alternatives

MECHANICAL FIXING
Mechanical fixings should be used as recommended in BRUFMA information document ID/1/2009.

Where mechanical fixings are required, EcoTherm Eco-Metre should be restrained over its full surface area; this can be achieved by the use of a single mechanical fixing at each of the four corners of the board.

Other fixings needed to meet local wind uplift requirements should be evenly distributed over the board. A 50mm countersunk washer should be used with each fixing and the washer must restrain one board only. The suitability of the substrate to accept and retain mechanical fixings must be checked prior to the work commencing.

BONDING METHOD

- Fully bond the vapour control layer to the deck.
- Bond the insulation board to the vapour control layer.
- Torch apply with minimum heat at all times.
- Never apply the flame to the insulation facing.
- Always torch the roll.
- Flame/edge guards must be used at all times when torching

Site work

HEALTH & SAFETY
This PIR product is chemically inert and safe to use; COSHH information is available on request.

HANDLING

- Do not drop boards
- To cut use a sharp knife or fine tooth 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; 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.

LAYING PATTERN
Fully bond the boards to a vapour control layer. Boards should be laid with edges butted and in a break bonded pattern laid at right angles to the edges of the roof or diagonally across the roof

Lay with polypropylene fleece side up for torch-on and mastic asphalt systems.

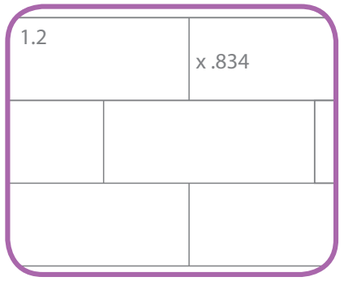
Lay with bitumen tissue side up for roll and pour and bitumen compatible single-ply membranes.

polypropylene fleece side

bitumen fleece side

At no time should Eco-Metre be left exposed to rain. Whenever work is interrupted, a night joint must be made to prevent water penetration.

The board is suited to a variety of laying systems. However, it is recommended that whatever system is employed joints are always staggered.



STORAGE
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, boards wetted accidentally must be replaced or allowed to dry fully before application of the waterproof layer.

The boards must be protected from prolonged exposure to sunlight and should be stored either under cover or covered with opaque polyethylene sheets.

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TOPLINE

FOR ROOFS

EcoTherm®
superior rigid insulation

EcoTherm Eco-Metre 4 solutions in 1

TOPLINE
Eco-Metre

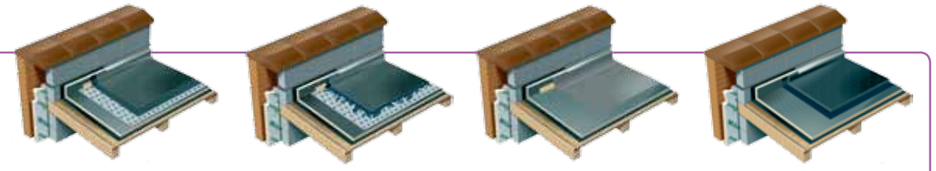
Eco-Metre • Roofs • Eco-Metre • Roofs •

Insulation for use with any hot applied roofing system.

Rigid Polyisocyanurate (PIR) foam core faced with bitumen coated glass tissue on one side and polypropylene fleece on the other

Eco-Metre

EcoTherm Eco-Metre 4 solutions in 1



TOPLINE

FOR ROOFS

Applications

Used for new-build and for upgrading the thermal performance of existing roofs. Eco-Metre provides a cost effective means of reducing CO_2 emissions and for compliance with Building Regulations. Eco-Metre achieves high performance insulation for metal, concrete or timber decks.

Description

EcoTherm Eco-Metre is a rigid polyisocyanurate foam core faced with bitumen coated glass tissue on one side and bitumen/polypropylene fleece on the other. One board equates to one square metre for easy measurement and take-offs. The PIR foam core is temperature tolerant and withstands the application of hot bitumen and asphalt to the surface at up to 240 °C

Product properties

COMPRESSIVE STRENGTH
Typical compressive strength for the foam exceeds 150KPa when tested to BS EN 826: 1996 Thermal Insulating Products for Building Applications-Determination of compressive behaviour.

DENSITY
PIR foam has a typical density of 31 Kgs/m³

DURABILITY
The product is stable, rot proof and durable and will remain effective as an insulation system at least as long as that of the waterproof covering. Durability depends on the method of application, the supporting structure and conditions of use.

The insulation core and facings resist attack by mould and microbial growth, and do not provide any food value to vermin.

RESISTANCE TO SOLVENTS - FOAM
EcoTherm Eco-Metre resists attack from dilute alkalis and acids, mineral oil and petrol. The foam is not resistant to ketonic solvents. Damaged boards should not be used.

THERMAL CONDUCTIVITY
The thermal conductivity (λ value) of the foam varies by thickness as follows:

25 to 79mm = 0.026 W/mK
80 to 119mm = 0.025 W/mK
120 to 200mm = 0.024 W/mK

Typical U values for the range within given constructions are shown in Table 1.

WATER VAPOUR RESISTANCE
The insulation core has a water vapour resistance of 40MNs/g/m° and will, therefore, provide resistance to water vapour transmission. This will minimise both surface and interstitial condensation.

The necessity for the inclusion of a water vapour control layer in the roof construction should be assessed in accordance with BS 6229: 2003 Code of Practice for flat roofs with continuously supported coverings.

DIMENSIONS
Width: 834mm
Length: 1200mm
Thickness: As per table 1 30 to 200mm.

Tapered insulation boards as part of a tapered roofing scheme give roofs a surface finished fall of 1:60 and 1:80 in cases where the roof does not have an adequate fall to outlets. Further details are available from EcoTherm Technical Services.

TYPICAL WEIGHT
Typical weight of a 120mm thick board is 4.1 kg

Table 1

Thickness (mm)	Length (mm)	Width (mm)	R Value (m^2k/W)	Typical U value on metal deck (W/m^2k)	Typical U value on concrete deck (W/m^2k)	Typical U value on timber deck (W/m^2k)
30	1200	834	1.15	0.72	0.68	0.57
40	1200	834	1.54	0.58	0.55	0.48
50	1200	834	1.92	0.47	0.45	0.40
60	1200	834	2.31	0.40	0.38	0.34
70	1200	834	2.69	0.35	0.34	0.31
80	1200	834	3.20	0.29	0.28	0.26
90	1200	834	3.60	0.26	0.26	0.24
100	1200	834	4.00	0.24	0.23	0.22
110	1200	834	4.40	0.22	0.21	0.20
120	1200	834	5.00	0.19	0.19	0.18
130	1200	834	5.42	0.18	0.18	0.17
140	1200	834	5.83	0.17	0.16	0.16
150	1200	834	6.25	0.15	0.15	0.15
160	1200	834	6.67	0.15	0.14	0.14
170	1200	834	7.08	0.14	0.14	0.13
180	1200	834	7.50	0.13	0.13	0.12
190	1200	834	7.92	0.12	0.12	0.12
200	1200	834	8.33	0.12	0.12	0.11

Design considerations

DESIGN CONSIDERATIONS
These should be assessed in accordance with BS 6399-2 1997 Loading for buildings. Code of Practice for wind loads.

Consideration should also be given to BS 5250: 2002 Code of Practice for control of condensation in buildings and BS 6229: 2003 Code of Practice for flat roofs with continuously supported coverings.

ENVIRONMENTAL
All our insulation boards are manufactured from CFC and HCFC-free grades of material which ensure zero ozone depletion potential (ZERO ODP) and a global warming potential (GWP) factor of 3 which comfortably surpasses the target of 5 and is BRE Green Guide A rated. This contributes to attaining credits in the code for sustainable homes/ BREEAM assessments.

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: 1988 External Fire Exposure Test.

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

Achieves BS476-7: 1997 Class 1 rating for surface spread of flame.

ROOF LOADING
Depending on the chosen waterproofing system, Eco-Metre 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-Metre is suitable for use with most torch-on and roll & pour, asphalt and single ply bituminous membranes.

EcoTherm recommend the use of a Venting Base Layer as a first layer in *partially* bonded felt built up roofing applications.

Seek specific advice from the felt / waterproofing manufacturer who may offer their own proprietary system - Refer to BS 8217:2005 (Reinforced bitumen membranes for roofing - Code of practice)

For torch-applied systems, torch apply with minimum heat at all times onto the polypropylene fleece side. Never apply the flame to the insulation facing. Always torch the roll using flame/edge guards at all times.

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

SPANNING METAL-DECKS
EcoTherm Eco-Metre laid over metal decks must not exceed:

Spanning distance	Insulant thickness
100mm	40mm
140mm	50mm and over

On metal decks the long edges should be at right angles to the corrugations. All board joints should be fully supported by the deck.

Please refer to BS 4841-4:2006 for details of thickness of board over metal trough openings.

SPECIFICATION CLAUSE
The insulation shall be EcoTherm Eco-Metre _ mm thick - Rigid Polysocyanurate (PIR) foam core bitumen coated glass tissue on one side and bitumen/polypropylene fleece on the other. It shall be manufactured in accordance to BS EN 13165 : 2008 and Quality Management System BS EN ISO 9001 : 2000. EcoTherm Eco-Metre must be installed in accordance with instructions issued by EcoTherm Insulation UK Limited.

STANDARDS AND APPROVALS
PIR foam is produced according to BS EN 13165: 2008 Thermal insulating products for buildings-Factory made rigid polyurethane foam products-specification.

Eco-Metre is compliant with BS 4841-4: 2006

Covered by BBA Agrément Certificate No 07/4487.

Consideration should be given to the recommendations of SPRA (Single Ply Roofing Association) and BRUFMA (British Rigid Urethane Foam Manufacturers' Association)

Details of Factory Mutual (FM) compliance and Loss Prevention Certificate Board compliance are available from EcoTherm Technical Services.

TYPICAL U-VALUES
EcoTherm Eco-Metre gives typical insulation U values as shown in Table 1. These calculations include a plasterboard ceiling internally, a vapour control layer (VCL), and the waterproofing system.

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

WIND LOADING
Wind loadings should be assessed in accordance with BS 6399-2: 1997 (Loading for buildings. Code of practice for wind loads)

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