

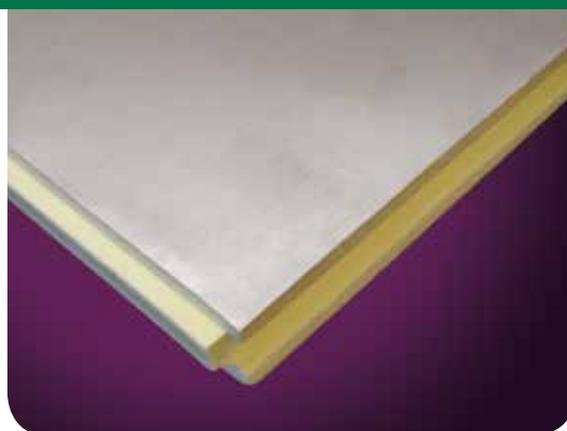


FOR WALLS

Eco-Cavity Full Fill



Full fill cavity wall insulation



Fibre free rigid polyisocyanurate (PIR) insulation core with aluminium foil composite to both sides. Engineered jointing system for superior fit.



Eco-Cavity Full Fill



Applications

Eco-Cavity Full Fill is suitable for full fill cavity wall applications, whilst maintaining a residual 10mm cavity. Eco-Cavity Full Fill is high performance insulation, and provides a cost effective means of reducing CO2 emissions and achieving compliance with Building Regulations / Standards. Maintaining a residual 10mm cavity helps resist moisture transfer, aids installation and accommodate mortar squeeze.

Description

Eco-Cavity Full Fill comprises a fibre free rigid polyisocyanurate (PIR) insulation core with aluminium foil composite facing on both sides. The tongue and groove edges ensure a continuous layer of insulation which increases protection from wind driven rain and also aids installation. Eco-Cavity Full Fill boards are conveniently sized to co-ordinate with standard brick and block dimensions allowing easy insertion of wall ties into the construction at the appropriate spacing.



Product properties

DIMENSIONS

Available in standard sizes as shown below:

Gross (including tongue)

Width = 460mm

Length = 1200mm

Net (foil to foil measurement on the board)

Width = 450mm

Length = 1190mm

Standard Thicknesses: 90, 115 & 140mm

COMPRESSIVE STRENGTH

Typical compressive strength for the insulation exceeds 140kPa when tested to BS EN 826: 1996 Thermal Insulating Products for Building Applications-Determination of Compressive Behaviour.

DURABILITY

The product is stable, rot proof and durable and will remain effective as an insulation system for the life of the building. Durability depends on the method of application, the supporting structure and conditions of use. The fibre free insulation core and facings resist attack from mould and microbial growth and do not provide any food value for vermin.

THERMAL CONDUCTIVITY

The low emissivity surface of the reflective foil can cut radiated heat transfer across an adjoining air-space.

The thermal conductivity (lambda/ λ -value) of the board is 0.022 W/mK and the thermal resistances of the range within given constructions 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.

Table 1 Typical Weights, Thermal Resistances & U-values

Thickness (mm)	Weight per board (kg)	R-value (m ² K/W)*	Typical U-values (W/m ² K)**				
			Brick & light block	Brick & medium block	Brick & dense block	Light block & dense block	Medium block & dense block
90	1.72	4.05	0.18	0.19	0.2	0.18	0.20
115	2.14	5.2	0.15	0.16	0.16	0.15	0.16
140	2.56	6.35	0.13	0.14	0.14	0.13	0.14

* Thermal resistances are rounded down to the nearest 0.05 (m².K/W).

** Calculations are based on outside surface resistance, external finish as above, 10mm cavity, PIR insulation, block as above, 12.5mm plasterboard and skim, inside surface resistance.

Lambda value of brick and block work above as follows: Brick 0.77 W/mK, dense block 1.13 W/mK, medium block 0.51 W/mK, light block 0.11 W/mK.

WATER VAPOUR RESISTANCE

The board has a water vapour resistance of > 100MNs/g and will therefore, provide significant resistance to water vapour transmission.

RESISTANCE TO SOLVENTS

PIR insulation resists attack from alkalis, dilute acids, mineral oil and petrol. The fibre free insulation core is not resistant to ketonic solvents. Damaged boards should not be used.

The use of EcoTherm Eco-liner (insulated plasterboard) should be considered on the inside of the external walls if even lower target u values are required.





Design considerations

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-Cavity Full Fill corresponds to the BRE Global Green Guide generic specification which achieves a summary rating of A. EcoTherm Insulation is manufactured under an ISO 14001 Environmental Management System (LPCB certificate - 388 - 7EMS).

FIRE

The product does not prejudice the fire resistance properties of the wall. It is unlikely to become ignited within the cavity when used in context. If the fire does penetrate into an unventilated cavity, the amount of air present will be insufficient to support combustion, and flame spread will be minimal.

Eco-Cavity Full Fill achieves BS476-7: 1997 Class 1 rating for surface spread of flame.

Cavity barriers: The requirements relating to fire spread in cavity barriers can be met in buildings of all purpose groups without the need for cavity barriers provided the construction complies with the provisions detailed in Approved Documents.

MOISTURE TOLERANCE

When the product is used in situations where it bridges the dpc in walls, dampness from the ground will not pass through to the inner leaf provided the cavity wall is detailed in accordance with Building Regulations/Standards.

The tongue and groove edges of Eco-Cavity Full Fill helps increase protection from wind driven rain.

Eco-Cavity Full Fill may be used in any exposure zone provided the appropriate construction, external finish or facing masonry and joints are carried out. However, some warranty providers or local authority building control will not accept the use of full fill cavity wall insulation in very severe exposure zones to driving rain. Where buildings are subject to such, the requirements of the specific warranty provider or local authority building control must be met. Checks with the relevant parties must be completed before building works commence.

THERMAL BRIDGING

Careful consideration should be given to junctions between elements (corners, floors and openings)

in order to reduce linear thermal bridging. Heat loss is represented by the junction's psi (ψ) value. The psi (ψ) values of all the linear thermal bridges in a building are used in whole building CO₂ emissions calculation software. Accredited Construction Details (ACD's) with further details on Eco-Cavity Full Fill and psi (ψ) values are available from EcoTherm Technical Services upon request.

RESIDUAL CAVITY WIDTH

A 10 mm residual cavity width is recommended between the insulation and the outer leaf for wall heights up to 25 metres. For further details please refer to current BBA Certificate 14/5157.

SPECIFICATION CLAUSE

The Insulation shall be EcoTherm Eco-Cavity Full Fill ___ mm thick – Fibre free rigid polyisocyanurate (PIR) insulation core with tongue and groove edges, faced with low emissivity aluminium foil composite on both sides.

It shall be manufactured in accordance to Quality Management System ISO 9001: 2008, Environmental Management System ISO 14001: 2004 and Occupational Health & Safety Management System BS OHSAS 18001: 2007.

STANDARDS AND APPROVALS

Eco-Cavity Full Fill is covered by BBA Agrément Certificate No 14/5157



The NHBC accepts the use of Eco-cavity Full Fill, other than in very severe exposure locations with fair faced masonry, provided it is installed, used and maintained in accordance with the BBA certificate, in relation to NHBC standards, chapter 6.1 External masonry walls.

EcoTherm Insulation is manufactured under an ISO 9001 Quality Management System, ISO 14001 Environmental Management System and BS OHSAS 18001 Occupational Health and Safety Management System.

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-Cavity Full Fill gives typical insulation values as shown in table 1. Project specific U-value calculations and condensation risk calculations are available from EcoTherm Technical Services on request.

DESIGN CONSIDERATIONS

BS EN 845-1: 2013 (Specification for ancillary components of masonry. Wall ties, tension straps, hangers and brackets), BS EN 1996-1-1: 2005 (Eurocode 6. Design of masonry structures. General rules for reinforced and unreinforced masonry structures), BS EN 1996-2: 2006 (Eurocode 6. Design of masonry structures. Design considerations, selection of materials and execution of masonry), BS EN 1996-3: 2006 (Eurocode 6. Design of masonry structures. Simplified calculation methods for unreinforced masonry structures), and PD 6697: 2010 (Recommendations for the design of masonry structures to BS EN 1996-1-1 and BS EN 1996-2) should be consulted regarding the construction of insulated cavity walls.





FOR WALLS

Eco-Cavity Full Fill

FOR FREE TECHNICAL ADVICE

Call: 01268 597 213

Email: technical@ecotherm.co.uk

INSTALLATION ESSENTIALS

- All boards should be fitted or butted together with vertical joints staggered.
- Excess mortar should be cleaned from the cavity face of the internal wall leaf before the installation of the each run of Eco-Cavity Full Fill boards.
- EcoTherm Insulation recommend the use of a cavity board (i.e. timber boarding) and cavity timber stop (i.e. 10mm plywood) to protect the Eco-Cavity Full Fill boards and to help keep the cavity clean as each section of wall leaf is built.
- EcoTherm Insulation recommend the use of insulated cavity closers at door and window openings.
- The boards can be cut to fit openings, (i.e. around windows, doors and airbricks). The tongue and groove edge should be trimmed so that a tight butt edge is formed at opening interfaces. To ensure a continuous layer of insulation is maintained, it is essential to cut boards accurately and that cut pieces completely fill the spaces and are adequately secured.
- Where openings such as doors and windows are in close proximity, it is recommended that a continuous lintel and / or cavity tray is used. Individual lintels or cavity trays should have stop ends and be adequately drained.
- Corner details are formed by cutting the boards squarely and closely butting the two Eco-Cavity Full Fill boards. Alternatively, board ends can be cut at a 45° angle to create a mitred joint. All corner details, internal and external are to incorporate a vertical DPC or self-adhesive vertical DPC overlapping beyond the board ends (at all courses).
- At gable walls Eco-Cavity Full Fill should be continued no less than 200mm beyond the top storey ceiling and a cavity tray installed to protect the top of the Eco-Cavity Full Fill boards.
- Exposed areas of board should always be covered at the end of a day's work or in driving rain.

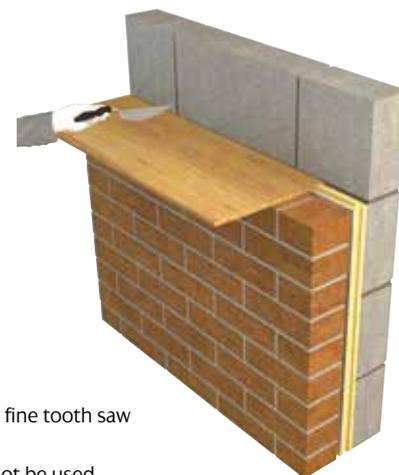
WALL TIES

- Seek advice from a wall tie manufacturer for the most suitable tie for the construction.
- Wall ties should include a retaining clip or disc no greater than 10mm in thickness to ensure insulation boards are held in place against the internal wall leaf.
- A small incision in the Eco-Cavity Full Fill boards tongue and grooved edge should be made to allow insertion of wall ties. It is essential that all wall ties slope downwards towards the external wall leaf.
- Please note: When calculating U-values to BS / EN ISO 6946: 2007, the type of wall tie used may change the thickness of insulation required. For cavity widths ≤ 125 mm, calculations assume a stainless steel flexible tie with 2.5 ties per m² and a cross-sectional area of 12.50 mm². For cavity widths 125mm, calculations assume a stainless steel tie with a 2.5 ties per m and a cross-sectional areas of 23.04mm.

INSTALLATION DETAILS

- A 10mm residual cavity should always be maintained between Eco-Cavity Full Fill insulation board and external wall leaf.
- Install the first row of wall ties at 600mm horizontal centres (2 per board) at a minimum of one course of blockwork below the Damp Proof Course (DPC). Wall ties should not be placed directly on the DPC. The insulation boards should commence at least 150mm below the DPC to provide edge insulation for the floor, but not be in contact with the ground.
- Construct the internal wall leaf up to 450mm (2 block courses) and install wall ties at 900mm horizontal centres.
- Install the first row of Eco-Cavity Full Fill boards between the 2 rows of wall ties, tightly to the internal wall leaf, with the tongue and grooved edges tightly interlocked to form a closely jointed run, and secure in place with a retaining clip / disc on each tie.
- Construct the external wall leaf to meet the top of the Eco-Cavity Full Fill boards and repeat the process up to the required height (wall ties spaced at 450mm vertical centres and 900mm horizontal centres).

Use of a cavity board when installing the inner wall leaf



Site work

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; where possible a dust mask selected in accordance with BS EN 149 should be worn.

HEALTH & SAFETY

Eco-Cavity Full Fill is chemically inert and safe to use. Product safety information is available to download from www.ecotherm.co.uk

STORAGE

At no time should the insulation boards be left exposed to rain. 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.

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