FOR WALLS

EcoTherm Insulation

Eco-Cavity

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Partial Fill Cavity Wall Insulation

Fibre free rigid polyisocyanurate (PIR) insulation core with aluminium foil composite to both sides

Thirteenth Issue July 2025

Eco-Cavity

Description

Eco-Cavity comprises a fibre free polyisocyanurate (PIR) insulation core faced with a low emissivity aluminium foil composite on both sides.

Application

Eco-Cavity is a partial fill cavity wall insulation used within traditional masonry constructions. It can achieve high levels of thermal performance whilst maintaining a clear residual air gap, providing effective protection against driving rain, particularly in coastal and exposed locations. It is conveniently sized so that the boards co-ordinate with brick and block dimensions and to allow the insertion of wall ties into the construction at the appropriate spacing.

Product properties

DIMENSIONS

Eco-Cavity is available in the following standard sizes:

Width: 450 mm
Length: 1200 mm
Thickness: 50 mm - 100 mm
Weight: See Table 1 for board weights

STANDARDS AND APPROVALS

The current manufactured range (in thicknesses of 50 to 100 mm), produced at Kingspan Insulation's Pembridge (Herefordshire) and Selby (North Yorkshire) manufacturing facilities, is covered by BBA Certificate No. 24/7114.

The NHBC accepts the use of EcoTherm Eco-Cavity in relation to relevant clauses in NHBC standards.

EcoTherm PIR Insulation is manufactured under a management system certified to ISO 9001: 2015 (Quality Management Systems), ISO 14001: 2015 (Environmental Management Systems), ISO 45001: 2018 (Occupational Health and Safety Management Systems), ISO 50001: 2018 (Energy Management Systems) and ISO 37301: 2021 (Compliance Management Systems).

All available certificates can be downloaded from **www.ecotherm.co.uk**.

THERMAL PERFORMANCE

The low emissivity surface of the reflective foil can help improve U-values in certain constructions when reflecting into a cavity.

Eco-Cavity has a thermal conductivity (lambda/λ-value) of 0.022 W/mK. The thermal resistance (R-value) of Eco-Cavity varies with thickness (see Table 1).

EcoTherm PIR insulation lambda and thermal resistance values stated in this datasheet are in accordance with BS EN 13165: 2012 + A2: 2016 (Thermal insulation products for buildings. Factory made rigid polyurethane foam (PU) products. Specification).

FIRE PERFORMANCE

There are potential restrictions placed upon this product which vary dependant on building type, height, construction and location in Great Britain. For guidance regarding the routes to compliance for meeting fire safety requirements please refer to the relevant Building Regulations/Standards for England, Wales and Scotland.

Under System 4 AVCP, Eco-Cavity has a Euroclass rating of F.

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

COMPRESSIVE STRESS

The declared compressive stress of Eco-Cavity is 140 kPa at 10% compression when tested to BS EN 826 (Thermal insulating products for building applications. Determination of compression behaviour).

DURABILITY

When correctly installed, Eco-Cavity will remain effective for the life of the building. Its durability depends on the background/supporting structure and conditions of its use. It should not be used to isolate dampness or be used in continuously damp/humid conditions.

RESISTANCE TO SOLVENTS, FUNGI & RODENTS

The insulation core is resistant to short-term contact with petrol and with most dilute acids, alkalis and mineral oils. However, it is recommended that any spills be cleaned off fully before the boards are installed. Ensure that safe methods of cleaning are used, as recommended by the suppliers of the spilt liquid. The insulation core is not resistant to some solvent-based adhesive systems, particularly those containing methyl ethyl ketone. Adhesives containing such solvents should not be used in association with this product. Damaged boards or boards that have been in contact with harsh solvents or acids should not be used.

The insulation core and facings used in the manufacture of EcoCavity resist attack by mould and microbial growth, and do not provide any food value to vermin.

The use of EcoTherm Eco-Liner (insulated plasterboard) on an internal wall should be considered to achieve improved target U-values in a wall construction. Alternatively EcoTherm Eco-Cavity Full Fill can be used solely to achieve a U-value as low as 0.13 W/mK.

Fibre-free Core

FOR FREE TECHNICAL ADVICE
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Design considerations

ENVIRONMENTAL PRODUCT DECLARATION

An Environmental Product Declaration (EPD), certified by BRE Global to the BRE Environmental Profiles 2013 Product Category Rules for Type III environmental product declaration of construction products to EN 15804: 2012 + A1: 2013 (Sustainability of construction works. Environmental product declarations. Core rules for the product category of construction products), has been created for Eco-Cavity produced at Kingspan Insulation's Pembridge, Herefordshire and Selby, North Yorkshire manufacturing facilities.

RESPONSIBLE SOURCING

Eco-Cavity produced at Kingspan Insulation's Pembridge, Herefordshire and Selby, North Yorkshire manufacturing facilities is certified to BES 6001 (Framework Standard for the Responsible Sourcing of Construction Products) 'Good'.

BES 6001 Responsible Sourcing www.greenbooklive.com

MOISTURE TOLERANCE

When the product is used in situations where it bridges the Damp Proof Course (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.

TYPICAL U-VALUES

Eco-Cavity achieves typical U-values as shown in Table 1.

Project specific U-value and Condensation Risk Analysis (CRA) calculations are available from EcoTherm Technical Services on request (see rear cover for details).

For instant U-value calculations 24/7 visit EcoTherm's online U-value calculator at **www.ecotherm.co.uk**

DESIGN STANDARDS

Wall ties should have a retaining clip/disc for securing the insulant to the masonary plane. Ideally they should be BBA/NSAI approved and conform to BS EN 845-1: 2013 + A1: 2016 (Specification for ancillary components of masonry. Wall ties, tension straps, hangers and brackets), BS EN 1996-1-1: 2005 + A1: 2012 (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: 2019 (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.

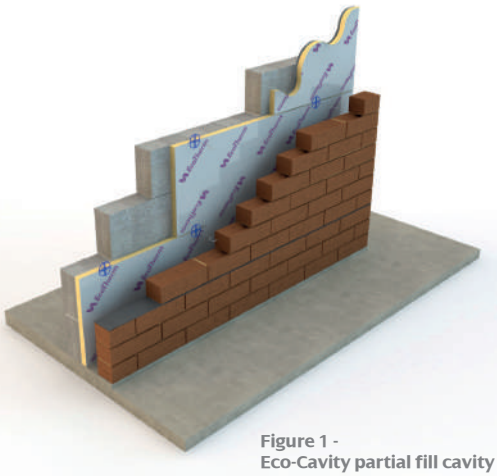

Figure 1 - Eco-Cavity partial fill cavity wall

Table 1 Typical weights, thermal resistances and U-values for Eco-Cavity

Thickness (mm)	Weight per board (kg)	Thermal resistance / R-value (m^2K/W)*	Typical U-value brick & dense block (W/m^2K)	Typical U-value brick & medium block (W/m^2K)	Typical U-value brick & light block (W/m^2K)	Typical U-value light block & dense block (W/m^2K)
50	1.1	2.25	0.28	0.27	0.25	0.24
60	1.2	2.70	0.25	0.24	0.23	0.21
70	1.4	3.15	0.22	0.22	0.21	0.19
75	1.5	3.40	0.21	0.21	0.20	0.19
80	1.6	3.60	0.20	0.20	0.19	0.18
100	1.9	4.50	0.17	0.17	0.16	0.15

NB Refer to local distributor or Kingspan Insulation price list for current stock and non-stock sizes.

Calculations are based on a 50 mm residual cavity. Adjustments for fixings to be included once fixing centres / type have been confirmed.

When calculating U-values to BS EN ISO 6946: 2017, 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 m^2 and a cross-sectional area of 12.50 mm^2 . For cavity widths >125 mm, calculations assume a stainless steel flexible tie with 2.5 ties per m^2 and a cross-sectional area of 23.4 mm^2.

* This sum is rounded down to the nearest 0.01 m^2K/W.

The calculations are based on the following block lambda:

Dense block 1.13W/mK | Medium block 0.51W/mK | Lightweight block 0.19W/mK

For alternative wall constructions/applications please contact EcoTherm Technical Services (see rear cover for details) to obtain a U-value calculation or head to **www.ecotherm.co.uk** to use EcoTherm's online U-value calculator.

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 boards.
- 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). 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.
- At gable walls Eco-Cavity should be continued no less than 200 mm beyond the top storey ceiling and a cavity tray installed to protect the top of the Eco-Cavity 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 to ensure insulation boards are held in place against the internal wall leaf. 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: 2017 (Building components and building elements. Thermal resistance and thermal transmittance. Calculation methods), 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 m^2 and a cross–sectional area of 12.50 mm^2. For cavity widths >125 mm, calculations assume a stainless steel tie with a 2.5 ties per m^2 and a cross-sectional areas of 23.04 mm^2.

INSTALLATION DETAILS

- The residual cavity width should be 50 mm. This may be reduced to 25 mm in isolated areas due to individual construction features. Please refer to BBA Certificate 24/7114 for further information.
- The NHBC normally requires a 50 mm residual cavity width in areas of severe exposure to wind driven rain (exposure zone 3) and a minimum 75 mm residual cavity width in areas of very severe exposure to wind driven rain (exposure zone 4), where nominal standards of tolerance and workmanship are accepted.
- Install the first row of wall ties at 600 mm 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 150 mm 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 450 mm (2 block courses) and install wall ties at 900 mm horizontal centres.
- Install the first row of Eco-Cavity boards between the 2 rows of wall ties, and secure in place with a retaining clip/disc on each tie.
- Each board should be secured at a minimum of three points. Additional ties may also be required to satisfy the structural requirements of BS EN 845-1: 2013 + A1: 2016, BS EN 1996-1-1: 2005 + A1: 2012, BS EN 1996-2: 2006, BS EN 1996-3: 2006, PD 6697: 2019 and/or to ensure adequate retention of boards or cut pieces.
- Construct the external wall leaf to meet the top of the Eco-Cavity boards and repeat the process up to the required height (wall ties spaced at 450 mm vertical centres and 900 mm horizontal centres).

Sitework

HANDLING

- Do not drop boards
- To cut use a fine toothed saw
- Wear appropriate hand and 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: 2001 + A1: 2009 (Respiratory protective devices. Filtering half masks to protect against particles. Requirements, testing, marking) should be worn. Ensure accurate trimming to achieve close butt joints and continuity of insulation.

HEALTH & SAFETY

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

STORAGE

Store boards in a flat, dry area off the ground away from mechanical and water damage and sources of ignition. If temporary outdoor storage cannot be avoided then they must be completely protected by use of an opaque polythene sheet or tarpaulin.

Boards that have been allowed to get wet should not be used.

EcoTherm Insulation

For the most up-to-date version of this brochure, please scan or click here.

To access pre-existing product information or information relating to previously sold/ discontinued products please email **literature@kingspaninsulation.co.uk.**

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