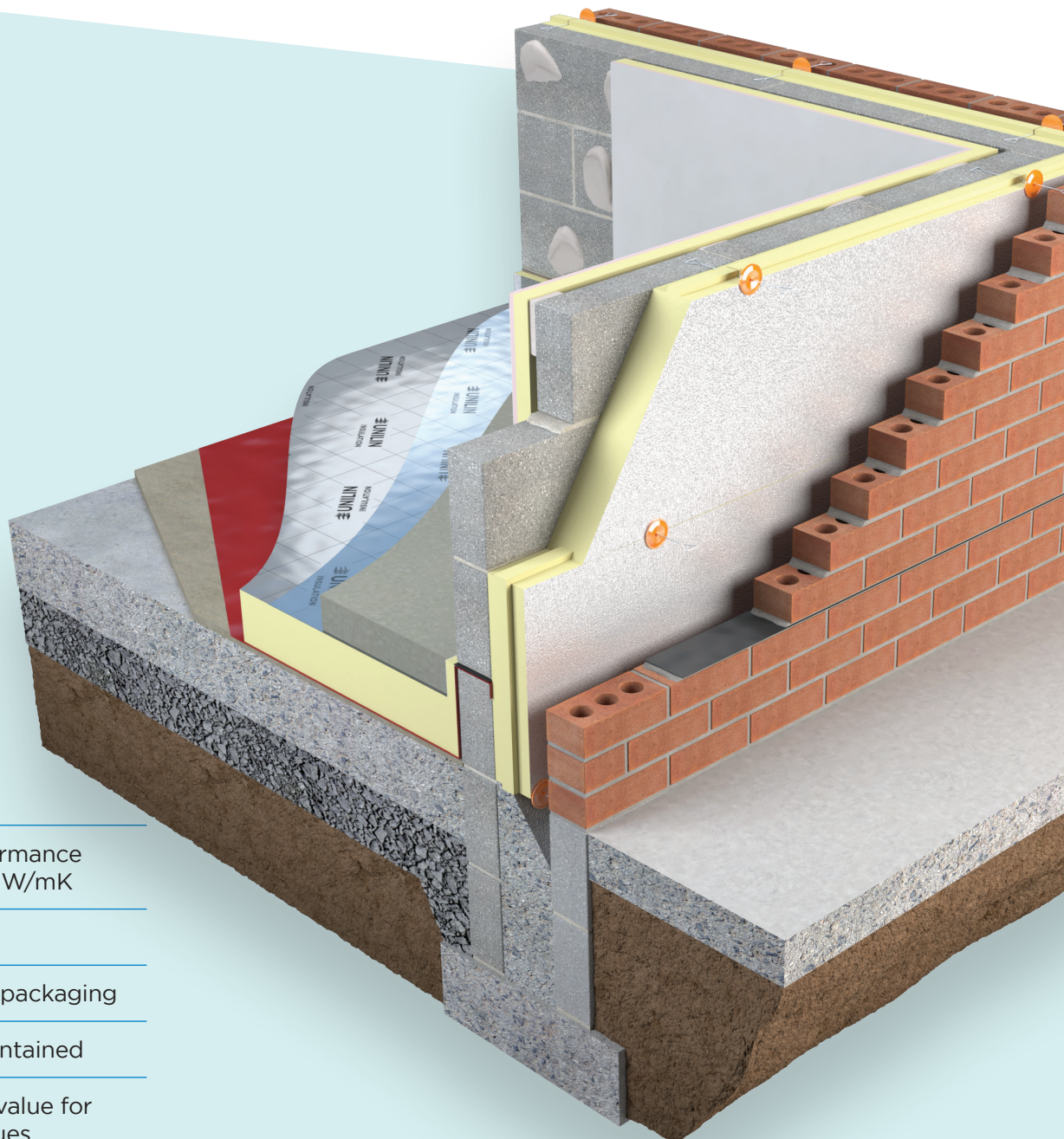


# ECO360 BIO-ENHANCED PIR INSULATION

## Partial Fill Cavity Walls

ECO/CW



Enhanced performance  
as low as 0.020 W/mK

Halogen free

Bio-degradable packaging

Clear cavity maintained

Lower Lambda value for  
improved U-Values



**ECO360** BIO-ENHANCED  
PIR INSULATION

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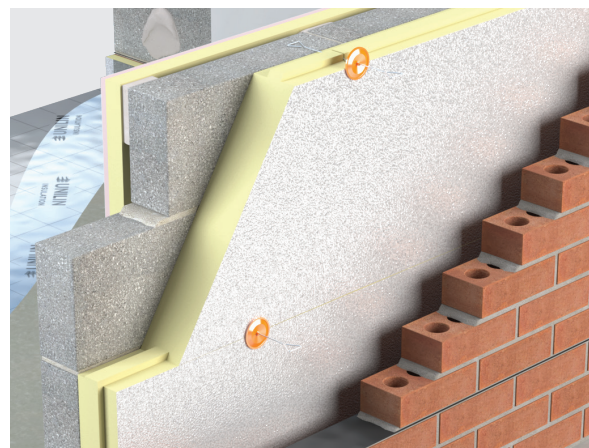
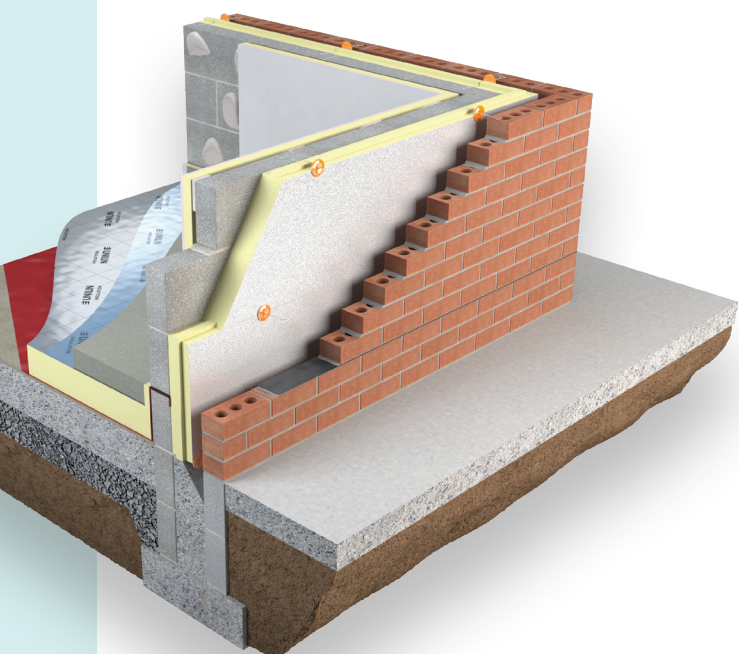
## ECO/CW

**Cavity Wall 360** is a bio-enhanced partial fill wall insulation system. The system incorporates robust facings, engineered jointing details, preformed corners and has a Lambda of 0.020 W/mK.

Cavity Wall 360 is an environmentally sound choice for Passive and low energy builds. It can achieve a Passive U-Value of 0.15 W/m<sup>2</sup>K in a traditional cavity wall. When building with Cavity Wall 360 a residual cavity is maintained, offering excellent protection against wind-driven rain.

**Benefits**

- Bio-enhanced PIR insulation
- Enhanced performance as low as 0.020 W/mK
- Halogen free
- Bio-degradable packaging
- Clear cavity maintained
- Lower Lambda value for improved U-Values

SHIPLAP  
JOINTING**Specification Clause**

The partial fill cavity wall insulation shall be ECO/CW Cavity Wall manufactured to EN 13165 by Unilin Insulation, comprising a rigid modified Polyisocyanurate (PIR) core with textured robust low emissivity foil facings and engineered shiplap jointing. The ECO/CW Cavity Wall \_\_\_mm with a declared Lambda value of 0.020 W/mK to achieve a U-Value of \_\_\_W/m<sup>2</sup>K for the wall element. To be installed in accordance with instructions issued by Unilin Insulation.

Refer to NBS clause F30 155, F30 12.

NBS Plus

**Thermal Resistances**

Thickness (mm)	R-Value (m <sup>2</sup> K/W)
100	5.0
110	5.5

**Resistance 'R' Values**

The resistance value of any thickness of Unilin insulation can be ascertained by simply dividing the thickness of the material (in metres) by its agrément declared lambda value, for example: Lambda 0.020 W/mk and thickness 100mm -> 0.100/0.020 -> R-Value = 5.0. In accordance with EN 13165, R-Values should be rounded down to the nearest 0.05 (m<sup>2</sup>K/W).



## ECO/CW

1. Cavity Wall 360 System includes an optional preformed corner panel that folds to 90 degrees to effectively insulate a junction that is normally vulnerable to Thermal Bridging and cold spots.
2. Engineered jointing offers a practical on-site solution that results in a more robust continuous layer of insulation, minimising the threat of Thermal Bridging and improving the overall U-Value of the wall.
3. The textured robust low emissivity foil facing on Cavity Wall 360 improves the thermal performance of the wall. The residual cavity is the most effective method of preventing wind-driven rain penetrating a wall from the outside. A residual cavity is the air space that remains when Cavity Wall 360 is placed against the inner leaf of the cavity of a wall.

**Note:** The recommended residual cavity width required is 50mm in accordance with UK Building Regulations.

## ECO/CW

Length (mm)	1200
Width (mm)	450
Thickness (mm)	100, 110

## Property & Units

Thermal Conductivity	0.020 (W/mK)
Compressive Strength	>120 (kPa)
Reaction to Fire	NPD

Unilin Declaration of Performance (DoP) for this product is available for download from our website.

## Typical U-Values

**Table 1**

### Build up:

- Plasterboard on dabs
- 100mm Inner Leaf Blockwork
- ECO CW
- Low E Unventilated Cavity
- Brick

### Block Thermal Conductivity

Thickness (mm)		0.11	0.15	0.46	1.13
	100	0.14	0.15	0.16	0.16
	110	0.13	0.14	0.14	0.15

**Note:** U-Values are indicative only. Please contact our technical department for a calculation suited to your specific project.

# INSTALLATION GUIDELINES

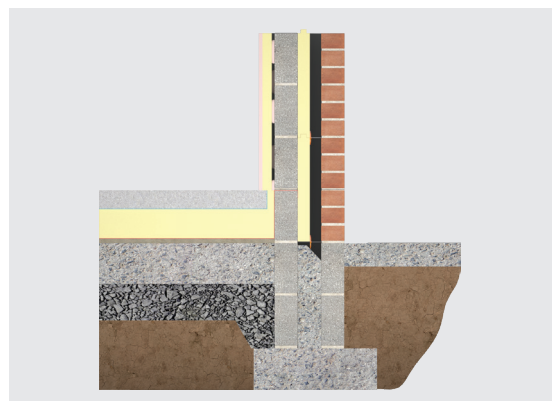
## ECO/CW

1. Under PD 6697:2019 Recommendations for the design of masonry structures to BS EN 1996-1-1 and BS EN 1996-2. It is recommended that no more than four courses of block are laid on the preceding skin before installation of the insulation. This allows for wall ties to be inserted accurately and without bending and thus distorting the physical characteristics of the wall ties. Ensure the wall is level and free of any protrusions before installing the insulation with all edges tightly interlocked.
2. Mortar should be struck from the inner cavity face of the block to ensure mortar squeeze is minimised on the cavity side. The inner and outer courses can then be built.
3. Insert wall ties maximum 600mm centres one block course below DPC. Wall ties should incorporate retaining clips, be Agrément approved and conform to BS EN 845-1: 2013 + A1: 2016.
4. Secure cavity boards tight against inner leaf with retaining clip on wall ties. Excess mortar should be removed from the inner leaf to ensure a tight fit against blockwork. Boards should be installed with the tongue uppermost and joints should be tightly butted.



5. Ensure a minimum 150mm overlap with the floor insulation. The receiving block should be plumb to provide a flat surface to accept the insulation. As with setting out, installation should commence from adjacent corners using the Cavity Wall pre-formed corner boards. Alternate corner boards will achieve the offset break bonded pattern for the insulation.

6. Maintain a 50mm residual cavity to suit all exposure zones. In isolated circumstances, where the cavity is obstructed, a minimum 25mm residual cavity should always be maintained and extra consideration should be given to fixings and weatherproofing. Any reduction in cavity width should be agreed with Building Control.
7. Place wall ties at maximum 900mm x 450mm centres, securing with a minimum of 3 wall ties per board.
8. Ensure block joints are fully bonded with unbroken mortar. Fix wall ties 225mm vertically and 150mm horizontally from face of unbonded jambs. Ensure wall ties and cavity are kept clean of mortar. Wall ties should be sloped downwards towards outer leaf.
9. A cavity board should be used to keep the cavity clean. Cavity Wall corner boards and cavity closers may be fitted to provide robust detailing.
10. Newly erected masonry should be covered to protect the insulation and to prevent the mortar being washed out of the joints by rain. Walls should be prevented from becoming saturated by covering the top of the wall with waterproof sheets; this is particularly important to minimise the incidence of efflorescence and lime bloom. When any working platform is not in use, the inner board should be turned away from the wall to prevent the splashing of the wall face.



ACDs must be followed to ensure that installation is in accordance with current Building Regulations and accounted for in the energy calculation.

## HANDLING, CUTTING & STORAGE

Unilin insulation should be stored off the ground, on a clean, flat surface and must be stored under cover. The polythene wrapping is not considered adequate protection for outside exposure. Care should be taken to protect the insulation in storage and during the build process.

The insulation boards can be readily cut using a sharp knife or fine toothed saw. Ensure tight fitting of the insulation boards to achieve continuity of insulation as asked for within the ACDs. Appropriate PPE should be worn when handling insulation. Please refer to Health & Safety data sheets on our website.

The boards are wrapped in bio-degradable film and each pack is labelled with details of grade/type, size and number of pieces per pack.

### Durability

Unilin Insulation products are stable, rot proof, provide no food value to vermin and will remain effective for the lifetime of the building, depending on specification and installation. Care should be taken to avoid contact with acids, petrol, alkalis and mineral oil. When contact is made, clean materials in a safe manner before installation.



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### **The Sustainable Solution**

Specifying Unilin Insulation is a real commitment to minimising energy consumption, harmful CO<sub>2</sub> emissions and their impact on the environment. Using our products is one of the most effective ways to reduce energy consumption – in fact, after just eight months the energy they save far outweighs the energy used in their production. In addition, our manufacturing facilities operate to an ISO 14001 certified Environmental Management System.

### **Environmental Product Declaration (EPD)**

An Environmental Product Declaration or EPD for a construction product indicates a transparent, robust and credible step in the pursuit and achievement of real sustainability in practice, it is a public declaration of the environmental impacts associated with specified life cycle stages of that product. Unilin EPDs have been independently verified in accordance with EN 15804+A2:2019 and ISO 14025 accounting for stages of the LCA from A1 to A3, with options A4-A5 and modules C1-C4 and D included. The process of creating and EPD allows us to improve performance and reduce resource wastage through improvements in product design and manufacturing efficiency. They play a crucial role in manufacturing and construction and are increasingly asked for by industry.

### **EPDs and BREEAM**

BREEAM is primarily trying to encourage designers to take EPDs into consideration when specifying products. BREEAM requires EPDs to be verified by a third-party. For the Mat O2 category, points are awarded based on whether EPDs are generic, manufacturer-specific, or product-specific. Non 3rd party verified EPDs to EN 15804 cannot be accepted. All of Unilin EPDs are externally verified.

### **Responsible Sourcing**

Unilin has BES 6001 certification for responsible sourcing. The second BREEAM credit under that category is based on responsibly-sourced materials – at least 80% of the total insulation used in roofs, walls, ground floors and services must meet any of tier levels 1 to 6 in the BREEAM table of certification schemes. Our Environmental Management System is certified under EN ISO 14001, and our raw materials come from companies with similarly certified EMS (copies of all certificates are available for BREEAM assessments). This level of responsible sourcing meets tier level 6 in the BREEAM table.

Good workmanship and appropriate site procedures are necessary to achieve expected thermal and airtightness performance. Installation should be undertaken by professional tradespersons. The example calculations are indicative only, for specific U-Value calculations contact Unilin Insulation Technical Support. Unilin technical literature, Agrément certifications and Declarations of Performance are available for download on the Unilin Insulation website. The information contained in this publication is, to the best of our knowledge, true and accurate at the time of publication but any recommendations or suggestions which may be made are without guarantee since the conditions of use are beyond our control. Updated resources may be available on our websites. All images and content within this publication remain the property of Unilin Insulation.



**ISO 45001** Occupational Health & Safety Management Systems

**ISO 9001** Quality Management Systems

**ISO 14001** Environmental Management Systems