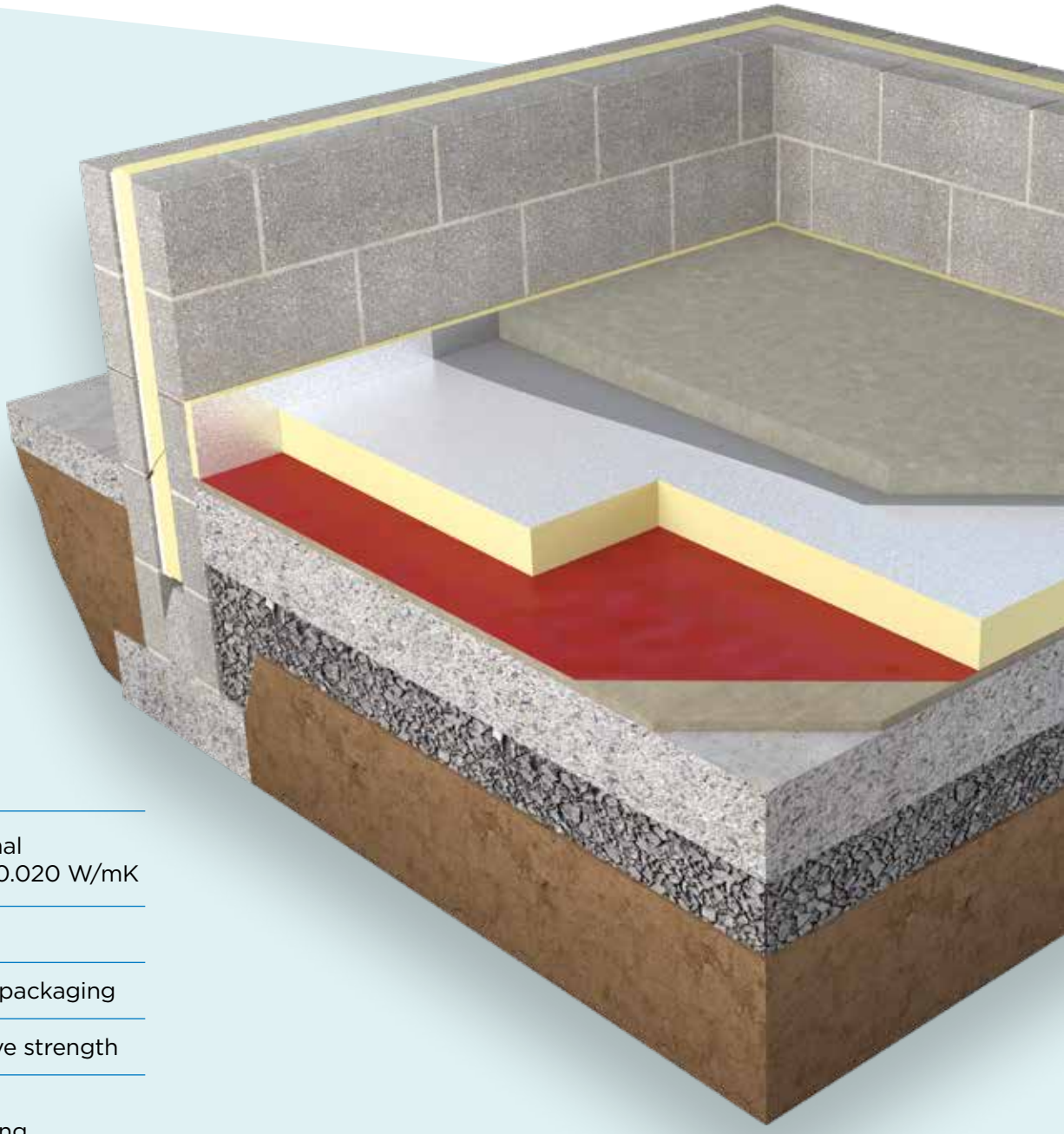
ECO360 BIO-ENHANCED PIR INSULATION

Solid & Suspended Floors

ECO/MA (FLOORS)



- Enhanced thermal conductivity of 0.020 W/mK
- Halogen free
- Bio-degradable packaging
- High compressive strength
- Suitable for underfloor heating

UNILIN

ECO360 BIO-ENHANCED PIR INSULATION

Solid & Suspended Floors

ECO/MA (FLOORS)

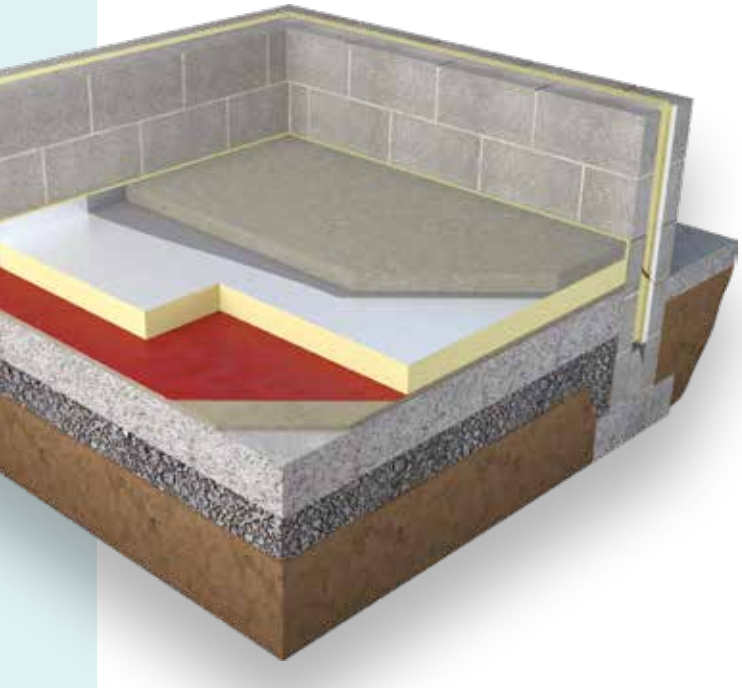
Bio-enhanced, superior performance PIR insulation suitable for solid and suspended floors. **ECO360 MA** for floors offers excellent insulation performance with a thermal conductivity of 0.020 W/mK.

This bio-enhanced insulation will significantly improve the U-Value of new and existing floors. It combines high compressive strength with low thermal conductivity, providing a suitable solution for floor insulation.

It offers a bio-enhanced formulation which is halogen free. The product packaging is bio-degradable and the overall content has been reduced significantly.

Benefits

- Bio-enhanced PIR insulation
- Enhanced performance of 0.020 W/mK
- Halogen free
- Bio-degradable packaging
- High compressive strength
- Suitable for underfloor heating



Specification Clause

The floor insulation shall be ECO360 ECO/MA Floors manufactured to EN 13165 :2012+A2:2016 by Unilin Insulation, comprising of a rigid modified Polyisocyanurate (PIR) core between textured foil facings. The ECO/MA _ _ _mm with a declared Lambda value as low as 0.020 W/mK to achieve a U value of ___ _ _W/m²K for the floor element. To be installed in accordance with instructions issued by Unilin Insulation.

Refer to NBS clause M10 290, M10 40, M13 260, M13 40, P10 45
Uniclass 25 71 63 66

Thermal Resistances

Thickness (mm)	R-Value (m²K/W)
100	5.0
125	6.25
150	7.5

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 13165:2012+A2:2016, R-Values should be rounded down to the nearest 0.05 (m²K/W).

ECO/MA (FLOORS)

1. Good detailing at the wall/floor junction is essential in reducing Thermal Bridging. By placing an upstand of Unilin Perimeter Strip (XO/STR at 0.021 W/mK) insulation with a minimum 25mm thickness around the external and internal wall/floor junctions, an effective detail is created.

2. ECO360 MA is suitable for use with underfloor heating. Thanks to its thickness to performance ratio, it allows for reduced insulation thickness. The boards should be laid with closely butted joints, laid staggered with a break bonded pattern and fitted tightly at edges and around any service penetrations.

Note: This product has the strength and thermal properties required to reach the high performance U-Values specified in the Building Regulations.

For installation guidelines, please refer to the individual brochures on our website.

ECO/MA

Length (mm)	2400
Width (mm)	1200
Thickness (mm)	100, 125, 150

Property & Units

Thermal Conductivity	0.020 (W/mK)
Compressive Strength	150 (kPa)
Reaction to Fire	Euroclass F

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

INSTALLATION GUIDELINES

ECO/MA (FLOORS)

Below Concrete Slab

1. Lay and level the hardcore in layers 150mm min/ 250mm max and compact well.
2. Sand blind base to create a level surface and to protect DPM.
3. The damp proof membrane (DPM), normally 1200g polythene or radon barrier, should be laid over the blinding, tape lapped joints to prevent passage of ground moisture. Carry DPM up to the wall to meet and seal with the DPC course. Contact the membrane manufacturer for further guidance on installation and best practice.
4. Lay the ECO360 MA for floors across the DPM. If two layers are required, lay the boards in a staggered jointed pattern. Closely butt all edges.
5. Place Unilin Perimeter Strips (XO/STR) around floor perimeter to provide robust detailing in order to reduce Thermal Bridging. Ensure top of perimeter strip is level with top of floor finish. Seal around any service penetrations.
6. Lay a thin gauge polythene sheet, to act as a separating layer, over the insulation with 150mm lap joints. VCL should be taped at the joints to ensure a continuous separating layer, as per BRE GBG 45 “Insulating Ground Floors”.
7. If underfloor heating is required, lay pipes and clip to the insulation boards through the separating layer. Follow UFH manufacturer’s guidelines.
8. Pour and compact concrete slab to required finish floor level.

Below Floor Screed

1. Lay and level the concrete slab, allowing sufficient time to dry out, as per BS 8203:2017.
2. Beam and block floors may need a levelling screed or grouting to ensure base level. Refer to manufacturer’s guidelines.
3. The damp proof membrane (DPM), normally 1200g polythene or radon barrier, should be laid over the blinding, tape lapped joints to prevent passage of ground moisture. Carry DPM up to the wall to meet and seal with the DPC course. Contact the membrane manufacturer for further guidance on installation and best practice.
4. Lay the ECO360 MA for floors boards across the DPM. If two layers are required, lay the boards in a staggered jointed pattern. Closely butt all edges.
5. Place Unilin Perimeter Strips (XO/STR) around floor perimeter to provide robust detailing in order to prevent Thermal Bridging. Ensure top of perimeter strip is level with top of floor finish. Seal around any service penetrations.
6. Lay a thin gauge polythene sheet, to act as a separating layer, over the insulation with 150mm lap joints. Separating layer should be taped at the joints to ensure a continuous separating layer, as per BRE GBG 45 “Insulating Ground Floors”.
7. If underfloor heating is required, lay pipes and clip to the insulation boards through the separating layer. Follow manufacturer’s guidelines.
8. Pour screed according to screed manufacturer’s guidelines.

Suspended Timber Floor

1. Install joists in the normal manner, ensuring adequate ventilation.
2. Measure gaps between joists and cut ECO360 MA for floors to size, allowing for variations in joist spacings.
3. Mechanically fasten treated timber battens to the joists, allowing for correct thickness of insulation. Galvanised nails or saddle clips may also be used, ensuring nails are left 40mm proud of the joists.
4. Install ECO360 MA for floors between joists with joints tightly butted and seal any gaps with expanding foam.
5. If two insulation layers are required, lay the boards in a staggered jointed pattern, also sealing any gaps with expanding foam.
6. Floor boards should be laid directly to the joists.

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

THERMAL PERFORMANCE

ECO/MA (FLOORS)

Typical U-Values

Table 1
ECO/MA (FLOORS) Insulation for Ground Supported Slab (U-Value calculations to EN ISO:13370 2017)

Build up:

- 65mm screed
- Separating layer Polythene sheet
- ECO360 MA with perimeter strip
- DPM 1200 gauge polythene or radon barrier
- Concrete slab

Perimeter/Area Ratio

Thickness (mm)	0.30	0.40	0.50	0.60	0.70	0.80	Target U-Value
	-	-	-	-	-	-	**0.18**
	-	100	100	-	-	-	**0.15**
	-	-	125	125	125	125	**0.13**

Table 2
ECO/MA (FLOORS) Beam & Block Suspended Floor (U-Value calculations to EN ISO:13370 2017)

Build up:

- 65mm screed
- Separating layer Polythene sheet
- ECO360 MA with perimeter strip
- Beam and block

Perimeter/Area Ratio

Thickness (mm)	0.30	0.40	0.50	0.60	0.70	0.80	Target U-Value
	-	-	-	-	-	-	**0.18**
	100	100	-	-	-	-	**0.15**
	125	125	125	125	125	-	**0.13**

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

THERMAL PERFORMANCE

ECO/MA (FLOORS)

Typical U-Values

Table 3
ECO/MA (FLOORS) Hollow Core Slab (U-Value calculations to EN ISO:13370 2017)

Build up:

- 65mm screed
- Separating layer Polythene sheet
- ECO360 MA with perimeter strip
- Hollow core slab

Perimeter/Area Ratio

Thickness (mm)	0.30	0.40	0.50	0.60	0.70	0.80	Target U-Value
	-	-	-	-	-	-	**0.18**
	-	100	100	100	-	-	**0.15**
	-	125	125	125	125	125	**0.13**

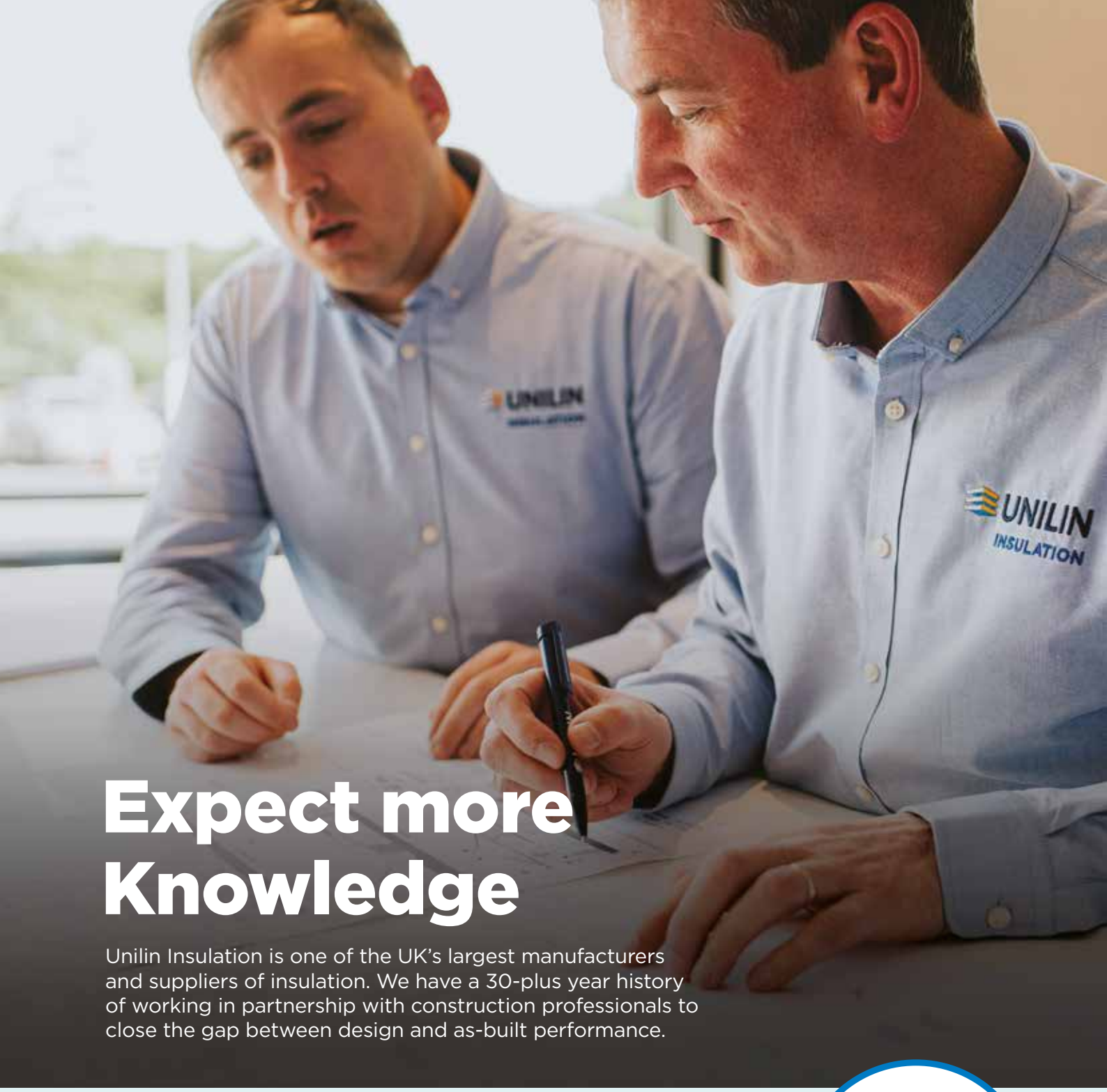
HANDLING, CUTTING & STORAGE

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.



Expect more Knowledge

Unilin Insulation is one of the UK's largest manufacturers and suppliers of insulation. We have a 30-plus year history of working in partnership with construction professionals to close the gap between design and as-built performance.

Higher standards of fabric performance call for greater adherence to best practice detailing. To achieve this and to 'close the gap' between design and build, we provide a dedicated Technical Team, all qualified to the highest standards of competency in U-Value calculation and condensation risk analysis.

FREE
One-to-one advice

Here to support you

- BRE Trained Modelling
- Warranted Calculations available
- Immediate technical response
- SAP Qualified
- Insulation systems to deliver real onsite performance

Get in touch

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The Sustainable Solution

Specifying Unilin Insulation is a real commitment to minimising energy consumption, harmful CO_2 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 14001:2015+A1:2024 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 14025:2010 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 an 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 02 category, points are awarded based on whether EPDs are generic, manufacturer-specific, or product-specific. Non 3rd party verified EPDs to EN 15804:2012+A2:2019 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 14001:2015+A1:2024, 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

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