ECO360 BIO-ENHANCED PIR INSULATION

Pitched Roofs

ECO/MA (ROOFS)

- Excellent thermal conductivity as low as 0.020 W/mK
- Halogen free
- Bio-degradable packaging
- Suitable for pitched roofs



UNILIN

Enhanced performance as low as 0.020 W/mK

ECO360 BIO-ENHANCED PIR INSULATION
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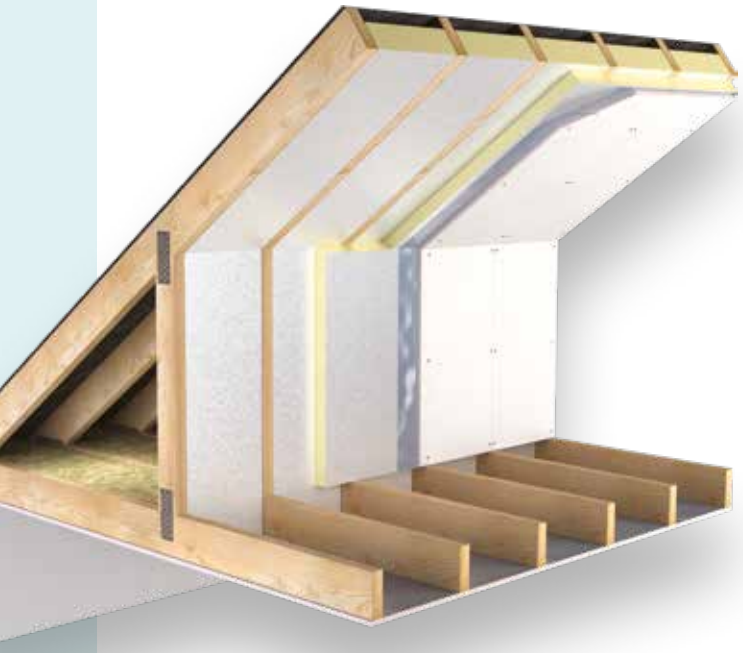
Bio-enhanced, superior performance PIR insulation suitable for pitched roofs (ventilated, hybrid or warm). **ECO360 MA** for roofs offers excellent insulation performance with a thermal conductivity as low as 0.020 W/mK.

Using pioneering environmentally conscious technology, ECO360 MA in roof applications will reduce heat loss while also delivering excellent Thermal Bridging details.

This bio-enhanced insulation is lightweight, easy to install and combines high compressive strength with low thermal conductivity, providing a high performance solution for roof insulation. ECO360 MA is a halogen free insulant whose overall packaging has been significantly reduced. The minimal packaging is also bio-degradable.

Benefits

- Bio-enhanced PIR insulation
- Enhanced performance as low as 0.020 W/mK
- Halogen free
- Bio-degradable packaging
- High compressive strength
- Suitable for pitched roofs
- Reduced packaging materials



Specification Clause

The pitched roof insulation shall be ECO360 ECO/MA Roofs 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 roof element. To be installed in accordance with instructions issued by Unilin Insulation.

Refer to NBS clause P10 140, K11 695, K11 55, P10 50, P10 15
Uniclass 25 71 63 66

Thermal Resistances

Thickness (mm)	R-Value (m²K/W)
50	2.15
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 (ROOFS)



1. In a conventional ventilated roof, a 50mm clear ventilation gap should be maintained between the insulation and the roofing felt. In certain instances, where a breather membrane is used instead of standard roofing felt, the ventilation gap may be dispensed with. Refer to manufacturer's guidelines.

ECO/MA

Length (mm)	2400
Width (mm)	1200
Thickness (mm)	50, 100, 125, 150

Property & Units

Thermal Conductivity	0.020 - 0.023 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.

Typical U-Values

Table 1 U-Value calculations to EN ISO:6946 2017

Build up:

- Tiles
- Battens
- Breathable membrane
- Air layer between rafters (Low Emissivity)
- ECO/MA between rafters
- ECO/MA below rafters
- Vapour control layer
- Plasterboard
- Plaster skim

Thickness (mm)	Thickness Between (mm)	Thickness Below (mm)	Rafter Centres 400mm	Rafter Centres 600mm
100	100	50	0.16	0.15
125	125	50	0.14	0.13
150	150	50	0.13	0.12

Table 2 U-Value calculations to EN ISO:6946 2017

Build up:

- Tiles
- Battens
- Breathable membrane
- Air layer between rafters (Low Emissivity)
- ECO/MA over rafters
- ECO/MA between rafters
- Vapour control layer
- Plasterboard
- Plaster skim

Thickness (mm)	Thickness Over (mm)	Thickness Between (mm)	Rafter Centres 400mm	Rafter Centres 600mm
100	100	100	0.12	0.11
125	100	100	0.1	0.1
150	100	100	0.1	0.09
100	125	125	0.1	0.1
125	125	125	0.09	0.09
150	125	125	0.08	0.08
150	-	-	0.13	0.13

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

INSTALLATION GUIDELINES

ECO/MA (ROOFS)

Ventilated Roof

1. Position and fix battens to inner face of rafters, flush with the top edge of the timber.
2. Allow for ventilation gaps, normally 50mm, (May be reduced depending on breather membrane certification).
3. Cut boards with fine toothed saw to fit tightly between rafters, flush with the bottom of the rafter. Allow slight oversize of cut to achieve 'friction fit' and seal any gaps with expanding foam.
4. A second continuous layer of insulation should be fixed to the underside of the rafter. Run second layer transverse to the first with joints tightly butted. Fix with clout nails to hold insulation in place until plasterboard is installed.
5. Provide a separate vapour control layer between insulation and plasterboard or alternatively, tape the joints of the insulation with an aluminium foil tape.
6. Finish with plasterboard fixed with drylining screws. Screw fix every 150mm, 12mm from edge of boards, ensuring a minimum 25mm penetration into the rafter or alternatively follow plasterboard manufacturer installations guidance.

Hybrid Roof

Follow the same procedure as before except a breather membrane is used above the rafter allowing the 50mm ventilation space to be dispensed with. Typically, a 25mm unventilated void should be maintained; Agrément certification covering the membrane should be consulted.

Warm Roof

1. Ensure cavity wall insulation has continued to roof height to meet with the roof insulation.
2. Fix a treated timber stop rail to the end of the rafter at the eaves.
3. Lay ECO/MA (Roofs) staggered jointed over the rafters. Ensure joints are tightly butted and fill any gaps with expanding foam. Joints should be fully supported by rafters. Boards can be temporarily fixed with nails.
4. Fix 38mm x 50mm counter battens with approved fixings through the insulation board into the rafter. The amount of fixings is determined by the fixing manufacturer who can also provide wind load calculations.
5. A breathable sarking membrane should be fitted; refer to manufacturer's Agrément certification. Ventilation may have to be provided subject to that certification and minimises the risk of interstitial condensation forming on the underside of the membrane. Providing an unventilated void under the membrane can improve the thermal performance.
6. Secure 50mm x 25mm tiling battens through counterbatten and ECO/MA (Roofs) to the rafter.
7. If an additional second layer is required, this should be fixed between the rafters.
8. Cut boards with fine toothed saw to fit tightly between rafters, flush with the top of the rafter. Allow slight oversize of cut to achieve 'friction fit' and seal any gaps with expanding foam.
9. Provide a separate vapour control layer between the bottom of rafter and plasterboard.
10. Finish with plasterboard fixed with drylining screws. Screw fix every 150mm, 12mm from edge of boards ensuring a minimum 25mm penetration into the rafter or alternatively follow plasterboard manufacturer installations guidance.

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.

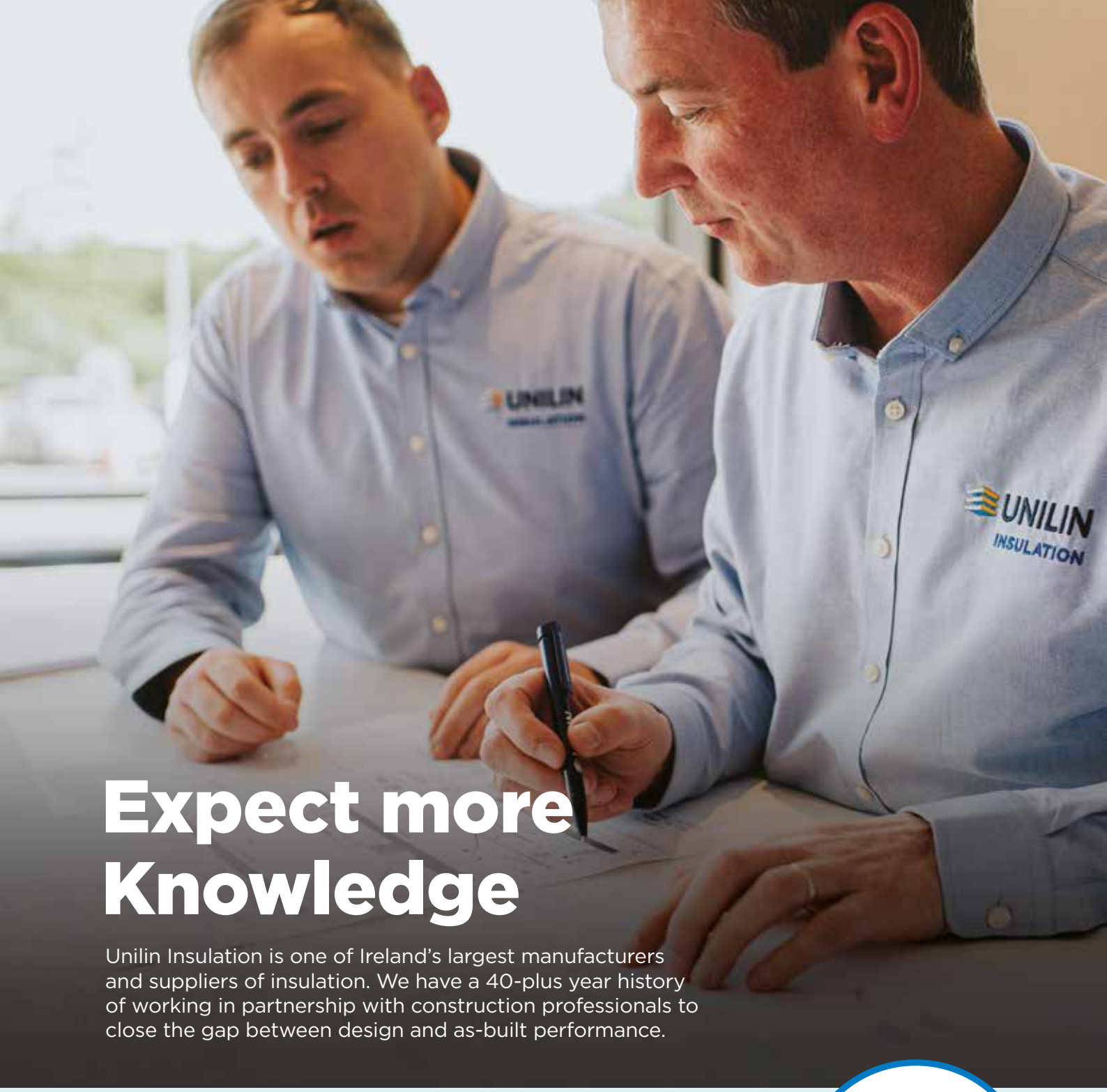
The insulation boards can be readily cut using a sharp knife or fine toothed saw. Ensure tight fitting of the insulation boards to achieve continuity of insulation as asked for within the ACDs. Appropriate PPE should be worn when handling insulation. Please refer to Health & Safety data sheets on our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







Expect more Knowledge

Unilin Insulation is one of Ireland's largest manufacturers and suppliers of insulation. We have a 40-plus year history of working in partnership with construction professionals to close the gap between design and as-built performance.

FREE
One-to-one advice

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.

Here to support you

- BRE/NSAI Trained Modelling
- Warranted Calculations available
- Immediate technical response
- DEAP and 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 9001 Quality Management Systems
ISO 14001 Environmental Management Systems

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