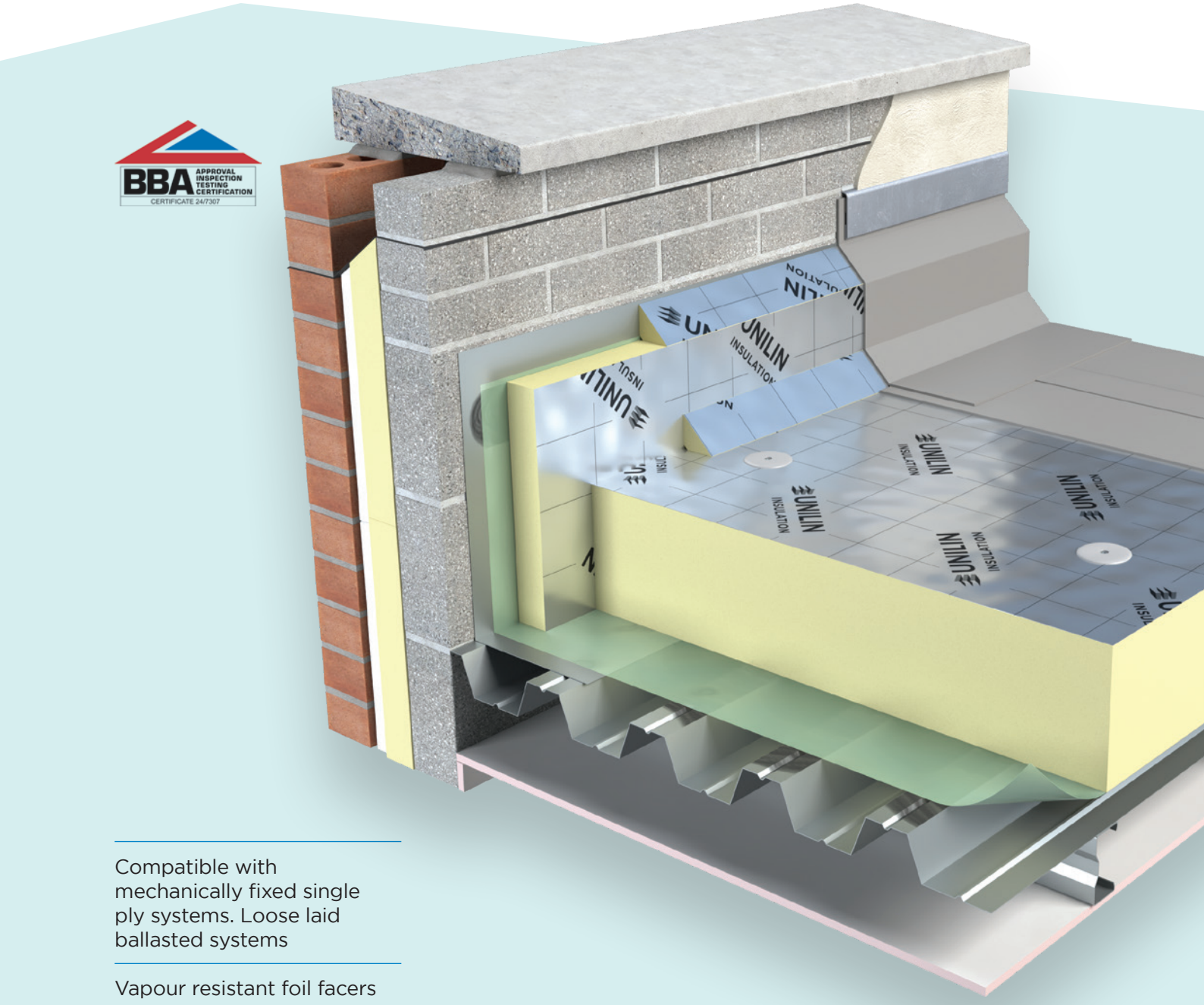
FLAT ROOF TOTAL FLAT ROOF SOLUTIONS

Mechanically Fixed Single Ply Waterproofing Systems

FR/ALU



Compatible with mechanically fixed single ply systems. Loose laid ballasted systems

Vapour resistant foil facers

UNILIN INSULATION

Compatible with mechanically fixed single ply systems and loose laid ballasted systems

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Mechanically Fixed Single Ply Waterproofing Systems

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Flat Roof ALU is a Polyisocyanurate flat roof insulation with vapour-tight aluminium foil facings suitable for use with single ply membranes. Flat Roof ALU is part of the range of Unilin's flat roof boards providing total solutions for flat roof projects.

Benefits

- Compatible with mechanically fixed single ply systems and loose laid ballasted systems
- Vapour resistant foil facers
- An Environmental Product Declaration (EPD), certified by IGBC is available for this product. Please contact technical support for further details

Roof Design

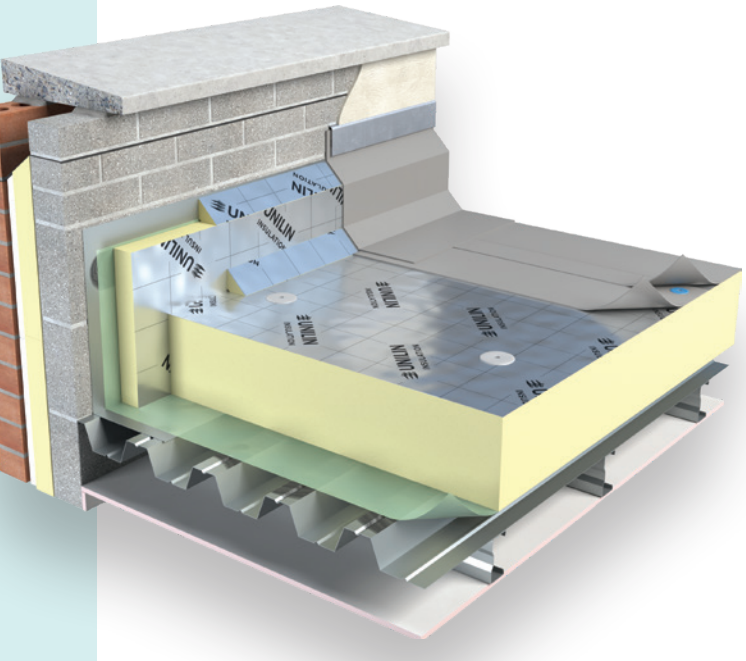
Consideration should be given to the recommendations of the Single Ply Roofing Association (SPRA).

Falls

The fall on a flat roof should be constant and steep enough to ensure that rainfall does not pond.

Fire Performance

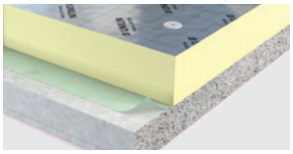
The fire performance, when tested to TS 1187 2012 and classified to EN 13501-5:2016, will be dependent upon the waterproofing system specified.



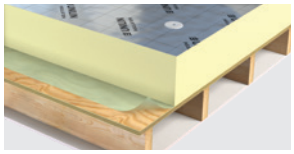
Specification Clause

The flat roof insulation shall be Unilin Insulation Thin-R FR/ALU manufactured to EN 13165:2012+A2:2016 by Unilin Insulation, comprising of a rigid Polyisocyanurate (PIR) core between composite foil facings. The FR-ALU_ _ _mm with a Agrément declared Lambda value of 0.022 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 J42 420, J42 10, J42 430.
Uniclass 25 71 63 66.



Typical Installation
Concrete Deck



Typical Installation
Timber Deck

Unilin FR/ALU is faced with gas-tight foil and is suitable for use below single ply, mechanically fixed roof membranes. **Note:** This board is not suitable for applications with built-up, bitumen based roofing or mastic asphalt systems.

Vapour Control Layer (VCL)

The boards should be laid over the vapour control layer in a break bonded pattern. The long edges of the boards should be laid at right angles to the corrugations and all board joints must be fully supported by the deck. The insulation boards are secured by approved mechanical fixings.

The requirement for a separate vapour control layer should be assessed in accordance with BS 6229:2018. Typically, a 1000 gauge polythene layer should be used with all joints lapped and sealed. Any fixings that penetrate it must be of the self sealing type that fuses to the vapour control layer during application.

The vapour control layer should be laid with 150mm laps, which are turned up at any vertical upstand. When the insulation boards have been positioned, the laps are turned over and sealed, prior to the roof finish being completed.

FR/ALU

Loadings
Flat Roof ALU foil faced insulation boards are suitable for use on roof decks that are subject to maintenance traffic. Walk ways should be provided on roofs requiring regular pedestrian access. When the roof is complete, protective boarding should be laid if additional site work is to be carried out. The completed roof should not be used for storage of heavy materials or air conditioning plant.

Laying (Metal/Timber Deck)
The Flat Roof ALU foil faced boards should be laid over the vapour control layer in a break bonded pattern. The long edges of the boards should be laid at right angles to the corrugations and all board joints must be fully supported by the deck. The boards are generally secured by approved mechanical fixings.

Laying (Concrete Deck)
The Flat Roof ALU boards are laid over the vapour control layer in a break bonded pattern and secured with approved mechanical fixings, or secured under a ballasted system. Care should be taken to ensure that the concrete deck is graded to the correct falls, dry, clean and free from any projections or gaps.

Fixings
The specification for fixing Unilin roof boards will vary with the location, roof height/ area and topographical data. Architectural specification should be consulted.

Generally, with 2400mm x 1200mm boards, a minimum of 6 fixings are adequate, located between 50mm and 150mm from all edges, additional fixings may be placed along the centre line. Additional fixings around roof perimeter may be required. 11 fixings per 2400mm x 1200mm sheet is recommended. Counter sunk washers, 50mm in diameter, should be used with each fixing. However, BS EN 1991-1-4:2005+A1:2010 (National Annex to Eurocode 1.Actions on structures. General Actions. Wind Actions) should always be consulted. It is recommended to seek advice from the fixing manufacturer for specific guidance. During the construction process, the construction should be protected from rain penetration during breaks in the process.

FR/ALU

Length (mm)	2400
Width (mm)	1200
Thickness (mm)	25, 30, 40, 50, 60, 70, 75, 80, 90, 100, 110, 120, 125, 130, 140, 150

Other sizes are available subject to quantity and lead time. Note: Unilin Insulation UK Ltd. reserves the right to amend product specifications without prior notice.

Property & Units

Compressive Strength	150kPa @ 10% Compression
Thermal Conductivity	0.022 W/mK
Reaction to Fire	Euroclass E

Typical U-Values

Construction	Thickness (mm)	U-Value (W/m²K)
Concrete deck[1]	150mm	0.15
Metal deck[2]	150mm	0.15
Timber deck[3]	140mm	0.15
Concrete deck[1]	120mm	0.18
Metal deck[2]	125mm	0.18
Timber deck[3]	120mm	0.17
Concrete deck[1]	110mm	0.20
Metal deck[2]	110mm	0.20
Timber deck[3]	100mm	0.20

1. 200mm Concrete deck with suspended ceiling below.
2. 0.7mm metal deck with suspended ceiling below.
3. 18mm timber deck with joists and plasterboard below.

The given U-Values are indicative only. Default fixings have been used to calculate the U-Value. For calculations on all deck types, please contact Unilin Technical Support.

INSULATION FIXING TABLE

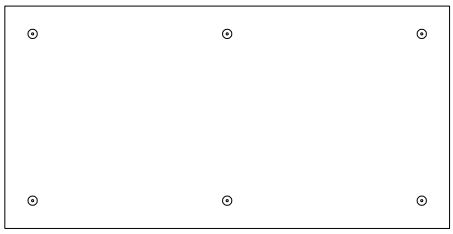
Minimum area of stress plate, number of fixings and layout

Minimum Recommended Fixing Patterns
For guidance and details on fixing patterns, please refer to guidance from the following bodies.

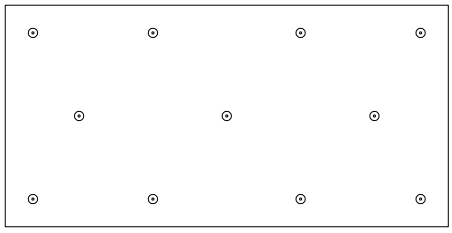
- "SPRA: SINGLE PLY DESIGN GUIDE"
- Insulation Manufacturers Association Information document ID/1/2009, published by IMA
- Liquid Roofing and Waterproofing Association, Technical Guidance

Distribute mechanical fixings evenly across the board, at a minimum of 50mm from the board edge and a maximum of 150mm. Refer to fixing patterns below for indicative purposes.

The required number of fixings shown is the minimum only. Regardless of the water proofing system attachment method, wind load calculations should be undertaken in order to determine actual fixing requirements in corner, perimeter and field roof areas. These areas should be clearly defined, especially where different numbers of fixings are required for each zone.



6 fixings per board
Recommended fixing pattern
for 6 fixing per board
(2400mm x 1200mm board - 2.1 fixings/m²)



11 fixings per board
Recommended fixing pattern
for 11 fixings per board
(2400mm x 1200mm size board - 11/2.88 = 3.82 fixings/m²)

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 polythene packs 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 20-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 listed Thermal Bridging Detailing
- BRE Trained Modelling
- BBA/TIMSA calculation competent
- Warranted Calculations available
- Immediate technical response
- SAP Qualified
- Insulation systems to deliver real onsite performance

Get in touch

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UNILIN INSULATION

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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 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 45001:2023+A1:2024	Occupational Health & Safety Management Systems
ISO 9001:2015+A1:2024	Quality Management Systems
ISO 14001:2015+A1:2024	Environmental Management Systems

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