SAFE-R PHENOLIC INSULATION

Fireline Thermal Laminate

SR/TBFL-MF

Superior thermal performance of 0.021 - 0.020 W/mK

Reaction to fire - B-s1, d0

Space saving - high performance to thickness ratio

UNILIN INSULATION

Reaction to fire B-s1, d0

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Safe-R Fireline Thermal Laminate is a composite insulated panel comprising of a rigid Phenolic core and 15mm Fireline plasterboard achieving a Euroclass B-s1 d0 reaction to fire classification for internal applications. The superior thermal performance provides excellent U-Values with minimal intrusion into valuable living space.

Safe-R Fireline Thermal Laminate achieved a REI 45 fire resistance in a system for ceiling and roof applications in accordance with EN 1365-2.

Safe-R Fireline Thermal Laminate is designed to provide high levels of thermal insulation and drylining in one operation, with the added assurance of high fire performance combined with excellent thermal values, making it the energy upgrade insulation solution of choice for new build and renovation projects.

Benefits

- Superior thermal performance of 0.020 - 0.021 W/mK
- Reaction to fire - B-s1, d0
- Space saving - high performance to thickness ratio

Specification Clause

The insulated drylining wall insulation shall be Unilin Insulation Safe-R SR/TB Fireline manufactured to EN 13950 by Unilin Insulation, comprising of a rigid Phenolic core and 15mm Fireline plasterboard achieving a Euroclass B-s1, d0 reaction to fire. The Unilin Insulation Safe-R SR/TB Fireline _ _ _mm with a declared Lambda value as low as 0.020 W/mK (Phenolic only), bonded to a 15mm Fireline plasterboard achieving a U-Value of _ _ _W/m²K. To be installed in accordance with instructions issued by Unilin Insulation.

Refer to NBS clause K10 205, K10 15,K10 245, K10 25, K10 145, K10 155, K10 165.
Uniclass Pr 25 71 35 88.

NBS Plus

Thermal Resistances

Thickness Phenolic (mm)	Thickness Plasterboard (mm)	Overall Thickness (mm)	Overall R-Value (m^2K/W)
50	15	65	2.40
60	15	75	2.90
70	15	85	3.35
80	15	95	3.85
100	15	115	5.05

Resistance 'R' Values

The resistance value of any thickness of material can be ascertained by dividing the thickness (in metres) by its Lambda value, for example: Lambda 0.021 W/mK and Phenolic thickness 50mm -> 0.050/ 0.021 -> R-Value = 2.380. This is then added to the 15mm plasterboard resistance (0.06) to calculate the overall resistance of the composite board (2.380 +0.06) =2.44 . In accordance with EN 13950, R-Values should be rounded down to the nearest 0.05 (m^2K/W).

THERMAL BRIDGING

WALLS

SR/TBFL-MF

A major factor in the performance of the building fabric is not simply the amount of insulation you install, but how it interconnects with other components and the other insulated elements within the design. It has been estimated that up to 30% of the heat loss in a well-insulated building is through these 'Non Repeating Thermal Bridges'.

Guidance for the list of junctions to be used in an energy assessment are taken from appendix D in Part L. For each of these junctions, appropriate detailing can be satisfied by following details included in the Acceptable Construction Details (ACDs).

Good U-Values in these elements coupled with good detailing and decent air tightness ensure that, no matter where that energy comes from, conventional or low or zero carbon technologies, the heat loss from the building is minimised. However, care should be taken in design and construction to ensure that fuel conservation measures (e.g. additional insulation, air tightness) do not increase the risk of rain penetration, condensation, mould growth or other indoor air quality problems.

Thermal Bridging and Dormer Roofs

Dormer roofs contain many junctions between ceiling, stud walls, sloped rafters and ridge. These junctions are difficult to detail for insulation continuity and air tightness sealing. Following the line of the rafters and insulating as a Sarking, reduces these junctions significantly and allows for better detailing.

Thermal Bridging and retrofit

TGD L refers to NSAI SR 54:2014 Code of Practice for the Energy Efficient Retrofit of Dwellings as a source of technical guidance about the energy efficient retrofit of building fabric and services and the application of retrofit measures on a whole-dwelling basis.

Safe-R Fireline Thermal Laminate for Pitched Roofs

Safe-R Fireline Thermal Laminate on sloped roofs (ventilated or hybrid) provides the most efficient U-Values with minimal intrusion into valuable living space and the assurance of a 45 REI fire classification.

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, the ventilation gap may be reduced or dispensed with, check with membrane manufacturer. Refer to manufacturer's guidelines.

Ceilings

In a ceiling, typically fibre glass is placed between and over the joists – this hides the top of the joist and may lead to health and safety concerns when the roof space is being accessed. The thermal bridge which occurs through the joists can be addressed by placing a layer of Safe-R Fireline Thermal Laminate to the underside. This allows for the roof space to be accessed in a safe manner leaving the top of the joists exposed, which allows the roof space to be used for storage. Alternatively, a layer of insulation – covered with OSB board - can also be placed over the joists. Unilin Walk-R offers a ready made solution for this application.

Application: Sloped Roof

1. Fix positioning battens to inner face of rafters, flush with the edge of the timber.
2. Allow for ventilation gaps, normally 50mm (may be reduced depending on breather membrane certification).
3. Cut the SR/PR 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. Any airtight membrane or vapour control layer can be placed to the underside of the rafters in accordance with the BRE Paper BR262: Condensation avoiding the risks.
5. The additional layer of Safe-R Fireline Thermal Laminate is affixed to the rafters using drylining screws. Where joints between sheets of Safe-R Fireline Thermal Laminate are unsupported by the rafters, timber noggins should be installed. Seal and tape the joints of the plasterboard or alternatively follow plasterboard manufacturer installations guidance.

Hybrid Roof

Follow the same procedure as a ventilated roof 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.

*Safe-R Fireline Thermal Laminate was tested to EN1365-2: 2014 to achieve a 45 minute fire rating with the following construction. SR/PR 100mm was fitted between the joists with Pur Pro TEC7 applied between the edge of the insulation and the joists. The 65mm Safe-R Fireline Thermal Laminate was fixed to the joists by countersunk screws (⌀ 5 x 120mm) spaced evenly at 400mm centres. Scrim tape and filler were applied at board joints. Intusil Firetherm sealant was applied to the exposed edge of the roof and wall where gaps were present. A gypsum-based finish plaster was applied.

INSTALLATION GUIDELINES

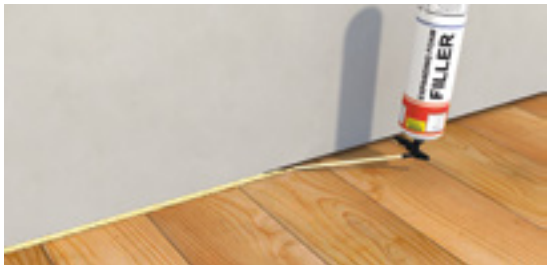
SR/TBFL-MF

Safe-R Fireline Thermal Laminate for internally insulated walls

Whether building new or upgrading an existing property, the Safe-R Fireline Thermal Laminate insulation provides the most effective solution that saves space.

1. Ensure the wall is dry, clean and free of protrusions. Any existing wallpaper should be removed.
2. Fix metal frame system/timber battens to the wall in accordance with the manufacturer's instructions. Sections should be placed around all wall edges and around openings and services.

3. Fix the metal frame system/vertical timber battens at a maximum of 600mm centres (incorporating a vertical DPC behind timber battens). Ensure framing system/battens are wide enough to offer 20mm support to all four edges of the plasterboard. Pack battens, if necessary, to level the wall. Extra noggins may be required when the Safe-R Fireline Thermal Laminate is unsupported by the battens.
4. Lift the Safe-R Fireline Thermal Laminate into position using wedges on the floor. Insulation should be cut back to accommodate an adjoining panel at external corners. Joints should be tightly butted.
5. Fix the Safe-R Fireline Thermal Laminate to the frame at 300mm centres using appropriate fixings e.g. drywall screws, at least 12mm in from the board edge. The fixings should penetrate at least 25mm into the timber batten. Fixings should be thermally broken where possible or alternatively follow plasterboard manufacturer installations guidance.
6. Seal and tape the joints of the Safe-R Fireline Thermal Laminate to ensure a continuous vapour control layer is created. Fill any gaps with foam filler or equivalent.



7. Plaster skim to finish.

Note on other variations

When upgrading existing properties, a professional should be engaged to assess the property for appropriate insulation treatments and effective detailing. Walls should be dry and decoration stripped back to the wall substrate. Appropriate ventilation strategies must be considered as part of the overall energy upgrade.

Guidance in PAS2030:2019 'Specification for the installation of energy efficiency measures (EEM) in existing buildings' and BS8212 Code of practice for dry lining and partitions should be consulted. NSAI S.R 54 Code of Practice should also be consulted.

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

THERMAL PERFORMANCE

SR/TBFL-MF

Typical U-Values

Table 1 - Sloped Roofs

U-Value calculations to EN ISO:6946 2017
Safe-R Fireline Thermal Laminate Insulation for Pitched Roofs

Hybrid Roof build up:

- Tiles
- Battens
- Breather membrane
- Air layer between rafters
- SR/PR between rafters
- SR/TBFL-MF below rafters
- 15mm Fireline Plasterboard

Thickness (mm)

SR/PR between rafters	Safe-R Fireline Thermal Laminate under rafters	600mm Centres	400mm Centres
100mm	65mm*	0.15	0.15
120mm	65mm*	0.13	0.14
120mm	75mm*	0.12	0.13
120mm	85mm*	0.12	0.12
120mm	95mm*	0.11	0.12
120mm	115mm*	0.10	0.10

*Total thickness

Table 2 - Walls drylined on battens

U-Value calculations to EN ISO:6946
Safe-R Fireline Thermal Laminate Insulation for Walls

Thickness (mm)

Wall Type

	65mm	75mm	85mm	95mm	115mm
215mm Hollow Block (External Render)	0.30	0.26	0.23	0.21	0.17
Solid Brick	0.29	0.26	0.23	0.21	0.17
Cavity Wall Pumped Block & Block*	0.16	0.15	0.14	0.13	0.12

*100mm pumped bead @ 0.033 W/mK

*Total thickness of composite panel provided

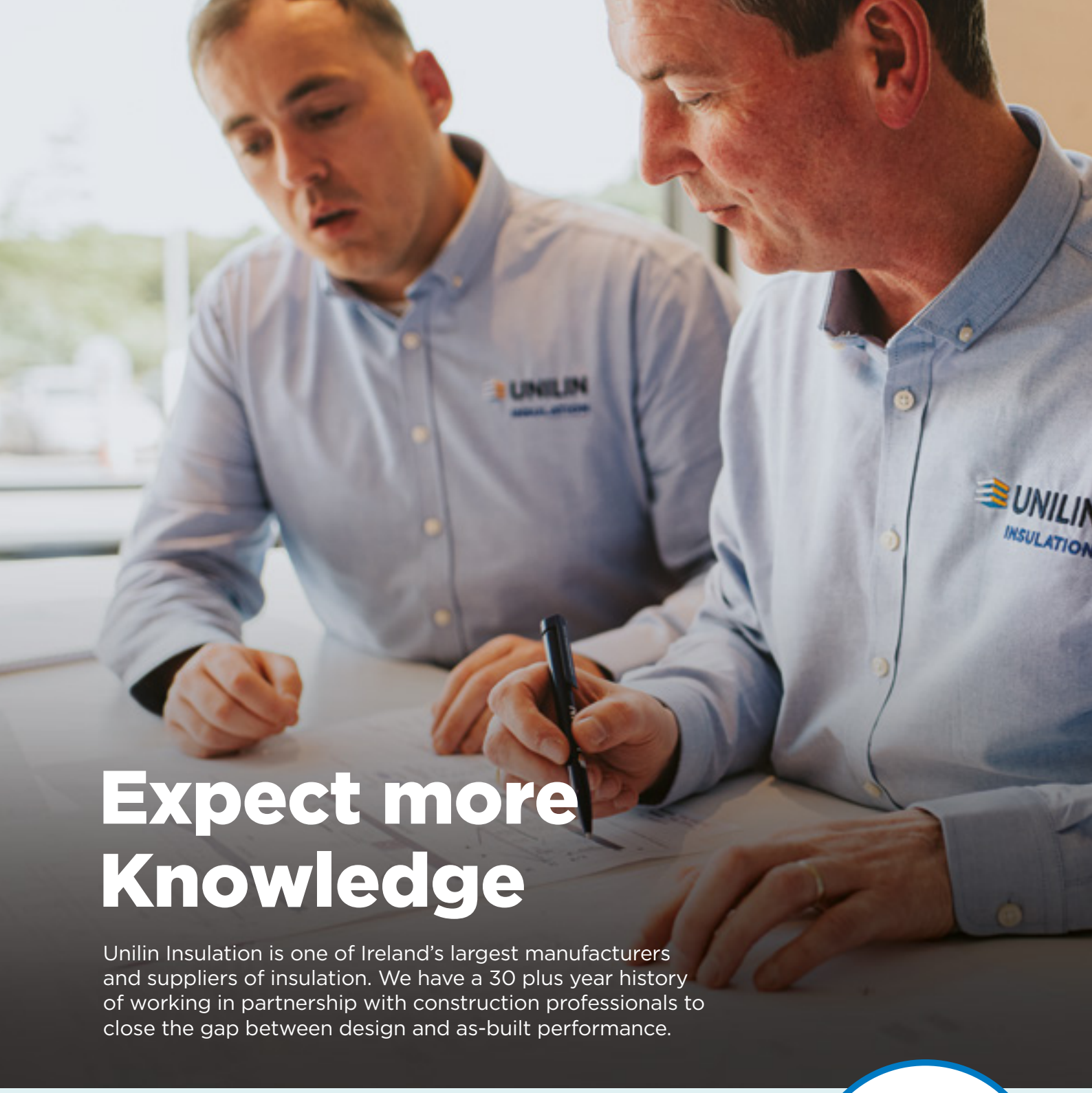
HANDLING, CUTTING & STORAGE

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 Ireland'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.

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/NSAI Trained Modelling
- Warranted Calculations available
- Immediate technical response
- DEAP Qualified
- Insulation systems to deliver real onsite performance

Get in touch

T: +353 (0) 46 906 6050 **E:** tech.ui@unilin.com **unilininsulation.ie**

UNILIN INSULATION

Unilin Insulation Ireland Ltd
Liscarton Industrial Estate
Kells Road, Navan
Co. Meath, Ireland
C15 NP79

t. +353 (0) 46 906 6000
e. info.ui@unilin.com

unilininsulation.ie

bre

ISO 9001 Quality Management Systems
ISO 14001 Environmental Management Systems

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.

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