

# Safe-R

Superior Performance  
Phenolic Insulation

SR/TB-FL

## Fireline Thermal Laminate

A composite insulated panel of Xtratherm Euroclass B phenolic insulation core bonded to 15mm Fireline plasterboard for internal applications.

SR/TB-FL Fireline has been tested to EN1365-2 for 45 minutes resistance to fire in ceiling and roof application.

**Superior Thermal Performance** – As low as 0.020 W/mK

**Fire Performance** – Test in accordance with EN1365-2 for 45 minutes\*

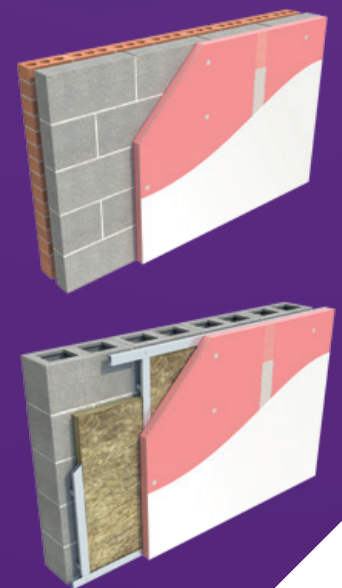
**Reaction To Fire** – B-s1, d0

**Space Saving** – High performance to thickness ratio



Innovative  
Products

TESTED TO  
**BS EN  
1365-2**  
Xtratherm®



**Xtratherm®**  
More than insulation

# Safe-R

Superior Performance  
Phenolic Insulation

SR/TB-FL

## Fireline Thermal Laminate

Insulation for Drylining Walls Fixed with either  
Adhesive Dabs or Mechanical Fixing

**Safe-R Fireline Thermal Laminate is a composite insulated panel of Xtratherm Euroclass B-s1, d0 phenolic insulation bonded to 15mm Fireline plasterboard for internal applications. The superior thermal performance provides excellent U-Values at minimal intrusion into valuable living space.**

**Safe-R Fireline Thermal Laminate has been tested to EN1365-2 for 45 minutes\* resistance to fire in ceiling and roof application in accordance with TGD B.**

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



### Specification Clause

The insulated pitched roof wall insulation shall be Xtratherm SR/TB-FL manufactured to EN 13950 by Xtratherm, comprising a rigid Euroclass B-s1, d0 Phenolic core and 15mm Fireline plasterboard. The Safe-R Fireline Thermal Laminate \_\_ \_mm with DOP declared Lambda value as low as 0.020 W/mK (Phenolic only), bonded to a 15mm Fireline plasterboard achieving 45 minutes\* fire resistance tested to EN1365-2, to achieve a U-Value of \_\_ \_W/m<sup>2</sup>K. To be installed in accordance with instructions issued by Xtratherm.

Refer to NBS clause K10 205,  
K10 15, K10 245, K10 25

### Thermal Resistances

Thickness (mm) Phenolic	Thickness (mm) Plasterboard	Overall Thickness (mm)	Overall R-Value (m <sup>2</sup> K/W)
50	15	65	2.40
60	15	75	2.90
70	15	85	3.35
80	15	95	3.85
90	15	105	4.35

### Resistance 'R' Values

The resistance value of any thickness of Xtratherm insulation can be ascertained by simply dividing the thickness of the material (in metres) by its lambda value, for example: Lambda 0.021 W/mk and phenolic thickness 50mm -> 0.050/ 0.021 -> R-Value = 2.38. In accordance with EN 13950, R-values should be rounded down to the nearest 0.05 (m<sup>2</sup> K/W).

## Thermal Bridging

**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 insulation 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.

## Superior Thermal Performance 0.021 - 0.020 W/mK

## Reaction To Fire – B-s1, d0

## Space Saving – High performance to thickness ratio

### 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 45 minutes fire rating\*.

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 vapour permeable 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. Xtratherm 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 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 second layer of Safe-R Fireline Thermal Laminate is affixed to the rafters using drylining screws. 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.

#### Hybrid Roof

Follow the same procedure as a ventilated roof except an approved Vapour Permeable underlay 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.

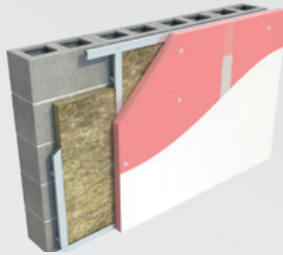
\*Safe-R Fireline Thermal Laminate was tested to EN1365-2: 2012 to achieve a 45 minute fire rating with the following construction. SR/PR 100mm was fitted between the joists with Pur Pro TEC7 applied between the edge of the insulation and the joists. The 65mm Safe-R Fireline Thermal Laminate was fixed to the joists by countersunk screws (ø 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

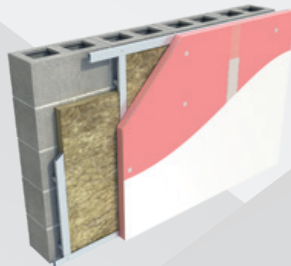
## Safe-R Fireline Thermal Laminate for internally insulated walls

Whether building new or upgrading an existing property Safe-R Fireline Thermal Laminate insulation provides the most effective solution that saves space with the added assurance of EN Fire testing.

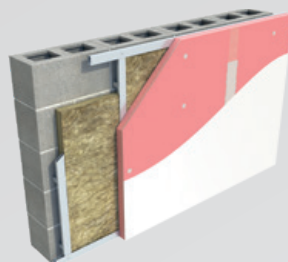
1. Ensure the wall is dry, clean and free of protrusions. Any existing wallpaper should be removed.
2. Fix metal frame system to the wall in accordance with the manufacturer's instructions. Sections should be placed around all wall edges and around openings and services.



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 Safe-R Fireline Thermal Laminate to the frame at 300mm centres using appropriate fixings eg. 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.
6. Seal and tape the joints of Safe-R Fireline Thermal Laminate to ensure a continuous vapour control layer is created. Fill any gaps with foam filler.
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 PAS2030:2017 '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.

### Specification Clause

The insulated drylining wall insulation shall be Xtratherm Safe-R Fireline Thermal Laminate manufactured to EN 13950 by Xtratherm, comprising a rigid Euroclass B-s1, d0 Phenolic core and 15mm Fireline plasterboard. The Safe-R Fireline Thermal Laminate \_\_\_mm with DOP declared Lambda value as low as 0.020 W/mK (Phenolic only), bonded to a 15mm Fireline plasterboard achieving 45 minutes\* fire resistance tested to EN1365-2, to achieve a U-Value of \_\_\_W/m<sup>2</sup>K. To be installed in accordance with instructions issued by Xtratherm.

Refer to NBS clause K10 205, K10 15, K10 245, K10 25

NBS Plus



## Handling, Cutting and Storage

Xtratherm 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 datasheets on our website.

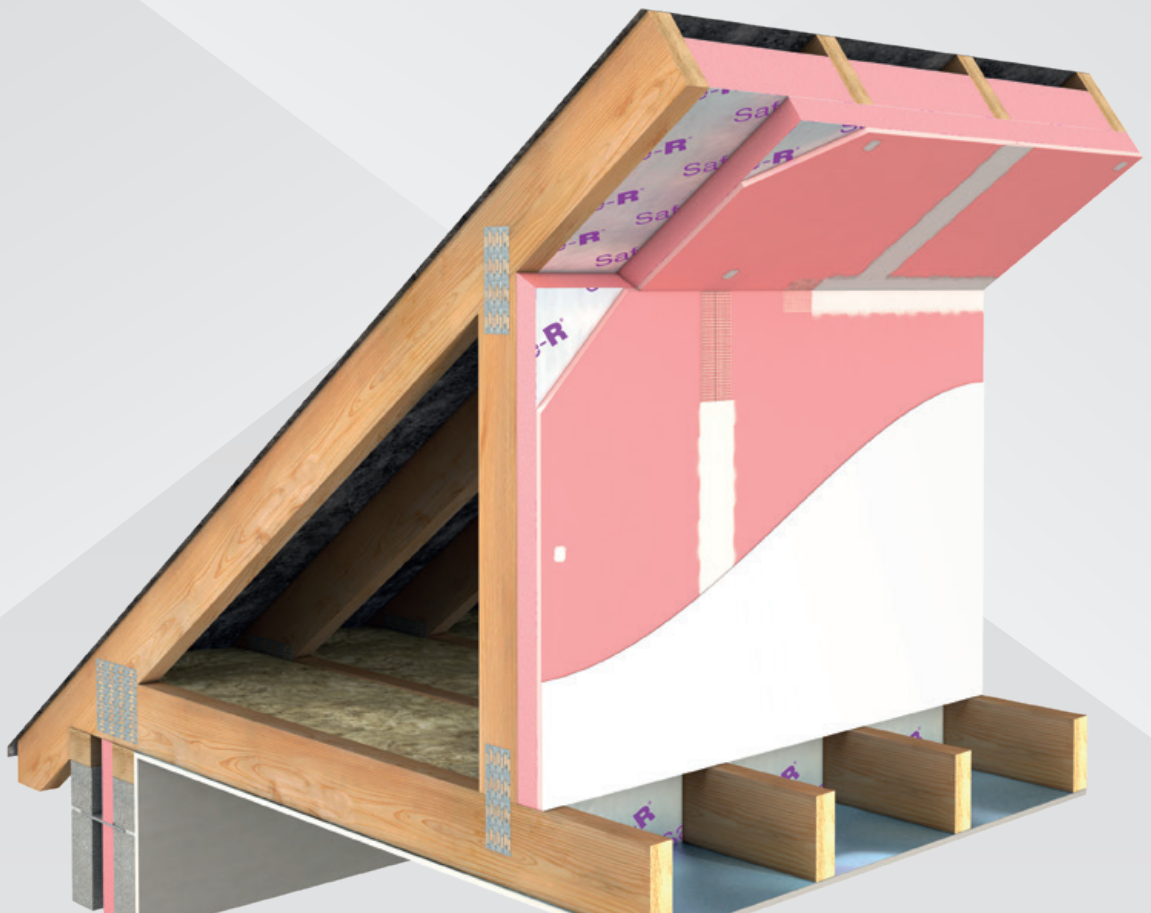
The boards are wrapped in polythene packs and each pack is labelled with details of grade/type, size and number of pieces per pack.

# Xtratherm®



## Durability

Xtratherm products are stable, rot proof and will remain effective for the life span of the building, dependent 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.



## Typical U-Values



### Table 1 - Sloped Roofs

U-Value calculations to EN ISO:6946

**Safe-R Fireline Thermal Laminate** Insulation for Pitched Roofs

- Hybrid Roof:**
- Approved Breather Membrane 25mm Void
  - SR/PR between Rafters
  - Safe-R Fireline Thermal Laminate under Rafters to reduce thermal bridging
  - Vapour Control Layer
  - Plasterboard

#### Hybrid Roof:

	SR/PR between rafters	Safe-R Fireline Thermal Laminate under rafters	400mm centres	600mm centres
Thickness (mm)	100mm	50mm*	0.15	0.14
	120mm	50mm*	0.14	0.13
	120mm	60mm*	0.13	0.12
	120mm	70mm*	0.12	0.12

Insulation Thickness only\*

### Table 2 - Walls drylined on battens

U-Value calculations to EN ISO:6946 for IRL

**Safe-R Fireline Thermal Laminate** Insulation for Walls

Safe-R Fireline Thermal Laminate on battens						
Thickness (mm)	Type	Insulation Thickness only				
		50mm	60mm	70mm	80mm	90mm
Thickness (mm)	215mm Hollow Block (External Render)	0.29	0.26	0.23	0.21	0.19
	Solid Brick	0.29	0.25	0.23	0.20	0.19
	Cavity Wall Pumped Block & Block *	0.16	0.15	0.14	0.13	0.13

Pumped Bead @ 0.033 W/mK\*

## Expect More **KNOWLEDGE**

At Xtratherm we understand the importance of giving our customers the best technical advice.

We have taken the unique industry step of training every one of our technical team that deals directly with our customers, to the highest industry standards of competency in U-Value calculation and condensation risk analysis. We have Thermal Bridging covered also under the BRE/NSAI Thermal modelling competency scheme, using the most comprehensive 3D software available.

### **Our team and products are certified in the UK and Ireland and through the following certifications bodies:**

- BRE Thermal bridging modelling competency certification
- NSAI Thermal modelling competency scheme
- TIMSA-BBA competency scheme for U-Value calculation and condensation risk analysis
- BBA and NSAI certification of the Xtratherm insulation boards
- SAP and DEAP energy assessment

### **Our technical team can also provide:**

- Thermal calculations
- Technical advice on building regulations in the UK and Ireland
- Technical papers on a variety of topics
- Certified CPD presentations
- BIM modelling
- NBS Specifications
- Educational resources for technical secondary and tertiary colleges

**Please refer to the Resources section of our website for more details**



The **Xtratherm** Innovation Centre

The Xtratherm exhibition space and training academy has been developed to assist construction professionals in understanding the principles of specifying and achieving on-site, best practice insulation standards for new dwellings, commercial envelope solutions and refurbishment projects.



### **Get in touch**

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Thermal Calculations, Technical  
Advice or to arrange a technical visit:  
**info@xtratherm.com**

# Xtratherm®

More than insulation

## The Sustainable Solution

Specifying Xtratherm is a real commitment to minimising energy consumption, harmful CO<sup>2</sup> 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.

## The BRE Green Guide

The 2008 Green Guide to Specification produced by the BRE gives Xtratherm Insulation products a rating of A or A+. Green Guide ratings are used to gain credits in BREEAM (BRE Environmental Assessment Method) for non-residential buildings, and under 'Mat 4 – Insulation' the first credit requires the building to have an Insulation Index of 2 or greater – only achievable if the weighted average rating of the insulation is A or A+. This shows that all our products have been made with materials that have been responsibly sourced. The standard sets out organisational governance, supply chain management and environmental and social aspects that are verified and ensure responsible sourcing of materials.

## Responsible Sourcing

Xtratherm 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.

## Global Warming and Ozone Depletion

All Xtratherm Insulation products use CFC- and HCFC-free materials, and are manufactured using a blowing agent with a low GWP and zero ODP.

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 Xtratherm Technical Support. Xtratherm technical literature, Agrément certifications and Declarations of Performance are available for download on the Xtratherm websites. 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 Xtratherm.

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ISO 9001 | Quality Management Systems

ISO 14001 | Environmental Management Systems



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