

# Tapered Roof Solutions

High performance  
PIR Tapered Roof  
Insulation



## Tapered Insulation for Partially Bonded, Torched-on, Built-up Bituminous Felt Systems **TR/BGM**

### Key Features

High Performance Rigid Insulation

Thermal Conductivity as Low  
as 0.024W/mK

Compatible with most Bituminous  
Based Roofing Systems

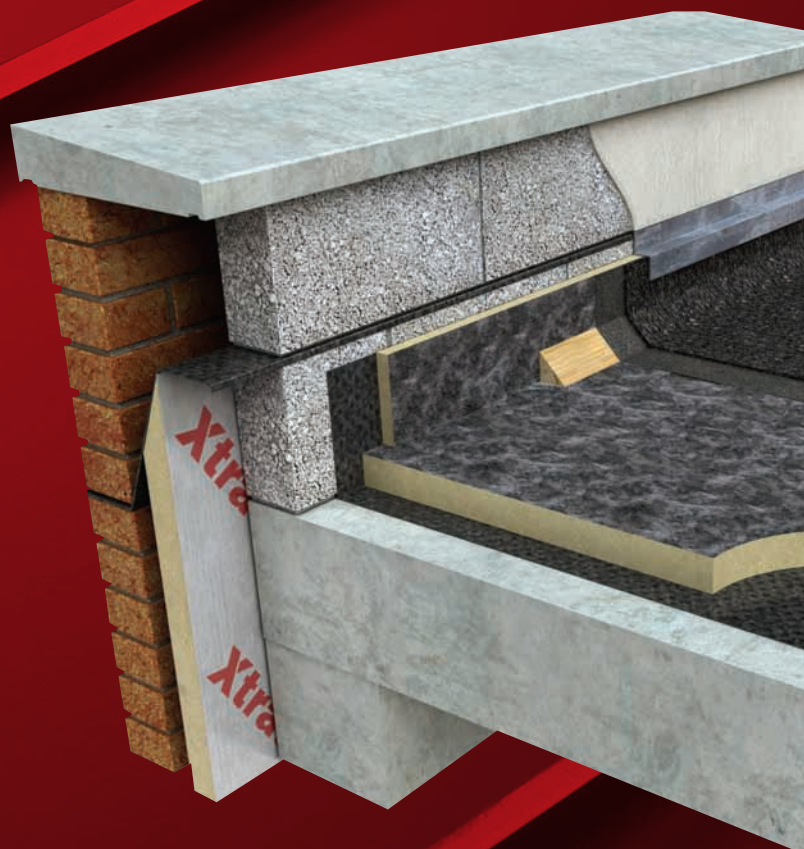
Practical Solution to Water Ponding  
with Insulation and Drainage  
in a Single System

Non-deleterious Material

Manufactured without the use  
of CFC's/HCFC's

Zero ODP and Low GWP

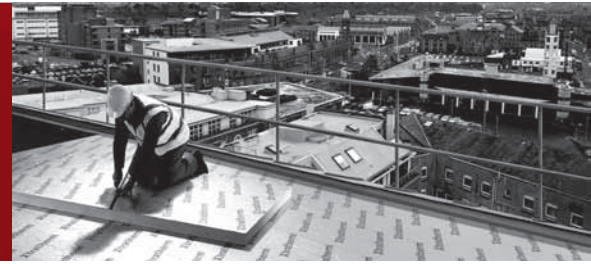
Suitable for New Build and  
Refurbishment Projects



**Xtratherm**<sup>®</sup>  
More than insulation

## Tapered Roof Board TR/BGM

Insulation for Partially Bonded, Torched-on, Built-up Bituminous Felt Systems



Xtratherm TR/BGM is a high performance Polyisocyanurate tapered roof insulation with a fleece finished bitumen/glass fibre working surface and a mineral glass facing to the under side. (TR/BGM boards are not reversible) TR/BGM is suitable for use below most bitumen based partially bonded built up roofing systems. TR/BGM is part of Xtratherm's comprehensive range of high performance tapered roof boards providing total solutions for tapered roof projects.

**1**  
Xtratherm TR/BGM has a fleece finished bitumen/glass fibre working surface with a mineral glass facing to the under side. TR/BGM boards are not reversible.



Mineral glass facing to the under side of BGM board.

### Roof Design

Xtratherm TR/BGM is suitable for use with most bitumen based water proofing systems including those using a BS 747 type 3G perforated base layer. The roof should be laid in accordance with BS 8217:2005 (Reinforced bitumen membranes for roofing. Code of practice). During the construction process, the construction should be protected from rain penetration during breaks in the process.

### Falls

The fall on a flat roof should be designed to ensure that rainfall does not pond. TR/BGM provides a practical solution to Water Ponding with insulation and drainage in a single system.

### Xtratherm TR/BGM Sheet Size (mm)

Length  
1200

Width  
1200

Thickness  
30 (minimum)

Other sizes are available subject to quantity and lead time.

### TR/BGM Tapered 1:60

1200 x 1200

Flat

A60	B60	C60	D60	2400 X 1200
30-50	50-70	70-90	90-110	80mm

### Roof Loading

Xtratherm TR/BGM is suitable for use on roof decks that are subject to limited maintenance foot traffic. Walkways 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.

### Roof Finish

Built up roofing systems should be finished with a suitable reflective layer such as chippings.

### Fire Performance

Built-up roofs using Xtratherm TR/BGM as part of a 3 layer system with mineral chippings on the cap sheet will attain an FAA rating when tested to BS 476, Part 3: 2004 external fire exposure roof test.

Xtratherm's comprehensive range of BBA certified high performance flat and tapered roof insulation boards provide a guaranteed quality solution to flat roof specification.

**Note:** TR/BGM can also be used in mechanically fastened or loose laid ballasted bituminous roofing systems.





## Tapered Roof Insulation

### Vapour Control Layer

Decks should be primed before the application of the hot bitumen used to bond the vapour control layer. Reference should be made to BS 8217:1994 when applying the vapour control layer. Carry the VCL past the insulation and seal with the parapet wall.

### Laying (Metal Deck)

On metal decks, Xtratherm TR/BGM should be laid break bonded into hot bitumen (max temperature 240°C) mopped or poured over the vapour control layer. The board can also be mechanically fixed. Ensure all edges of the boards are supported.

### Laying (Concrete Deck)

Ensure concrete decks are laid to provide correct falls to outlets and are clean, dry, without projections. Primer should be laid in accordance with the manufacturer's instructions. The vapour control layer should be fully bonded to the deck and the Xtratherm TR/BGM should be laid into hot bitumen on the vapour control layer in a break bonded pattern. The boards can also be mechanically fixed.

### Laying (Plywood Deck)

On plywood decks, Xtratherm TR/BGM should be fully bedded in hot bitumen over a continuous vapour control layer which has been nailed or bonded to the deck. The boards can also be mechanically fixed. Fixing heads should be sealed with bitumen.

### Fixing

The specification for fixing Xtratherm roof boards will vary with the location, roof height/width and topographical data. Architectural specification should be consulted. Generally with 1200x600 boards, a minimum of 4 fixings are adequate, located between 50mm and 150mm from all edges, additional fixings may be placed along the centre line. Counter sunk washers, 5mm in diameter should be used with each fixing. However, BS 6399 Part 2 1995 should always be consulted. In two-layer systems, all layers should be fixed in accordance with the contained instructions.

### Bitumen Based Built Up Roofing Systems

Technical guidance from the appropriate bitumen waterproofing manufacturer should be sought as to assure proper installation of the bonded BUR system.

### Fire

Each contract should be assessed for suitability of torch on applications. The suitability of materials, substrates and specifications should be assessed before commencement. Application of the torch on system should be undertaken only by fully trained personnel with appropriate fire precautions and fire extinguishing equipment available at hand. All timber roof components, and most insulation materials are combustible, and will be vulnerable to a naked flame. These materials may be hidden from view, due attention should be given and all precautions taken. This is the responsibility of the operatives.

### Typical Physical Characteristics

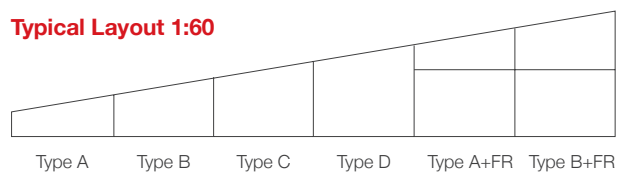
Property	Units
Density (Foam Core)	32kg/m <sup>3</sup>
Compressive Strength	>150kPa @ 10% Compression
Water Vapour Resistivity	>100MNs/gm
Thermal Conductivity*	0.024 - 0.026W/mK

### Typical R-values

TR/BGM (mm)	R-value (W/mK)	Spanning	TR/BGM Trough Openings
80	3.20	25	≤ 75
90	3.60	30	76-100
100	4.00	40	101-150
120	5.00	50	151-200
60+80 (140)	5.83		

On tapered roof systems, the insulation thickness and thus the U-value varies across the whole roof and the average U-value for the entire roof can only be calculated fully designed. Please contact Xtratherm Technical Support for more information.

### Typical Layout 1:60



**ISO 9001** | Quality Management Systems  
**ISO 14001** | Environmental Management  
**OHSAS 18000** | Occupational Health & Safety

The given U-values are indicative only. The effect of fixings has been assumed to have had no effect on the U-value. For comprehensive calculations on all deck types, please contact Xtratherm Technical Support. \*Thermal conductivity is dependent on facings and product thickness.

# Xtratherm® | Flat Roof Solutions

High performance PIR Flat Roof Insulation

The Xtratherm range of high performance flat roof boards provides the complete solution for new build and refurbishment.

## TAPERED ROOF INSULATION

### Tapered Insulation for Mechanically Fixed Single Ply Waterproofing Systems

#### TR/ALU



- High Performance Rigid Insulation
- Thermal Conductivity 0.022W/mK
- Practical Solution to Water Ponding with Insulation and Drainage in a Single System
- LPC/FM Approved
- Compatible with Single Ply Waterproofing Systems
- Non-deleterious Material
- Manufactured without the use of CFC's/HCFC's
- Zero ODP and Low GWP
- Suitable for New Build and Refurbishment Projects

### Tapered Insulation for Single Ply Fully Adhered

#### TR/MG



- High Performance Rigid Insulation
- Thermal Conductivity as Low as 0.024W/mK
- Suitable for Fully Bonding with Approved Adhesive Systems
- Compatible with Adhesively Bonded Single Ply Roofing Membranes laid on Mechanically Fixed Boards
- Practical Solution to Water Ponding with Insulation and Drainage in a Single System
- LPC/FM Approved
- Non-deleterious Material
- Manufactured without the use of CFC's/HCFC's
- Zero ODP and Low GWP
- Suitable for New Build and Refurbishment Projects

### Tapered Insulation for Partially Bonded, Torched-on, Built-up Bituminous Felt Systems

#### TR/BGM



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- Zero ODP and Low GWP
- Suitable for New Build and Refurbishment Projects

## Rigid Insulation Flat Roof Solutions

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## FLAT ROOF INSULATION

### Single Ply Mechanically Fixed

#### FR/ALU



- High Performance Rigid Insulation
- Thermal Conductivity 0.022W/mK
- LPC/FM Approved
- Compatible with Single Ply Waterproofing Systems
- Non-deleterious Material
- Manufactured without the use of CFC's/HCFC's
- Zero ODP and Low GWP
- Suitable for New Build and Refurbishment Projects

### Insulation for Single Ply Fully Adhered

#### FR/MG



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- Thermal Conductivity as low as 0.024W/mK
- Suitable for Fully Bonding with Approved Adhesive Systems
- Compatible with Adhesively Bonded Single Ply Roofing Membranes laid on Mechanically Fixed Boards
- LPC/FM Approved
- Non-deleterious Material
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### Insulation for Partially Bonded, Torched-on, Built-up Bituminous Felt Systems

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### Thermal Ply

#### FR/TP



- High Performance Rigid Insulation
- Thermal Conductivity 0.022W/mK
- Insulation and Decking in a Single Fix
- Compatible with most Waterproofing Systems
- Non-deleterious Material
- Manufactured without the use of CFC's/HCFC's
- Zero ODP and Low GWP
- Suitable for New Build and Refurbishment Projects

## Standards

Xtratherm Flat Roof range is manufactured to EN ISO 13165 under quality systems approved to EN ISO 9001:2008 quality management, EN ISO 14001:2004 environmental management and BS OHSAS 18001 Health and Safety Management System.

## Storage

Xtratherm insulation boards must be protected from weather conditions, (preferably in dry storage) on the site and during installation. The polythene wrapping on packs is not a suitable weather protection. If internal storage is not possible, boards must be protected by secured waterproof sheeting vented to the underside to avoid condensation build-up.

## Cutting

Xtratherm TR/BGM 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 in accredited details.

## Packaging

Xtratherm TR/BGM is wrapped in polythene packs and each pack is labelled with details of grade/type, size and number of pieces per pack.

## Availability

Xtratherm products are available through builder's merchants and specialist distributors throughout the UK and Ireland. For the location of your nearest stockist contact Xtratherm.

## CFC/HCFC Free

Xtratherm TR/BGM is manufactured without the use of CFC's or HCFC's and has Zero Ozone Depletion Potential.

## Durability

Xtratherm PIR Flat Roof insulation products are stable, rot proof and will remain effective for the life span of the building, depending on specification and installation. Care should be taken to avoid contact with acids, petrol, alkalis and mineral oil. Should contact be made, clean materials in a safe manner before installation. Solvent based adhesive containing methyl ethyl ketone should not be used.

Contact  
info@xtratherm.com

[www.xtratherm.com](http://www.xtratherm.com)

Good workmanship and appropriate site procedures are necessary to achieve expected thermal and airtightness performances. The example calculations are indicative only. Default values for components and cavities have been used. For specific U-value calculations please contact Xtratherm Technical Support. Comprehensive guidance on installation should be consulted. Xtratherm technical literature and Agrément certification is available for download on the Xtratherm website. The information contained in this publication is, to the best of our knowledge, true and accurate but any recommendations or suggestions which may be made are without guarantee since the conditions of use are beyond our control.