

# Tapered Roof Solutions

High performance  
PIR Tapered Roof  
Insulation



Insulation for Single Ply Fully Adhered/  
Partially Bonded Built-up Felt Systems

## TR/MG

### Key Features

High Performance Rigid Insulation

Thermal Conductivity  
as Low as 0.024W/mK

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

Compatible with Adhesively Bonded  
Single Ply Roofing Membranes laid on  
Mechanically Fixed Boards

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



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

## Tapered Roof Board TR/MG

Insulation for Single Ply Fully Adhered / Partially Bonded Built-Up Felt Systems



Xtratherm TR/MG is a high performance Polyisocyanurate with mineral coated glass facers suitable for use below single ply fully adhered roof membranes, single ply waterproofing systems and partially bonded built-up felt.

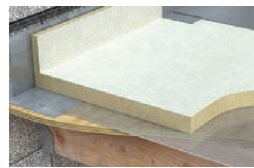
### TR/MG Tapered 1:60

1200 x 1200

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



Typical Installation - Concrete Deck



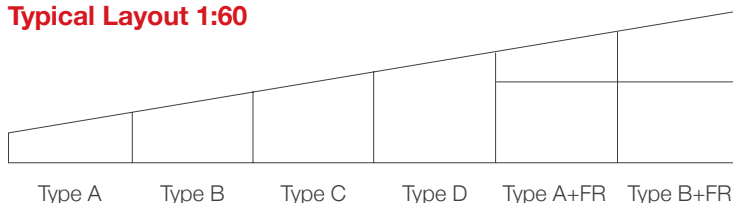
Typical Installation - Timber Deck



### Fire Performance

The fire rating when tested to BS 476 Part 3: 2004 'External Fire Exposure Roof Test' will be dependent upon waterproofing system specified.

### Typical Layout 1:60



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

Length

1200

Width

1200

Thickness

30 (minimum)

Other sizes are available subject to quantity and lead time.

### Vapour Control Layer

A continuous approved vapour control layer should be used below the insulation. (Unless over a sealed metal deck system). For mechanically fixed boards, a minimum vapour control layer of a 1000 gauge polythene layer lapped and sealed with double-sided tape should be used below the insulation. At vertical upstands and penetrations, the VCL should be turned up and sealed to encapsulate the insulation layer prior to the roof finish being completed. A comprehensive U-value calculation and condensation risk analysis should be carried out for all projects.

### Bonding boards to the vapour control layer

The minimum vapour control layer should consist of a 3B type felt to BS747:2000 *Reinforced bitumen sheets for roofing. Specification* or BS8747: 2007. *Reinforced bitumen membranes (RBMs) for roofing. Guide to selection and specification*. Other proprietary systems may be used subject to approval.

Where the vapour control layer is to be bonded separately, sufficient adhesion to the substrate should be made to ensure correct resistance to wind uplift. Contact the system manufacturer for details.

### Membrane Systems

Please contact Xtratherm Technical Support for advice on membrane and adhesive system compatibility. Technical guidance from the appropriate waterproofing manufacturer should be sought.

### Loadings

Xtratherm TR/MG boards are suitable for use on roof decks that are subject to maintenance 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.





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

## Tapered Roof Insulation

### Laying (Metal Deck)

Decks should be dry and clean of debris with tapered components laid to achieve the designed falls. The boards can be secured using approved mechanical fixings and washers, with boards laid with a break-bonded pattern. Joints should be closely butted.

### Laying (Concrete Deck)

Decks should be dry and clean of debris, and laid to correct fall. The boards can be secured using approved mechanical fixings and washers, with boards laid with a break-bonded pattern. Joints should be closely butted.

Alternatively the boards can be adhered to the decking with approved adhesive systems.

### Partially Bonded Built Up Systems

Partially bonded built-up felt waterproofing should be laid, where in accordance with BS 8217: 2005 (Reinforced bitumen membranes for roofing. Code of practice).

### Fully Adhered Systems

Xtratherm TR/MG is suitable for use with most fully adhered single-ply waterproofing membranes. Board joints and abutments should be taped subject to the approved adhesive system being used. A fleeced backed membrane might be required with the system being used, check with the system manufacturer.

### Fixings

Depending on the fixings specification chosen, quantity and pattern of fixings will vary with the location, roof height/width and topographical data. Architectural specification should be consulted. Generally with 1200 x 1200 boards, a minimum of 4 fixings are adequate, located between 50mm and 150mm from all edges. If more than one layer of insulation is being used, the flat board packers should be mechanically fixed with a minimum of one fixing before fixing profiled boards as detailed. Additional fixings around roof perimeter of the roof may be required. Counter sunk washers, 50mm in diameter should be used with each fixing. However, BS 6399-2 1997 (Loadings for buildings. Code of practice for wind loads) or BS / I.S. EN 1991-1.4: 2005 (National Annex to Eurocode 1. Actions on structures, General Actions, Wind Actions) should always be consulted. If proprietary fixings systems are to be used, advice from the approved systems manufacturer should be followed. During the construction process, the insulation should be protected from rain penetration during breaks in the process.

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

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 R-values		Spanning	
TR/MG (mm)	R-Value (M <sup>2</sup> K/W)	TR/MG	Trough Openings
80	3.20	25	≤ 75
90	3.60	30	76-100
100	4.00	35	101-125
120	5.00	40	126-150
140	5.83	45	151-175
		50	176-200

Xtratherm TR/MG insulation boards laid over metal decks should be in accordance with BS 4841: Part 3

ISO 9001 | Quality Management Systems  
 ISO 14001 | Environmental Management  
 OHSAS 18001 | 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

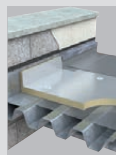
High performance PIR Flat Roof Insulation

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

### Insulation for Single Ply Fully Adhered/Partially Bonded Built-up Felt Systems

#### TR/MG



- High Performance Rigid Insulation
- Thermal Conductivity as Low as 0.024W/mK
- 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



- 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

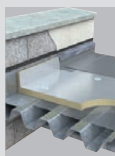
## Rigid Insulation Flat Roof Solutions

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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

### Tapered insulation for Single Ply Fully Adhered/Partially Bonded Built-up Felt Systems

#### FR/MG



- High Performance Rigid Insulation
- Thermal Conductivity as Low as 0.024W/mK
- Compatible with Adhesively Bonded Single Ply Roofing Membranes laid on Mechanically Fixed Boards
- 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

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

#### FR/BGM



- High Performance Rigid Insulation
- Thermal Conductivity as Low as 0.024W/mK
- Compatible with most Bituminous Based Roofing 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

### 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/MG 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/MG 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/MG 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.