

# Product Data Sheet

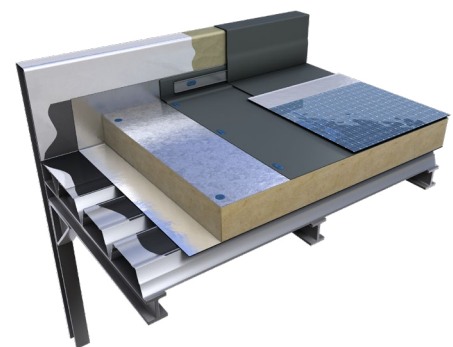
## HYTHERM FM Insulation

### High performance rigid PIR insulation for warm roofs (flat board or tapered) under mechanically fixed single-ply membranes

Hytherm FM PIR insulation board is designed to provide optimum stability and structural integrity in warm roof applications with mechanically-fixed single ply PVC-p on concrete, timber or metal decks.

The board comprises a fibre-free, rigid polyisocyanurate (PIR) core with aluminium foil composite facing on both sides.

Hytherm FM is available in both flat and tapered boards, for use on new roofs, refurbished roofs or for upgrading the thermal performance of existing roofs.



#### Key benefits

- Resistant to moisture.
- High thermal performance -  $0.022\text{W/mK}$  lambda (dependent on thickness).
- Vapour resistant foil facers.
- Compression strength  $\geq 150\text{kPa}$  at 10% compression.
- Manufactured to ISO 14001 and ISO 9001.
- Easy handling and installation.
- Flat board size: 1200mm x 2400mm; thicknesses available 25mm-150mm.
- An Environmental Product Declaration (EPD), certified by IGBC is available for this product. Please contact Axter technical support for further details.
- BBA certified.

DESCRIPTION		
Properties	Dimensions	Tapered boards
Width	1200mm	Tapered scheme details are confirmed on a project by project basis
Length	2400mm	
Thickness	25/30/40/50/60/70/75/80/90/100/110/120/125/130/140/150mm	

\*Greater thicknesses of insulation may be achieved with two layers of insulation boards.

PROPERTY & UNITS	
Density (Foam Core)	32kg/m <sup>3</sup>
Compressive Strength	>150kPa@10% Compression
Thermal Conductivity	0.022W/mK
Reaction to Fire	Euroclass E

TYPICAL U-VALUES		
Construction	Thickness (mm)	U-Value (W/m <sup>2</sup> K)
Concrete deck <sup>1</sup>	150mm	0.15
Metal deck <sup>2</sup>	150mm	0.15
Timber deck <sup>3</sup>	140mm	0.15
Concrete deck <sup>1</sup>	120mm	0.18
Metal deck <sup>2</sup>	125mm	0.18
Timber deck <sup>3</sup>	120mm	0.17
Concrete deck <sup>1</sup>	110mm	0.20
Metal deck <sup>2</sup>	110mm	0.20
Timber deck <sup>3</sup>	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 comprehensive calculations on all deck types, please contact Axter Ltd.

## Storage

Hytherm FM 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.

## Handling

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. Appropriate PPE should be worn when handling insulation. Please refer to the products Safety Data Sheet (SDS).

## Roof waterproofing system

Hytherm FM is suitable for use with most mechanically fixed waterproofing membranes - PVC, TPO, EPDM.

## Thermal Conductivity

The thermal conductivity (lambda value) of the insulation is **0.022W/mK**.

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 Axter Ltd. Thermal conductivity is dependent on facings and product thickness.

## Resistance to Solvents

Hytherm FM should not be exposed to solvents or other chemicals. 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.

## Durability

PIR insulation is rot proof and durable, stable (will not sag or shrink), resists attack by mould and microbial growth and will not provide any food value to vermin. It will remain effective as an insulation system for at least the lifetime of the waterproof covering.

Durability is dependent on the application method, the supporting structure and conditions of use.

## Environmental

The insulation core of Hytherm FM is manufactured with a blowing agent that is CFC / HCFC free, zero ODP and <5 GWP. Hytherm FM has a 2008 Green Guide Summary Rating of A as certified by BRE and is manufactured to ISO 1400 and ISO 9001.

## Fire Performance

The fire rating of any roof containing Hytherm insulation boards will depend heavily on the type of deck and waterproofing system installed. The designation of the roof covering must meet or satisfy the requirements of national Building Regulations. For further details, contact Axter Ltd.

## Roof loading

Hytherm FM is suitable for roof decks exposed to limited maintenance foot traffic, depending on the waterproofing system being used. A walkway should be provided on a roof where there is regular pedestrian access. The roof should be boarded out with protective boarding whenever site work is to take place after the roofboard has been laid and the roof made watertight.

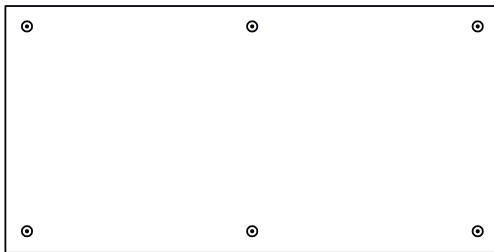
## Fixing

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

For comprehensive guidance and details on fixing patterns, please refer to guidance from the following bodies.

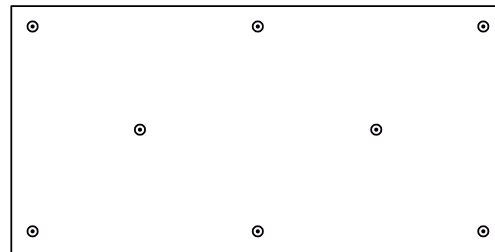
- "SPRA: SINGLE PLY DESIGN GUIDE".
- Insulation Manufacturers Association Information document ID/1/2009, published by IMA.
- Liquid Roofing and Waterproofing Association, Technical Guidance.

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 membrane 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.



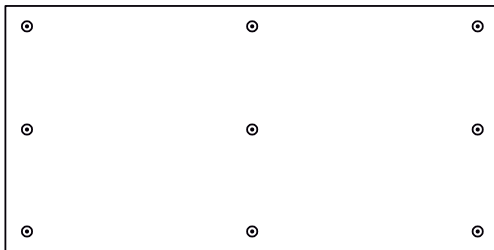
### 6 fixings per board

Recommended fixing pattern for 6 fixing per board (2400m x 1200m board - 2.08 fixings/m<sup>2</sup>)



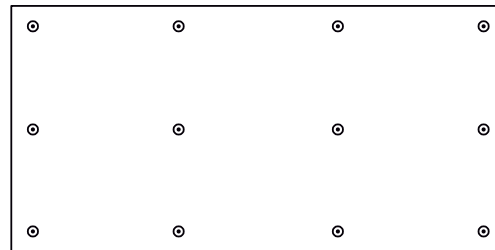
### 8 fixings per board

Recommended fixing pattern for 8 fixing per board (2400m x 1200m board - 2.77 fixings/m<sup>2</sup>)



### 9 fixings per board

Recommended fixing pattern for 9 fixing per board (2400m x 1200m board - 3.13 fixings/m<sup>2</sup>)



### 12 fixings per board

Recommended fixing pattern for 12 fixing per board (2400m x 1200m board - 4.16 fixings/m<sup>2</sup>)

## Design considerations

Consideration should also be given to BS 5250:2021 Code of Practice for control of condensation in buildings and BS 6229: 2018 Flat roofs with continuously supported flexible waterproof coverings – Code of Practice. Mechanical fixings should be specified as recommended in the BRUFMA information document ID/1/2009.

## Laying (Metal/Timber Deck)

The Hytherm FM 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 Hytherm FM 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.

## Standards and Approvals

BBA approved

Manufactured to ISO 14001, ISO 9001

## Wind loading

Wind loads should be assessed in accordance with BS EN 1991-1-4:2005 + A1: Eurocode 1, Actions on structures, General Actions, Wind Actions and the UK national Annex. For information on wind uplift calculations please call Axter Ltd..

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