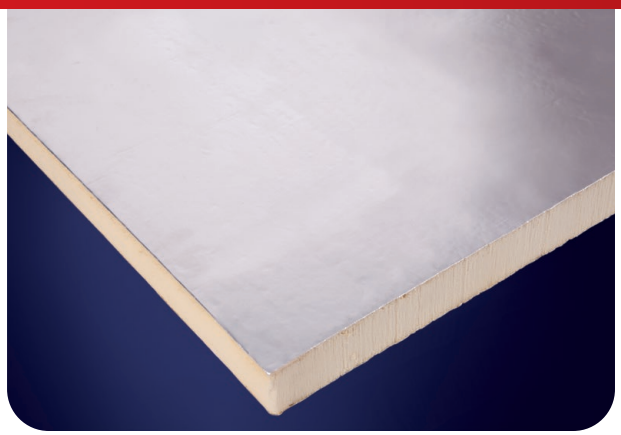
building innovation
ROOFING INSULATION SOLUTIONS

innofix

Flat roof insulation for use with mechanically fixed single-ply waterproofing membranes



Fibre-free rigid polyisocyanurate (PIR) insulation core with aluminium foil composite facing to both sides

LIGHTWEIGHT
HIGH THERMAL PERFORMANCE
COST EFFECTIVE
ENVIRONMENTAL PERFORMANCE
TAPERED SOLUTION
FLAT BOARD SOLUTION

August 2022

APPLICATIONS

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

Inno-Fix is suitable for mechanically fixed single-ply waterproofing membranes on concrete, timber or metal decks. For advice on how Inno-Fix can suit your application, please contact Building Innovation.

DESCRIPTION

Inno-Fix comprises a fibre-free rigid polyisocyanurate (PIR) insulation core with aluminium foil composite facing to both sides.

DIMENSIONS

	Large format flat boards	Tapered boards
Width	1200 mm	1200 mm
Length	2400 mm	1200 mm
Thickness	25-160 mm*	30-150 mm*
Area	2.88 m^2	1.44 m^2

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

THERMAL CONDUCTIVITY

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

Building Innovation PIR insulation lambda and thermal resistance values stated in this datasheet are in accordance with BS EN 13165: 2012 + A2: 2016 (Thermal insulation products for buildings. Factory made rigid polyurethane foam (PU) products. Specification).

COMPRESSIVE STRENGTH

Typical compressive strength for the insulation exceeds 150 kPa when tested at 10% compression to BS EN 826: 2013 (Thermal insulating products for building applications. Determination of compressive behaviour).

RESISTANCE TO SOLVENTS

Inno-Fix resists attack from dilute alkalis and acids, mineral oil and petrol. The insulation is not resistant to ketonic solvents. Damaged boards should not be used.

DURABILITY

When correctly installed, Inno-Fix has an indefinite life and its durability depends on the background/supporting structure and conditions of its use. It should not be used to isolate dampness nor be used in continuously damp/humid conditions. The fibre-free insulation core of Inno-Fix and facings resists attack by mould and microbial growth and do not provide any food value to vermin.

ENVIRONMENTAL

An Environmental Product Declaration (EPD), certified to EN 15804: 2012 + A1: 2013 (Sustainability of construction works. Environmental product declarations. Core rules for the product category of construction products), has been created for Inno-Fix produced at the Pembridge (Herefordshire) and Selby (North Yorkshire) manufacturing facilities. Please visit the Inno-Fix web page at www.building-innovation.co.uk for more information.

The insulation core of Inno-Fix is manufactured with a blowing agent that has zero Ozone Depletion Potential (ODP) with a low Global Warming Potential (GWP).

All manufacturing of Building Innovation insulation and designing of Building Innovation tapered schemes are covered by ISO 14001: 2015 (Environmental Management Systems. Requirements)

WATER VAPOUR RESISTANCE

The product typically achieves a resistance far greater than 100 MN.s/g, when tested in accordance with BS / I.S. EN 12086: 2013 (Thermal insulating products for building applications. Determination of water vapour transmission properties).

Building Innovation recommends a Condensation Risk Analysis (CRA) be completed for each project.

The insulation boards should be installed over a Vapour Control Layer (VCL) or sealed metal deck.

Consideration should be given to BS 5250: 2021 (Management of moisture in buildings. Code of practice) and BS 6229: 2018 (Code of Practice for flat roofs with continuously supported coverings).

FIRE PERFORMANCE

For guidance regarding the routes to compliance for meeting fire safety requirements please refer to the relevant Building Regulations/ Standards for England, Wales and Scotland.

Under System 4 AVCP, Inno-Fix has a Euroclass rating of F.

Additional materials can be placed above the insulation layer within a roofing system including, but not limited to, waterproofing materials, reinforcement layers, primers and carrier membranes. These additional materials complete the roofing system. As such, the fire performance of a roofing system is predominantly determined by these finishes.

Compliance for meeting the fire safety requirements of the Building Regulations/Standards can be evaluated by testing the fire performance of the roofing system. The most commonly used route to compliance involves testing the full roofing system and uses test method DD CEN/TS 1187: 2012 (Test methods for external fire exposure to roofs). External roof exposure testing is typically carried out by the waterproofing manufacturer/system supplier, due to thecomplexities of the roofing system.

NB Test evidence to demonstrate compliance with the fire safety requirements of the Building Regulations/Standards incorporating Inno-Fix within a roof system would be required to be provided from the chosen waterproofing system supplier. Without the required classification for the proposed roof system, achieved through either an external roof exposure test or an overlay of inorganic material, the use of Inno-Fix must be restricted to at least 20 metres in England and 24 metres in Scotland, or more from any point of the relevant boundary.

Further details on the fire performance may be obtained from Building Innovation Technical Services (see rear cover for details).

Fibre-free Core

ROOF LOADING

Inno-Fix is suitable for roof decks which are exposed to limited maintenance foot traffic, depending on the waterproofing system being used. For roofs which require regular pedestrian access, a walkway should be provided. 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.

ROOF WATERPROOFING SYSTEM

Inno-Fix is suitable for use with mechanically fixed waterproofing systems (PVC, TPO, EVA, EPDM etc). Please contact the waterproofing manufacturer to check the compatibility of the waterproofing system with Inno-Fix.

SPANNING METAL DECKS

Trough opening (mm)	Minimum roofboard thickness (mm)
<75	25
≥75 and ≤100	30
>100 and ≤125	35
>125 and ≤150	40
>150 and ≤175	45
>175 and ≤200	50
>200 and ≤225	55
>225 and ≤250	60

On metal decks the long edges should be at right angles to the corrugations. All board joints should be fully supported by the deck.

DESIGN CONSIDERATIONS

Consideration should also be given to BS 5250: 2021 and BS 6229: 2018. Mechanical fixings should be used as recommended in IMA information document ID/1/2009 (Mechanical fixings for rigid polyisocyanurate (PIR) and polyurethane (PUR) roofboards beneath single-ply waterproofing membranes).

STANDARDS AND APPROVALS

The use of Inno-Fix (in thicknesses of 25 - 160 mm), produced at the Pembridge (Herefordshire) and Selby (North Yorkshire) manufacturing facilities, is covered by BBA no. 16/5341.

Building Innovation PIR Insulation is manufactured under a management system certified to ISO 9001: 2015 (Quality Management Systems. Requirements), ISO 14001: 2015 (Environmental Management Systems. Requirements), ISO 45001: 2018 (Occupational Health and Safety Management Systems. Requirements with guidance for use) and ISO 50001: 2018 (Energy Management Systems. Requirements with guidance for use).

All certificates are available from www.building-innovation.co.uk

WIND LOADING

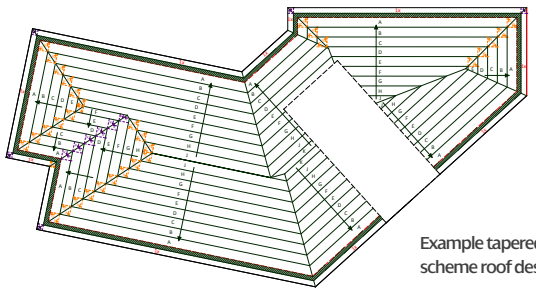
Wind loadings should be assessed in accordance to BS EN 1991-1-4:2005 + A1:2010 (Eurocode 1. Actions on structures. General actions. Wind actions) and the UK National Annex. Building Innovation recommend contacting the waterproofing manufacturer for a project specific wind uplift calculation.

CONSTRUCTION CONSIDERATIONS

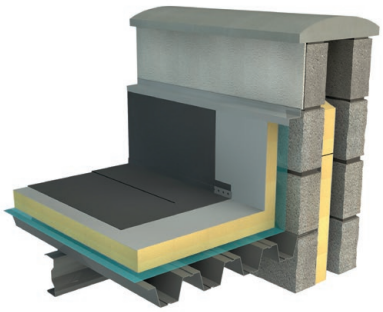
Consideration should be given to the recommendations and best practice guidance of SPRA (Single Ply Roofing Association), LRWA (Liquid Roofing and Waterproofing Association) and the IMA (Insulation Manufacturers Association).

BENEFITS OF TAPERED ROOFING SCHEMES:

- Creates falls on flat roofs, eliminating the requirement for other means such as structural falls, timber firrings or screed laid to falls.
- Quick and simple installation - ideal for fast track construction.
- Minimises water ponding and premature failures in the waterproofing system.
- Pre-mitred hips and valleys:
  - Reduces cutting on site
  - Reduces cost, time and waste
  - Factory cut for superior finish



Example tapered scheme roof design



INSTALLATION

Roof deck should be clean and dry before installation of Inno-Fix boards. If flat Inno-Fix insulation boards are to be installed, roof deck should be constructed to fall to all rainwater outlets. A minimum 25 mm upstand of the insulation board should be installed around the roof perimeter and approved angle fillets should be used at upstands or kerbs.

- The boards should be laid over a vapour control layer (VCL). If fixing to a sealed metal deck, there is no need for a VCL.
- Follow manufacturer's guidelines for the application of the waterproofing membrane.
- Continue the waterproofing vertically at upstands, to a minimum of 150 mm above the top of the horizontally laid insulation or 300 mm above the deck.

MECHANICAL FIXINGS

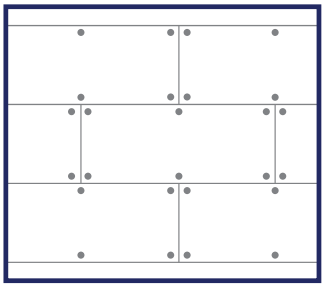
Mechanical fixings should be used as recommended in IMA information document ID/1/2009 (Mechanical fixings for rigid polyisocyanurate (PIR) and polyurethane (PUR) roofboards beneath single-ply waterproofing membranes). Where the specified vapour control layer is other than a bitumen membrane, eg polyethylene, any fixings which penetrate the vapour control layer should be telescopic tube fastenings.

The number of mechanical fixings required to fix Inno-Fix will vary with the geographical location of the building, the topographical data, and the height of the roof concerned.

BS 6399-2: 1997 (Loadings for buildings. Code of practice for wind loads) should be consulted. It is essential that Inno-Fix boards are restrained over its full surface area. When installing 2.4 x 1.2 m boards a minimum of 6 mechanical fixings should be placed within the individual board area and be sited adjacent to the corners of the board. Any additional fixings needed should be evenly distributed over the full area of the board. Each fixing should incorporate a minimum 50 mm diameter countersunk washer. Fixings at board edges must be more than 50 mm but less than 150 mm away from the edge or corner of the board.

Building Innovation advises where possible thermally broken tube fixings should be used.

LAYING PATTERN



Boards should be laid with edges butted and in a break bonded pattern laid at right angles to the edges of the roof or diagonally across the roof. The board is suited to a variety of laying patterns. However, it is recommended that whatever pattern is employed joints are always break-bonded.
On metal decks the long edges should be laid at right angles to the corrugations. All board joints should be fully supported by the deck.

Inno-Fix tapered boards should be laid according to the Building Innovation roof scheme drawing. Each board type will be clearly noted on both the board packaging and the drawing.

HANDLING

- Do not drop boards
- To cut, use a fine toothed saw
- Wear appropriate hand and eye protection
- Damaged boards should not be used

Cutting with power tools generates dust so should be kept to a minimum. Ideally all operations which produce dust should be carried out in well ventilated conditions; where possible a dust mask selected in accordance with BS EN 149 should be worn.

Ensure accurate trimming to achieve close butt joints and continuity of insulation.

STORAGE

Store boards in a flat, dry area off the ground away from mechanical and water damage.

If temporary outdoor storage cannot be avoided then they must be completely protected by use of an opaque polythene sheet or tarpaulin.

Boards that have been allowed to get wet should not be used.

HEALTH & SAFETY

Inno-Fix is chemically inert and safe to use. Product safety information is available to download from www.building-innovation.co.uk.

To check that you have the latest version of this brochure please visit **www.building-innovation.co.uk/downloads.**

To access pre-existing product information or information relating to previously sold/discontinued products please email **info@building-innovation.co.uk.**

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