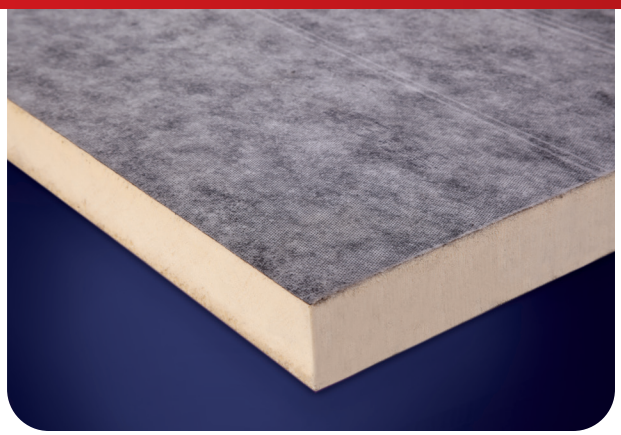
building innovation
ROOFING INSULATION SOLUTIONS

# innotorch

Flat roof insulation for use with hot applied roofing systems or adhered single ply systems



Fibre-free rigid polyisocyanurate (PIR) insulation core faced with coated glass tissue on one side and bitumenised glass tissue with polypropylene fleece on the other

LIGHTWEIGHT
COST EFFECTIVE
ENVIRONMENTAL PERFORMANCE
TAPERED SOLUTION
FLAT BOARD SOLUTION

## APPLICATIONS

Inno-Torch 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-Torch is suitable for use with torch on and roll and pour felt systems, mastic asphalt and fully adhered single ply systems, on concrete, timber or metal decks. For advice on how Inno-Torch can suit your application, please contact Building Innovation.

## DESCRIPTION

Inno-Torch comprises a fibre-free rigid polyisocyanurate (PIR) insulation core faced with coated glass tissue on one side and bitumenised glass tissue with polypropylene fleece on the other.

## DIMENSIONS

| | Flat boards | Tapered boards |
|---|---|---|
| Width | 600 mm | 1200 mm |
| Length | 1200 mm | 1200 mm |
| Thickness | 30-150 mm* | 30-110 mm |
| Area | 0.72 $m^2$ | 1.44 $m^2$ |

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

## THERMAL CONDUCTIVITY

| Thickness (mm) | Lambda/λ-value |
|---|---|
| 25-79 | 0.027 W/m·K |
| 80-119 | 0.025 W/m·K |
| 120+ | 0.024 W/m·K |

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-Torch 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-Torch 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 or be used in continuously damp/humid conditions. The fibre-free insulation core of Inno-Torch and facings resists attack by mould and microbial growth and do not provide any food value to vermin.

## WATER VAPOUR RESISTANCE

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 also 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).

## ENVIRONMENTAL

The insulation core of Inno-Torch 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).

## 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-Torch 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 the complexities of the roofing system.

NB Test evidence to demonstrate compliance with the fire safety requirements of the Building Regulations/Standards incorporating Inno-Torch 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-Torch 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-Torch 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-Torch is suitable for use with most torch-on and roll & pour felts, mastic asphalt and fully adhered single ply systems. When using single ply membranes, Inno-Torch should be installed fleece side down.

Building Innovation recommend the use of a Venting Base Layer as a first layer in partially bonded felt built up roofing applications. Seek specific advice from the felt / waterproofing manufacturer who may offer their own proprietary system - Refer to BS 8217: 2005 (Reinforced bitumen membranes for roofing - Code of practice). For torch-applied systems, torch apply with minimum heat at all times onto the polypropylene fleece side. If unsure of the compatibility of the system, or for any further information, please contact Building Innovation.

## SPANNING METAL DECKS

On metal decks the long edges should be at right angles to the corrugations. All board joints should be fully supported by the deck. Please refer to BS 4841-4: 2006 (Specification for laminated insulation boards (roofboards) with auto-adhesively or separately bonded facings for use as roofboard thermal insulation under non-bituminous single-ply roofing membranes) for details of thickness of board over metal trough openings.

## STANDARDS AND APPROVALS

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

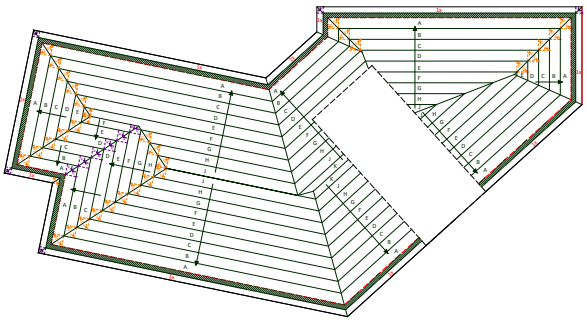
Wind loadings should be assessed in accordance to BS EN 1991-1- 4:2005 + A1:2010 (Eurocode 1. Actions on structures. General Actions. Wind Actions) and the UK National Annex. Building Innovation recommend contacting the waterproofing manufacturer for a project specific wind uplift calculation.

## CONSTRUCTION CONSIDERATIONS

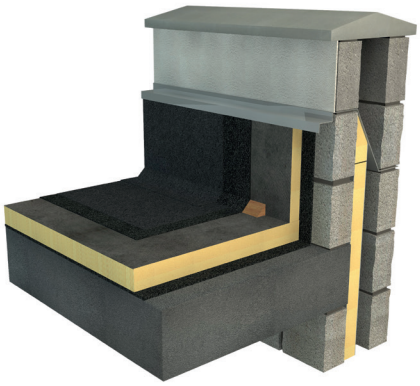
Consideration should be given to the recommendations and best practice guidance of SPRA (Single Ply Roofing Association), LRWA (Liquid Roofing and Waterproofing Association) and the IMA (Insulation Manufacturers Association).

## 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



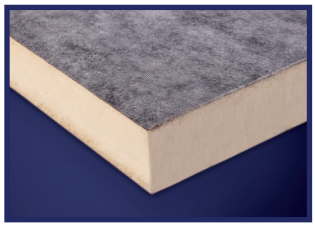
Example tapered scheme roof design



## INSTALLATION

Roof deck should be clean and dry before installation of Inno-Torch boards. If flat Inno-Torch 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.

Bitumenised glass tissue with polypropylene fleece side



Lay with polypropylene fleece side up for torch-on and mastic asphalt systems.

Coated glass tissue side

Lay with buff coloured facing side up for single ply adhered and roll and pour felt systems.

## BONDING METHOD - TORCH ON FELT

Boards of Inno-Torch should be bonded down by laying into hot bitumen (max. temperature 240˚C) mopped or poured over the vapour control layer, or with the use of a suitable PU adhesive.

Alternatively, the insulation boards should be secured to the deck using mechanical fixings e.g. telescopic tube fasteners (see 'Mechanical fixing').

In cases where multiple layers of insulation are being used to create higher thicknesses, Inno-Bond should be used below the Inno-Torch boards as a packer board. PU Adhesive can be used to bond the layers to one another.

Roof Waterproofing Inno-Torch is designed for use in conjunction with most partially bonded torch applied multi– layer bituminous waterproofing. When applying waterproofing, torch with minimum heat at all times. Torch the roll of waterproofing felt using flame/edge guards at all times.

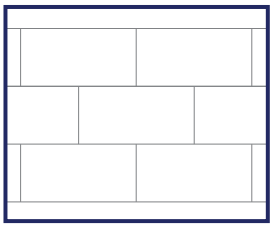
Do not directly apply the torch to the insulation facing. The waterproofing membrane should be installed in accordance with the membrane manufacturer's instructions, over the whole insulated area including any insulation upstands, as soon as possible after laying the insulation boards.

## MECHANICAL FIXING

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). The suitability of the substrate to accept and retain mechanical fixings must be checked prior to the work commencing.

- Fix the insulation boards to the deck with the appropriate number of fixings (a minimum of 6 per board) – should be assessed in accordance to BS EN 1991-1- 4:2005 + A1:2010 as this will depend on building height and location.
- A square/circular 50 mm countersunk washer should be used with each fixing.
- Fixings at board edges must be more than 50 mm but less than 150 mm away from the edge or corner of the board.
- Follow manufacturer's installation guidelines 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.

## LAYING PATTERN



Boards should be laid with edges butted and in a break bonded, staggered pattern laid at right angles to the edges of the roof or diagonally across the roof. Always ensure all joints are supported by deck crowns or metal profiles.

Inno-Torch 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. In situations where two layers of insulation are required, the layers should be offset so that the board joints in the two adjacent layers do not coincide with each other.

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

## WATER VAPOUR RESISTANCE

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

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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.

**EcoTherm Insulation (UK) Limited T/A Building Innovation**
Harvey Road, Burnt Mills Industrial Estate, Basildon, Essex, SS13 1QJ

**Telephone:** +44 (0) 1268 591155 **Fax:** +44 (0) 1268 591852
**Email:** info@building-innovation.co.uk
**Web:** www.building-innovation.co.uk

@BuildingInnov BuildingInnovation

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