building innovation
ROOFING INSULATION SOLUTIONS

innobond

Flat roof insulation for use beneath fully adhered and mechanically fixed single-ply waterproofing membranes

Fibre free rigid polyisocyanurate (PIR) insulation core with a coated glass tissue facing on both sides

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

APPLICATIONS

Inno-Bond 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-Bond is suitable for fully adhered single ply waterproofing systems as well as mechanically fixed systems on concrete, timber or metal decks. For advice on how Inno-Bond can suit your application, please contact Building Innovation.

DESCRIPTION

Inno-Bond comprises a fibre free rigid polyisocyanurate (PIR) insulation core with a coated glass tissue facing on both sides.

DIMENSIONS

	Small format flat boards	Large format flat boards	Tapered boards
Width	600mm	1200mm	1200mm
Length	1200mm	2400mm	1200mm
Thickness	30-140mm*	30-160mm*	30-150mm
Area	0.72m^2	2.88m^2	1.44m^2

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

THERMAL CONDUCTIVITY

Thickness (mm)	Lambda / λ-value
25-79	0.026 W/m·K
80-119	0.025 W/m·K
120+	0.024 W/m·K

Inno-Bond lambda and thermal resistance values stated in this datasheet are in accordance with BS EN 13165:2012 Thermal insulation products for buildings – Factory made rigid polyurethane foam products – Specification.

COMPRESSIVE STRENGTH

Typically exceeds 150 kPa at 10% compression when tested to BS EN826: 1996 (Thermal insulating products for building applications. Determination of compression behaviour).

RESISTANCE TO SOLVENTS

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

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 waterproofing covering.

Please note, durability is dependent on the method of application, the supporting structure and conditions of use.

ENVIRONMENTAL

The insulation core of Inno-Bond is manufactured with a blowing agent that is CFC/HCFC free and has zero Ozone Depletion Potential (ODP) with a low Global Warming Potential (GWP) (less than 5).

Inno-Bond has a 2008 Green Guide Summary Rating of A as certified by the BRE.

Inno-Bond is manufactured under an ISO14001 Environmental Management System (LPCB certificate - 388 - 10EMS).

All manufacturing of Building Innovation insulation and designing of Building Innovation tapered schemes are coveredby ISO 14001 Environmental Management System.

WATER VAPOUR RESISTANCE

The fibre free insulation core has a water vapour resistance of 40MNs/g and will, therefore, provide significant resistance to water vapour transmission. This will minimise both surface and interstitial condensation. The necessity for the inclusion of a water vapour control layer in the roof construction should be assessed in accordance with BS 6229: 2003 Code of Practice for flat roofs with continuously supported coverings.

FIRE PERFORMANCE

The fire rating of any roof containing the boards will depend heavily on the type of deck and the nature of the roof waterproof covering. The designation of the roof covering must meet or satisfy the requirements of the national Building Regulations.

For further information relating to fire performance of Inno-Bond, please contact Building Innovation.

ROOF LOADING

Inno-Bond 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-Bond is suitable for use with fully adhered and mechanically fixed waterproofing systems (PVC, TPO, EVA, EPDM etc). Please contact Building Innovation to check the membrane and compatibility of the proprietary adhesive system. Inno-Bond is also suitable for use with mastic asphalt, partially bonded built up felt and some liquid applied waterproofing systems. Please contact Building Innovation for more information on these applications.

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.

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

DESIGN CONSIDERATIONS

Consideration should also be given to BS 5250: 2011 Code of Practice for control of condensation in buildings and BS 6229: 2003 Code of Practice for flat roofs with continuously supported coverings.

SPECIFICATION CLAUSES

The insulation shall be Building Innovation Inno-Bond _ mm thick - Fibre free rigid polyisocyanurate (PIR) insulation core with coated glass tissue facings to both sides. It shall be manufactured in accordance to Quality Management System ISO 9001: 2008, Environmental Management System ISO 14001: 2004 and Occupational Health & Safety Management System BS OHSAS 18001: 2007. Building Innovation Inno-Bond must be installed in accordance with instructions issued by Building Innovation.

STANDARDS AND APPROVALS

Inno-Bond is compliant with 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.

Inno-Bond is covered by BBA Agreement certificate no. 16/5341

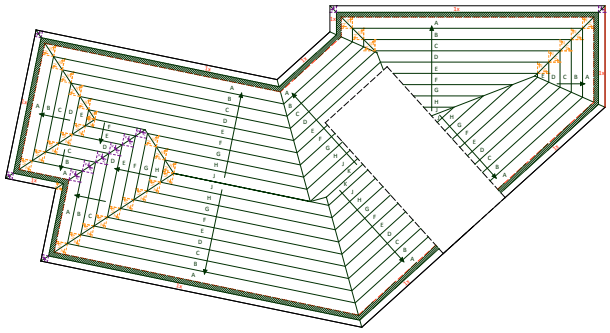
Consideration should be given to the recommendations of SPRA (Single Ply Roofing Association), LRWA (Liquid Roofing and Waterproofing Association), and BRUFMA (British Rigid Urethane Foam Manufacturers' Association). Building Innovation insulation is manufactured under an ISO 9001 Quality Management System, ISO 14001 Environmental Management System and BS OHSAS 18001 Occupational Health and Safety Management System. All certificates are available from Building Innovation. All Building Innovation insulation products have a CE Declaration of Performance to download 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.

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-Bond boards. If flat Inno-Bond insulation boards are to be installed, roof deck should be constructed to fall to all rainwater outlets. A minimum 25mm 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.
- The boards can be either bonded to the deck using PU Adhesive, by laying in mopped hot bitumen or mechanically fixed (see below).
- Follow manufacturer's guidelines for the application of the waterproofing membrane.
- Continue the waterproofing vertically at upstands, to a minimum of 150mm above the top of the horizontally laid insulation or 300mm above the deck.

BONDING

Inno-Bond can be bonded to an appropriate vapour control layer using Building Innovation BI-Stick XXX PU Adhesive. In cases where multiple layers of insulation are being used to create higher thicknesses, BI-Stick XXX PU Adhesive can also be used to bond the layers to one another. Please see the BI-Stick XXX PU Adhesive datasheet for installation guidelines. For advice on using other adhesives, please contact Building Innovation.

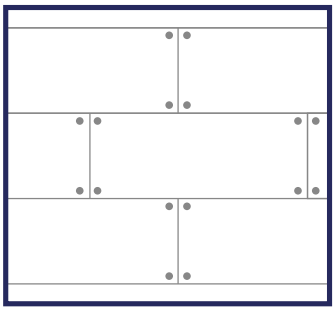
MECHANICAL FIXINGS

Mechanical fixings should be used as recommended in BRUFMA 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 not 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-Bond will vary with the geographical location of the building, the topographical data, and the height of the roof concerned. BS Code of Practice BS 6399-2 1997 should be consulted. It is essential that the Building Innovation Inno-Bond is restrained over its full surface area. When installing 2.4 x 1.2m 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. When using 1.2 x 0.6m boards a minimum of 4 mechanical fixings should be used. Any additional fixings needed should be evenly distributed over the full area of the board. Each fixing should incorporate a minimum 50mm diameter countersunk washer. Fixings at board edges must be more than 50mm but less than 150mm away from the edge orcorner of the board. We advise 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 and taped. 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-Bond 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 sharp knife or fine tooth saw
- Wear 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, particularly around projections through the roof. Whenever work is interrupted, a night joint must be made to prevent water penetration.

STORAGE

At no time should the insulation boards be left exposed to rain.

Whenever work is interrupted, a night joint must be made to prevent water penetration.

Packs are stretch wrapped in recyclable polythene. Store boards in a flat, dry area off the ground away from mechanical damage and sources of ignition. Boards should be completely covered with weatherproof sheeting.

The boards must be kept dry at all times. The boards must be protected from prolonged exposure to sunlight and should be stored either under cover or covered with opaque polyethylene sheets.

HEALTH & SAFETY

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

Building Innovation Ltd
Unit 30 Berrington Road, Sydenham Industrial Estate
Leamington Spa, Warwickshire, CV31 1NB

Telephone: 01926 888808 **Fax:** 01926 888898
Email: info@building-innovation.co.uk
Web: www.building-innovation.co.uk

@BuildingInnov Building-Innovation-Limited

SUPPORTED BY EMPLOYEES WITH MEMBERSHIP