

Installation Guide

EcoVersal

New Zealand made economical rigid PIR insulation for under floors, walls, roofs, and ceiling applications.



Kingspan EcoVersal

EcoVersal

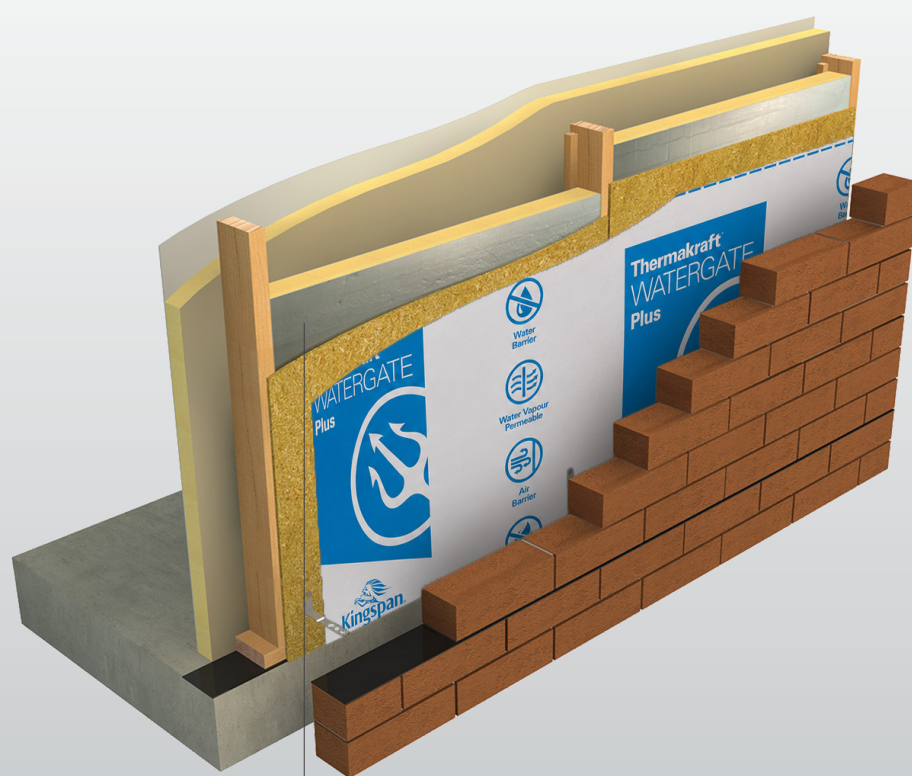


EcoVersal

Product Description

EcoVersal

EcoVersal comprises a fibre free rigid polyisocyanurate (PIR) insulation core with aluminium foil facings on both sides. EcoVersal is manufactured in Christchurch, New Zealand.



- Rigid polyisocyanurate (PIR) thermoset insulation
- Easy to handle and install
- Ideal for both new build and refurbishment

Figure 1. Kingspan EcoVersal

EcoVersal

Installation Instructions

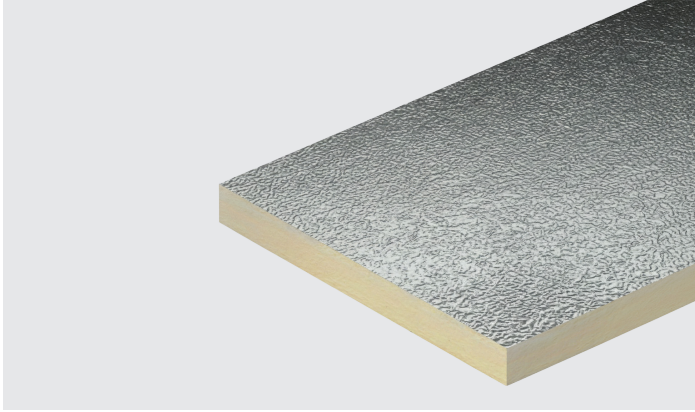


Figure 2. Kingspan EcoVersal

EcoVersal for Wall Applications

Direct Fixing to Masonry and/or Concrete Wall – Using Construction Adhesive Bonding

- Ensure the wall is true and free from projections which may prevent the board from sitting flat.
- Using construction adhesive, the board can be installed directly to dry and structurally sound walls free from moisture penetration. The wall should also be clean and free from any contaminants (e.g. oil, grease, paint) that may affect the adhesive bonding. Refer to the construction adhesive instructions and ensure you check compatibility.
- Ensure the existing walls are straight and plumb and remove any protrusions that could result in an irregular surface finish.
- Apply a continuous bead of construction adhesive around the perimeter of the wall, and penetrations such as doors and windows.
- Apply 25mm diameter blobs of construction adhesive at 300mm centres across the width and height, to the back of the board, or directly on to the wall. Ensure that no blob is closer than 25mm to any edge of the board to ensure a clean joint between boards.
- Align the board on the wall so that all joints butt tightly and apply pressure to ensure the board is plumb and true.
- Ensure there are no gaps between segments or abutments with other materials.
- Mechanical fixings should be used to complement the adhesive bond. As the construction adhesive is only a temporary fixing, a minimum of 2 insulation fasteners should be used to hold the board in place as the adhesive dries.
- No service cavity application: The interior lining fixings will form the permanent fixings for the insulation, with a minimum embedment of 25mm into the masonry /concrete wall. Ensure the interior lining sits flat and true. Refer to the interior lining manufacturer's instructions for further details.
- With a service cavity: The interior lining battens will be the permanent fixings for the insulation, with a minimum embedment of 25mm into the masonry /concrete wall. Refer to the interior lining manufacturer's instructions for further details.

Direct Fixing to Masonry and/or Concrete Wall – Using Mechanical Fixings

- The boards can be mechanically fixed. Ensure that the existing walls are straight and plumb and remove any protrusions that may result in an irregular surface finish.
- Minimum 5 insulation fasteners should be fixed as temporary fixings. Two fasteners along each length between 50mm to 150mm from edge of board, one fastener along the middle. The interior lining fixings will be the permanent fixings.
- Predrill the wall substrate using a suitable masonry drill bit, if required. Insert the masonry anchor with a minimum embedment of 25mm into the solid substrate.
- Shot-fired fixings do not require predrilling of the wall, consult the fixing manufacturer.
- No service cavity application: The interior lining fixings will form the permanent fixings for the insulation, with a minimum embedment of 25mm into the masonry /concrete wall. Ensure the interior lining sits flat and true. Refer to the interior lining manufacturer's instructions for further details.
- With a service cavity: The interior lining battens will be the permanent fixings for the insulation, with a minimum embedment of 25mm into the masonry /concrete wall. Refer to the interior lining manufacturer's instructions for further details.

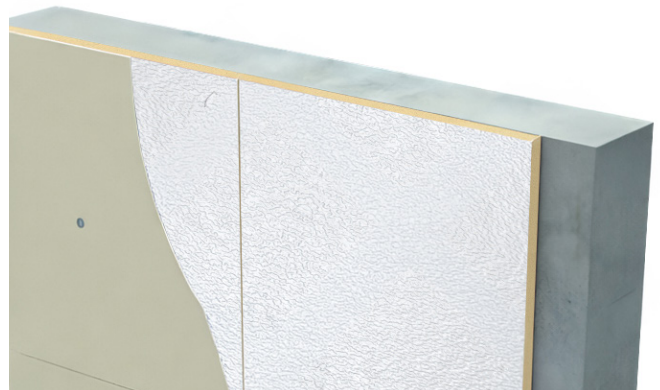


Figure 3. Direct fixed to concrete or masonry wall with no service cavity

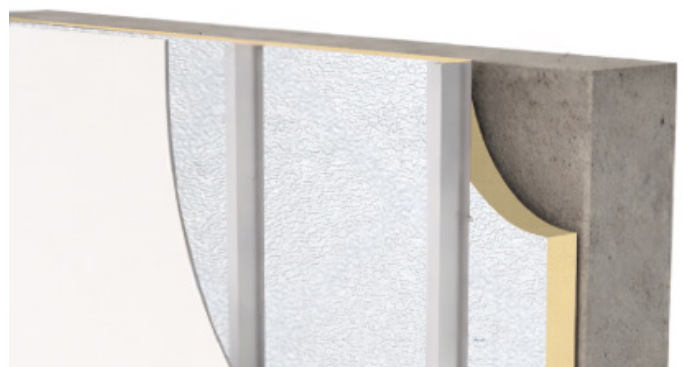


Figure 4. Direct fixed to concrete or masonry wall with service cavity

EcoVersal

Installation Instructions

EcoVersal External to Wall Studs

- Ensure that wall stud spacings do not exceed 600 mm centres.
- Fix EcoVersal to the external surface of the frame structure ensuring vertical board joints coincide with a vertical stud. Use appropriate length fixings (for steel framing, this would be self-drilling) and insulation washers as temporary fixings prior to the secondary structural batten being fitted. Minimum 5 temporary fixings required per 1200mm x 2400mm board.

Note: Galvanic corrosion between the EcoVersal foil face and the steel framing needs to be considered in geothermal and high moisture environments. Galvanic corrosion occurs when two incompatible metals are in contact, in the presence of moisture. This needs to be taken into account when designing the building, in particular the management of internal moisture. For best practice, a separation layer such as Thermakraft Watergate Plus synthetic wall underlay, is used in front of steel framing.

- Ensure that the boards are lightly butted and continuity of insulation is maintained. For small gaps, fill with a non-solvent based polyurethane expanding foam and trim flat.
- Fix the wall underlay, for example Thermakraft Watergate Plus, using screws or clouts through the insulation into the stud. For self-adhering underlays like Thermakraft RAINARMOR Self-Adhesive Wall Underlay, mechanical fixings are not required.
- Fix structural battens to the wall frame, through the insulation board, ensuring that the battens and fixings are coincident with the underlying studs, top and bottom plates. Fixings at maximum 300mm spacing, with minimum 25mm embedment to timber framing and three thread engagement into steel framing. Structural batten spacing should not be more than 600mm. Follow the cladding manufacturer's guidance for the structural batten.
- Refer to the cladding manufacturer's guidance to fix the cladding onto the structural battens.



Figure 5. EcoVersal external insulation over timber studs

EcoVersal Between Wall Studs

- If the insulation boards are to be fitted so that they are flush with the outside surface of the timber studs, install stop battens to the outside of the studs, to provide a 'stop' to prevent the insulation boards from moving within the stud cavity.
- If insulation boards are fitted so that they are flush with the inside of the timber studs, install stop battens to the inside of the studs, to provide a 'stop' to prevent the insulation boards from moving within the stud cavity.
- Cut the EcoVersal accurately to ensure it will fit tightly (friction fit) between the studs and around openings such as window and door openings. Fill gaps with non-solvent based polyurethane expanding foam.



Figure 6. EcoVersal between timber studs

EcoVersal Internal to Wall Studs

- Ensure that wall stud spacings do not exceed 600 mm centres.
- Fix EcoVersal to the internal surface of the frame structure ensuring vertical board joints coincide with a vertical stud. Use appropriate length fixings (for steel framing, this would be self-drilling) and insulation washers as temporary fixings prior to the secondary structural batten being fitted. Minimum 5 temporary fixings required per 1200mm x 2400mm board.

Note: Galvanic corrosion between the EcoVersal foil face and the steel framing needs to be considered in geothermal and high moisture environments. Galvanic corrosion occurs when two incompatible metals are in contact, in the presence of moisture. This needs to be taken into account when designing the building, in particular the management of internal moisture. For best practice, a separation layer such as Thermakraft Watergate Plus synthetic wall underlay is used in front of steel framing.

- Ensure that the boards are lightly butted and continuity of insulation is maintained. For small gaps, fill with a non-solvent based polyurethane expanding foam and trim flat.
- Fix the interior lining through the insulation board or interior wall battens into the stud.
- Refer to the interior lining manufacturer's guidance for fixing and batten spacing.



Figure 7. EcoVersal Internal to Wall Studs

EcoVersal for Pitched Roof Applications

EcoVersal Between Rafters and Partially Filled Flush to Top of Rafters

- If EcoVersal is to be installed between and over rafters, the between rafter layer must be installed flush with the top of the rafter to prevent the risk of air movement between the two layers of insulation boards.

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Installation Instructions

- If the between rafter layer of insulation is to be fitted from the outside, install the insulation with the use of treated timber 'stop' battens to ensure the EcoVersal is installed flush to the top of the rafter.
- Cut the EcoVersal accurately to ensure they will fit tightly (friction fit) between the rafters.



Figure 8. EcoVersal filled flush to top of rafters

EcoVersal Between Rafters and Partially Filled Flush to Bottom of Rafters

- Where the EcoVersal is to be installed flush with the bottom of the rafter, but does not fill the rafter depth, EcoVersal between rafters must be flush with the bottom of the rafters to prevent the risk of air movement between the boards and the ceiling.
- Install treated timber stop battens fixed to the side of the rafters to provide a 'stop' above the insulation to ensure the EcoVersal is installed flush to the bottom of the rafter.
- Cut the EcoVersal accurately to ensure they will fit tightly (friction fit) between the rafters.
- Counter battens are optional when EcoVersal does not fill the rafter. However, ensure that a minimum of 25mm air gap is achieved between the roof underlay and EcoVersal.
- Where the EcoVersal between rafters fully fills the rafter depth, simply install the correct thickness of insulation, cut to suit rafter spacings, flush with the bottom and top of the rafters and fit tightly.

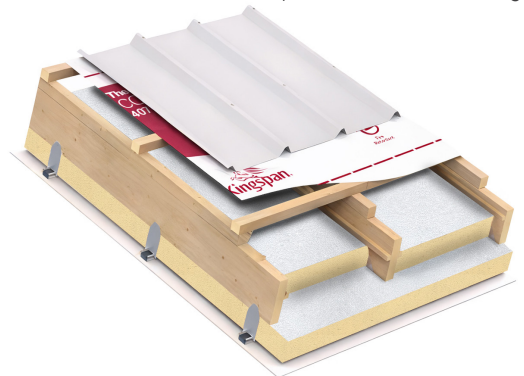


Figure 9. EcoVersal partially filled flush to bottom of rafters

EcoVersal Above Roof Rafters

- EcoVersal can be installed above or below the rafters as a continuous insulation layer for Pitched Roofs. This product is not for flat roofs – see the Kingspan Therma range for that application or contact the Kingspan Technical Team (technical@kingspaninsulation.co.nz).

- The maximum span of EcoVersal is 600mm.
- Kingspan EcoVersal may be laid across or down the line of the rafters and should be laid lightly butted.
- All board joints running from eaves to ridge must occur over rafters.
- Ensure continuity of insulation at the ridge of the roof (i.e. EcoVersal sheets should meet and butting joint at the ridge).
- Temporary mechanical fasteners may be used to hold the EcoVersal down to the rafters prior to the installation of battens/purlins. Temporary fixings shall be long enough to fix through the insulation board and be used in conjunction with an insulation washer to spread fastening load on the EcoVersal surface. Care should be taken not to overdrive mechanical fasteners. Generally, a minimum of 6 mechanical fasteners is required for a sheet of EcoVersal 2400mm x 1200mm.
- To reduce air infiltration, tape the EcoVersal joints with Kingspan AIR-CELL Insulation Tape, Kingspan Thermakraft Premium Joining Tape or Thermoflash.
- Use appropriate mechanical fasteners to install counter battens on top of the EcoVersal and ensure that a minimum of 25mm air gap is achieved between the roof underlay and EcoVersal. Mechanical fasteners should be long enough to fix through the counter-battens, EcoVersal and provide min 30mm embedment for screws into timber rafters and three thread engagement for screws into steel rafters.
- The counter batten spacings and fixings need to be calculated from the building's specific wind load and roofing material.

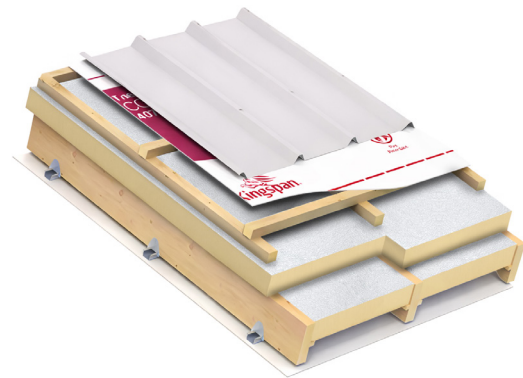


Figure 10. EcoVersal between rafters and above roof rafters

EcoVersal Under Roof Rafters

- EcoVersal should be placed with long edge running under the rafters or plasterboard direct fix ceiling system (e.g. clip and furring channel system).
- When a plasterboard direct fix ceiling system is used, fix the clips onto the rafters as per the system manufacturer's instructions. EcoVersal may be pushed through the clips, however, it is recommended to cut slits on the board to allow the clips to penetrate the foil facing easier.
- Mechanical fasteners should be long enough to fix through the EcoVersal and provide sufficient embedment into the rafter. A minimum of 5 mechanical fasteners is required for a sheet of EcoVersal 2400mm x 1200mm and it should be used in conjunction with an approximately 40mm diameter washer to spread fastening load on the EcoVersal surface. Care should be taken not to overdrive mechanical fasteners.
- Where EcoVersal sheet is unsupported by the rafters due to the span distance, nogs should be installed.

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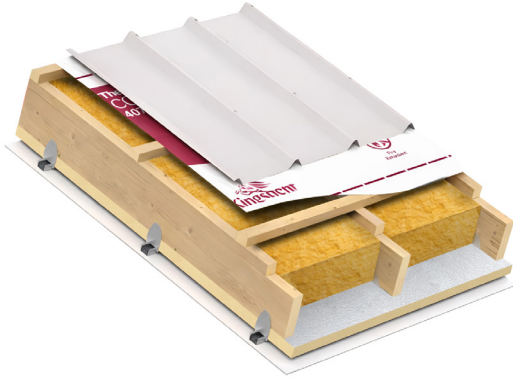


Figure 11. EcoVersal under rafters and behind ceiling lining

EcoVersal for Floor Applications

EcoVersal Suspended Timber Floor

- Maximum span of EcoVersal is 600mm. Install nogs or battens when span exceeds 600mm.
- If the insulation boards are to be fitted between floor joists, install stop battens to help secure the insulation boards in place.
- A damp proof membrane on the foundation surface must be placed to prevent rising damp. For example, use product such as Thermakraft Thermathene Black or Thermathene Orange.



Figure 12. EcoVersal between timber joists

General

Taping

It is recommended that exposed board edges should be protected by taping, provided that the underlay overlaps the tape.

Any small holes or damage to the board should be taped with Kingspan AIR-CELL Insulation Tape, Thermakraft Premium Joining Tape or Thermoflash.

Services

Where electrical and plumbing services are not surface mounted or chased into the structure, carefully recess the surface of the insulation to accommodate the services.

To ensure an appropriate rate of heat dissipation from cables, the current-carrying capacity of any electrical services partially surrounded by thermal insulation should be determined in accordance with AS/NZS 3008.1:2017 series.

Ensure excess insulation is not removed to minimise thermal weaknesses.

Storage and Handling

The packaging of EcoVersal should not be considered as adequate for outdoor protection. Boards need to be stored inside of the building. If, however, outdoor storage cannot be avoided then the boards should be stacked clear of the ground and covered with an opaque polythene sheet or weatherproof tarpaulin. Boards that have been allowed to get wet should not be used as this may cause delamination of facers

Health and Safety

Kingspan Insulation products are chemically inert and safe to use. A Product Safety Data Sheet is available from Kingspan Insulation NZ Ltd. Ensure all relevant New Zealand health and safety guidelines are followed when using the product. Beware of sharp edges - it is recommended to wear gloves when handling EcoVersal.

EcoVersal has a foil facing, which is conductive. Care must be taken when installing to ensure there is no possible contact with electricity.

Warning: Do NOT stand on or support your weight on EcoVersal.

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