

TECHNICAL PERFORMANCE. BUILT TO LAST.

PIR INSULATION

THE COMPLETE TECHNICAL GUIDE

PRODUCT & INSTALLATION MANUAL



HIGHEST THERMAL
PERFORMANCE



MOISTURE
RESISTANT



LIGHTWEIGHT
& EASY TO HANDLE



CUSTOM PROFILE
CUTTING



FIRE TESTED
& COMPLIANT

EMBOSSED FOIL

GLASS FABRIC



NZ BUILDING
CODE COMPLIANT



CUSTOM CUT
SOLUTIONS



COMMERCIAL &
RESIDENTIAL



MANUFACTURED
FOR NEW ZEALAND

CNZ INSULATION

INSULATION SOLUTIONS FOR A BETTER FUTURE

Welcome to CNZ Insulation

CNZ Insulation PIR board is a high-performance rigid insulation solution for walls, roofs, soffits, panels, and specialist construction details. Available in multiple thicknesses and facing options, it provides strong thermal performance, moisture resistance, lightweight handling, and flexible installation across new build, retrofit, and commercial applications.

Our ability to custom cut and laminate CNZ Insulation PIR boards allows us to support project-specific requirements, from standard insulation board supply through to tailored profile and facing solutions.

We continue to expand our product range with a focus on practical, durable, and energy-efficient insulation systems that meet the evolving needs of New Zealand construction.

Quality and Durability

CNZ Insulation PIR boards are manufactured from high-quality materials and tested to recognised standards, including AS1366.2 and ASTM 2498.3. Produced using modern equipment and rigorous quality control processes, our boards are designed to provide long-term thermal performance, dimensional stability, and reliable service life.

Warranty

Selecting the right insulation product helps reduce project risk and protect long-term building performance. CNZ Insulation's PIR board range is designed to meet relevant Australian and New Zealand standards and is supported by a product warranty.

Key Benefits

Thermal efficiency

CNZ Insulation PIR board has low thermal conductivity, allowing buildings to achieve high insulation performance with relatively thin board profiles.

Durability

The rigid closed-cell core is designed to maintain its shape and performance over time. It does not sag and is resistant to moisture uptake.

Moisture resistance

CNZ Insulation PIR board is hydrophobic, meaning it does not readily absorb water. This helps protect thermal performance and board integrity where moisture exposure is a consideration.

Fire performance

CNZ Insulation PIR board is a thermosetting material. It does not melt, flow, or drip when exposed to fire and forms a protective char layer that helps limit flame spread through the board.

Project efficiency

Lightweight boards are easier to handle on site and can support faster installation when compared with heavier insulation systems.

Occupant Advantages

- Helps support stable internal temperatures.
- Contributes to improved energy efficiency.
- Provides moisture and condensation resistance.
- Supports low-allergen building environments.
- Delivers long-term insulation performance with minimal deterioration.

PRODUCT INFORMATION

CNZ Insulation PIR board is a high-performance rigid insulation board designed for use in buildings, extensions, renovations, and specialist construction applications.

CNZ Insulation PIR board is manufactured with a polyisocyanurate foam core and can be supplied with a choice of facings, including embossed foil, glass fabric, or facing-free options. This provides a lightweight, durable insulation solution with strong thermal performance and flexible application across walls, roofs, soffits, panels, and other construction details.

PRODUCT PROPERTIES

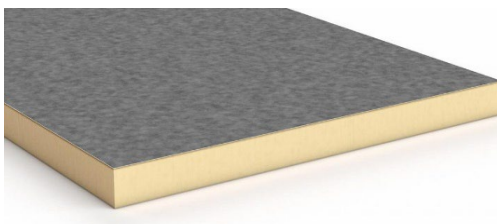
- Standard Board Size: 2400mm x 1200mm
- Available thicknesses (mm): 20, 25, 30, 40, 50, 60, 70, 75, 80, 90, 100, 140 and 150
- Water vapour transmission rate: 10-15 g/m²/24hrs

THERMAL PERFORMANCE

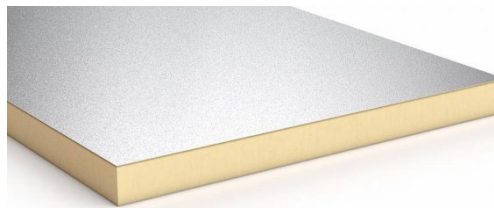
Thickness (mm)	20	25	30	40	50	60	70	75	80	90	100	140	150
Product R-Value (m ² -K/W)	0.98	1.22	1.46	1.95	2.33	2.79	3.43	3.67	3.92	4.41	4.66	6.81	7.30
Declared R50/90 Aged (m ² -K/W)	0.85	1.06	1.28	1.70	2.10	2.52	2.97	3.19	3.40	3.82	4.31	6.31	6.77
Weight (kg/m ²)	0.97	1.19	1.41	1.85	2.29	2.73	3.17	3.39	3.61	4.05	4.49	6.25	6.69
R-Value at 15°C, per AS/NZS 4859.1 Part 2 Section 5.2													

FIRE PROPERTIES

- PIR foam self-extinguishes upon removal of the fire source.
- Tested to AS 2122.1 1993 Determination of Flame Propagation.
- Embossed foil facing tested to AS ISO 9705.
 - NCC Volume One Specification C1.10 Clause 4 determined in accordance with AS 5637.1 – Group 2/3
 - NZBC Verification Method C/CWM2 – Group 2/3



Glass Fabric



Embossed Foil



Facing Free



Slab Edge



Thermal Break

Images are representative only

BUILDING CODE H1 UPDATE

MBIE (Ministry of Business, Innovation and Employment) sets the energy efficiency requirements for New Zealand buildings under Building Code Clause H1.

As of early 2026, the building sector is operating under recently updated compliance settings intended to improve clarity and flexibility.

CURRENT R-VALUE REQUIREMENTS (RESIDENTIAL)

Minimum construction R-values vary by building element and one of the six climate zones. For housing and small buildings (under 300m²), standard minimums generally include:

Roofs: Significantly higher requirements, often targeting R6.6 to achieve a 40% reduction in heating energy.

Walls: Updated to a universal minimum of R2.0 across all climate zones as of recent adjustments.

Windows & Doors: Higher thermal performance is required, with R-values typically around R0.46 to R0.50 depending on the specific zone.

Floors: Slab-on-ground and timber floor requirements have increased to reduce heat loss to the ground.

COMPLIANCE PATHWAYS

Following changes announced in July 2025 and finalized in early 2026, the "Schedule Method" has been removed as a standard compliance pathway to encourage more site-specific design.

The remaining pathways are:

Calculation Method: Allows designers to trade off higher insulation in one area for lower in another, provided the total building heat loss remains the same.

Modelling Method: Uses computer software to prove the building does not require more heating/cooling energy than a reference building.

Key 2025/2026 Updates

- **Removal of Schedule Method:** The "blunt instrument" of the schedule method was officially removed in 2025 to reduce upfront building costs and improve cost-effectiveness.
- **Measurement Changes:** Roofs, walls, and floors are now measured using overall internal dimensions for consistency.
- **Transition Period:** The updated Acceptable Solutions (H1/AS1, H1/AS2) and Verification Methods took effect in late 2025, with a 12-month transition period ending on November 26, 2026.

For detailed technical guidance, refer to the [MBIE Building Performance H1 Information Hub](#) or use the [NZGBC H1 Calculator](#) for residential projects.

1. DIRECT FIXING

1.1 DIRECT FIXING OF THE BOARDS TO CONCRETE SOFFIT

CNZ Insulation PIR boards are supplied in a standard size of 2400mm x 1200mm. Boards may be fixed directly to a concrete soffit using insulation fasteners with an incorporated washer head.

Fixing requirements

- Use a minimum of 11 insulation fasteners per board.
- Fasteners must include a washer head with a minimum diameter of 30 mm.
- Fasteners must achieve a minimum embedment of 40 mm into the solid substrate.
- Fasteners must be evenly distributed across the board surface.
- Design loading for this fixing pattern must not exceed 0.375 kPa.
- Additional fixings may be required where boards are subject to higher wind loads.
- Recommended fixing pattern:
 - Install two rows of four fasteners along the board length.
 - Position fixings approximately 50–150 mm from the board edge.
 - Install three additional fasteners through the centre line of the board in an offset pattern.

Joint Sealing

Where required, tape all board joints with insulation tape at least 100mm wide. Seal joints, board edges, and perimeter details to prevent airflow through cavities above or below the boards.



Figure 1.1. Direct fix to concrete soffit



Figure 1.2. Board joints aligned. Fastener pattern



Figure 1.3. Board joints staggered

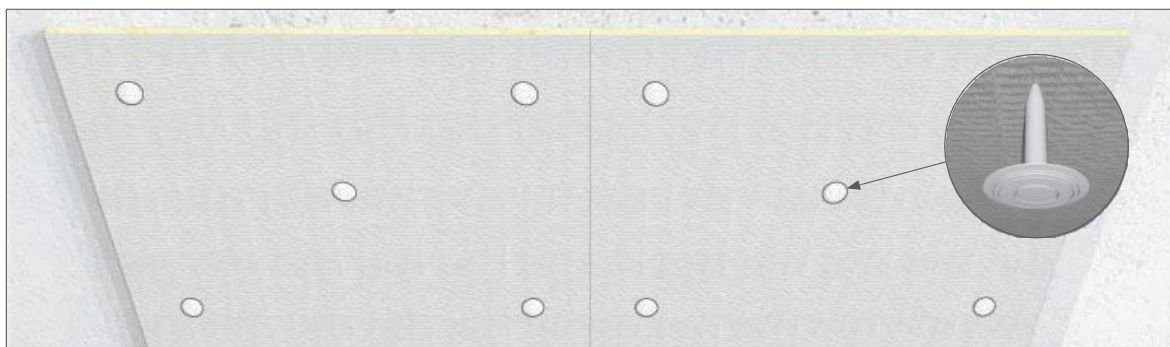


Figure 1.4. Insulation fastener

1. DIRECT FIXING (continued)

1.2 DIRECT FIXING OF THE BOARDS TO MASONRY AND CONCRETE WALLS

1.2.1 WITH CONSTRUCTION ADHESIVE BONDING

- The boards may be installed directly onto masonry or concrete walls using a suitable construction adhesive, provided the wall is:
 - Structurally sound, straight and plumb with no protrusions or surface irregularities
 - Dry, free from moisture penetration, and free from contaminants such as oil, grease or paint that may affect adhesive performance
- Application of Construction Adhesive
 - Apply a continuous bead around the perimeter of the wall, and penetrations such as doors and windows.
 - Apply 25mm diameter blobs at 300mm CRS across the width and height, either to the back of the board, or directly on to the wall. Ensure that no blob is closer than 25mm to any board edge so the boards can form a clean joint.
- Align the board on the wall so that all joints butt tightly and apply pressure to ensure the board is plumb and true.
- Temporary support may be required to support the board, in cases where the construction adhesive does not develop immediate grab.



Figure 1.6. Masonry brick or block wall



Figure 1.5. Concrete wall

- Mechanical fixings may be used to complement the adhesive bond. In this case, after the adhesive has set, use 2 mechanical fixings at the mid height of the board, 15mm from the edge, with a 25mm nominal embedment into the wall.
- Repeat steps to install the boards and ensure there are no gaps between segments or abutments with other materials.
- Construction adhesive recommendations
 - Glass fabric: Bostik Gold Ultra or Tuff as Nails Original in conjunction with fixings or High Tack if no fixings used.
 - Embossed foil: Bostik Seal n Flex 1.

1.2.2 WITH MECHANICAL FIXING

- The boards can be mechanically fixed, if an acceptable adhesive bond cannot be achieved due to the wall surface conditions.
- Ensure that the existing walls are straight and plumb and remove any protrusions that may result in an irregular surface finish
 - Screws should be fixed at a maximum of 600mm CRS horizontally and 300mm CRS vertically as shown in figure 1.6. The substrate and fixing materials must be fit for purpose. Design loading on the board must not exceed 0.375kPa for this fixing pattern. Additional fixings may be required where the boards are subjected to greater wind loads. Please contact CNZ Insulation for project-specific advice.
- Predrill the wall substrate using a suitable masonry drill bit.
- Insert the masonry anchor with a minimum embedment of 25mm into the solid substrate.

2. FIXING TO METAL OR TIMBER BATTENS

- If direct fixing is not possible due to uneven surface or the presence of mechanical services, the boards can be fixed to metal or timber battens.
- Suitable metal battens or 50 x 25 mm timber battens are required at 600mm CRS. This provides three rows of battens aligned with the two board edges and the centre of the board. Battens must be fixed to the soffit in accordance with manufacturer's recommendations.

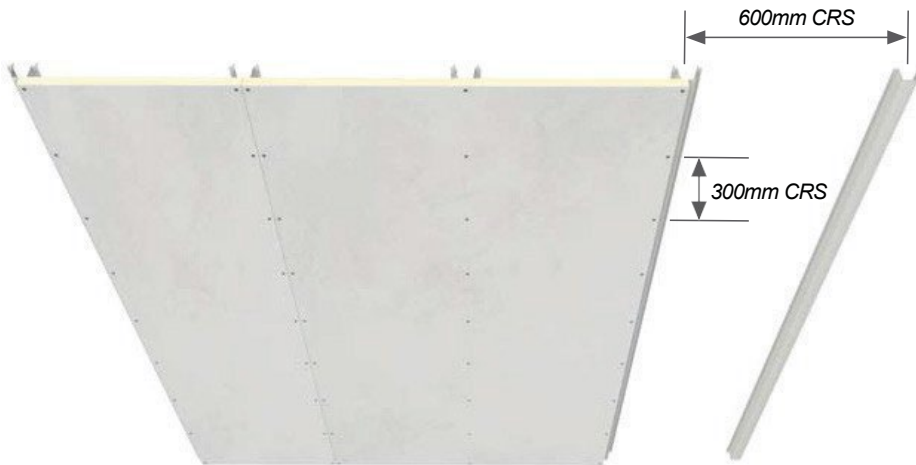


Figure 2.1. Masonry brick or block wall



Figure 2.2. Masonry brick or block wall

- Use screws at a maximum of 300mm CRS to fix the boards to the metal furring battens. For timber battens, use screws or nails at a maximum of 200mm CRS with fixing rows spaced less than 600mm apart. The substrate and fixing materials must be fit for purpose. Design loading on the board must not exceed 0.375kPa for this fixing pattern. Additional fixings may be required when the boards are subjected to greater wind loads. Please contact CNZ Insulation for project-specific advice.

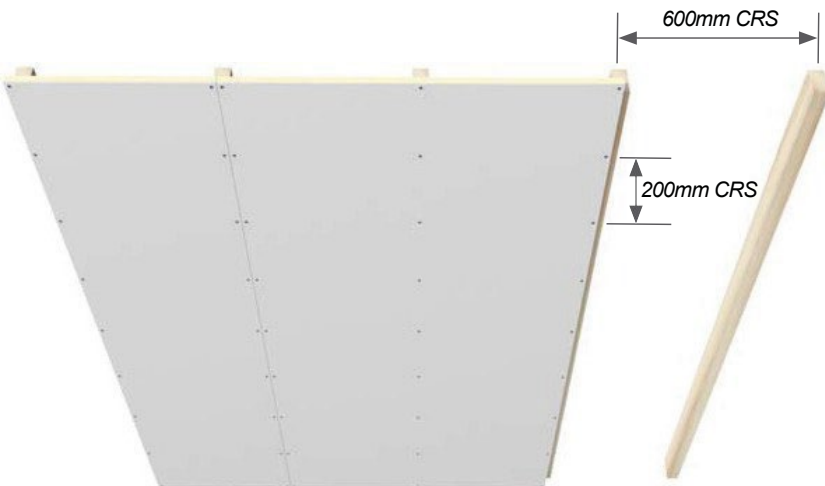


Figure 2.3. Masonry brick or block wall



Figure 2.4. Masonry brick or block wall

3. FIXING BETWEEN STUDS

- The traditional method of insulating stud walls is to fix CNZ Insulation PIR between the studs.
- Cut the CNZ Insulation PIR boards accurately to ensure they will fit tightly between the studding and around openings such as window and door openings.
- The CNZ Insulation PIR boards should be held in place by nails or a timber batten to the warm side of the insulation.
- This void may be utilised as an insulated service duct.
- Add the finishing touches (plasterboard lining).
- Relevant accredited details should be followed to ensure you reach the calculated performance.

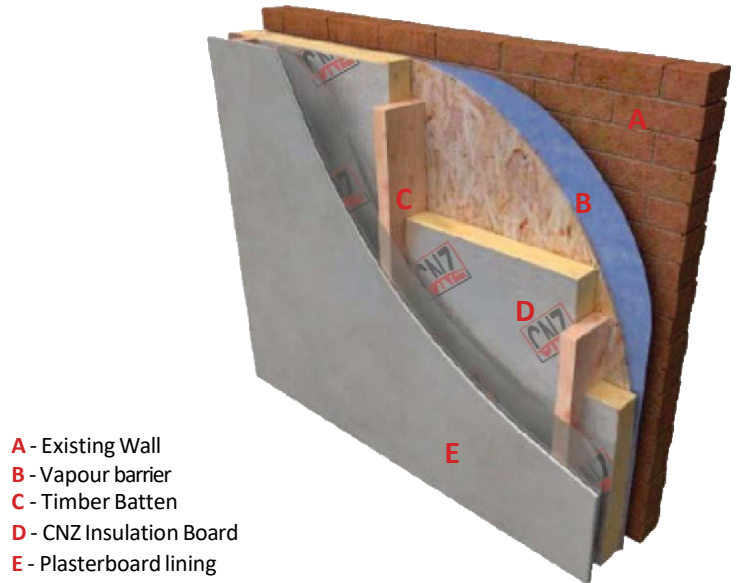


Figure 3.1. Fixing between studs

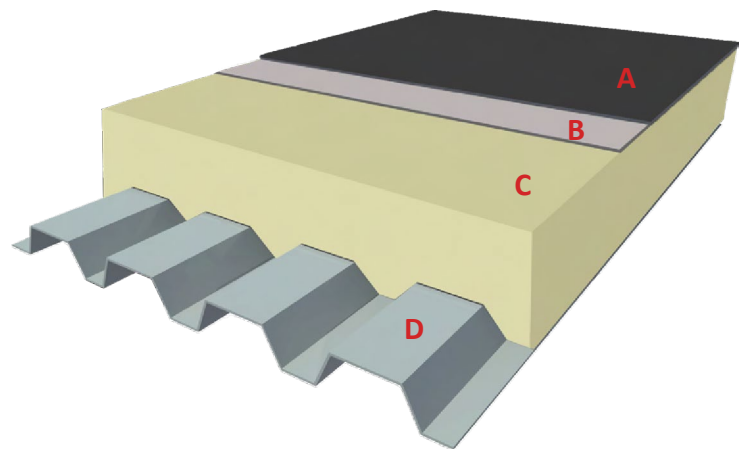
4. SERVICE PENETRATIONS

- CNZ Insulation PIR boards should fit tightly around penetrations and fire collars to reduce the effect of thermal bridging. Use appropriate methods to fill gaps around flues, electrical cables, or equipment where overheating may occur.

5. PROFILED CUT ROOF INSULATION

- CNZ Insulation profiled cut roof board is custom designed to match any profiled roof cladding. It is suitable for new and refurbishment applications and can improve the thermal performance of the existing roof and the wider building.
- The CNZ Insulation PIR boards are designed to the profile of the roof to eliminate air gaps between the insulation and the roof system that could cause condensation.
- Profiled cut CNZ Insulation PIR boards are positioned on top of existing profiled cladding sheet and covered by either a waterproofing membrane or new profiled cladding sheet.

This installation method extends the life of an existing roof, provides a suitable surface for a new waterproofing membrane, improves thermal performance, and offers a durable, lightweight, easy-to-handle solution that can improve the appearance of older roofs.



- A - Appropriate Membrane
- B - High Density Coverboard
- C - CNZ Insulation Profiled Cut Board
- D - Existing Profiled Roof Cladding

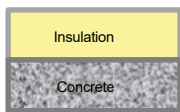
Figure 5.1. Profiled Cut Roof Insulation

All applications should be designed and installed in accordance with the project specification, relevant building consent documentation, applicable standards, and the requirements of the selected fixings, adhesives, membranes, and cladding systems.

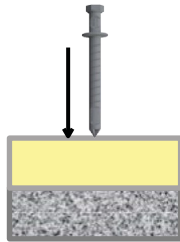
6. INSULATED PRECAST SYSTEM

6.1 NON-COMPOSITE

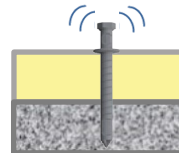
HOW IT WORKS



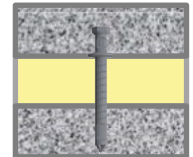
Place CNZ Insulation PIR board on freshly poured concrete immediately after levelling within 15–30 minutes.



Push the pointed end through the insulation into fresh concrete until the embedment stop is even with the top surface of the insulation.



Apply repetitive foot pressure on the CNZ Insulation PIR board near each tie, or otherwise vibrate the tie or the area around the tie.



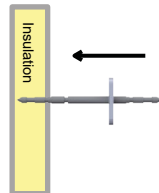
Place specified reinforcement and cast second layer of concrete either immediately or after the bottom layer has cured.

6.2 VERTICAL POUR

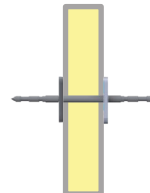
HOW IT WORKS



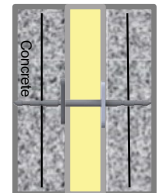
Place retention clip on one side of VP tie.



Push the opposite pointed end through the insulation.



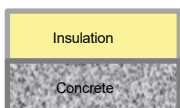
Apply the second retention clip to the VP tie.



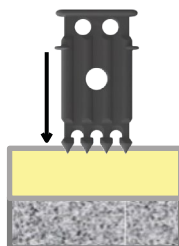
Install specified reinforcement, place assembly in forms or modular mould and cast both layers of concrete.

6.3 COMPOSITE-ACTION

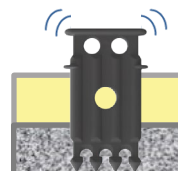
HOW IT WORKS



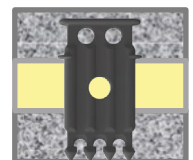
Place CNZ Insulation PIR board on freshly poured concrete immediately after levelling within 15–30 minutes.



Push the pointed end through the insulation into fresh concrete until the embedment stop is even with the top surface of the insulation.



Apply repetitive foot pressure on the CNZ Insulation PIR board near each tie, or otherwise vibrate the tie or the area around the tie.



Place specified reinforcement and cast second layer of concrete either immediately or after the bottom layer has cured.

7. INSULATED ROOF SYSTEM

- Insulated roof systems, commonly known as warm roofs, are a strong option for flat roof designs and can be used in new roof and re-roof construction.
- The inclusion of a dedicated vapour barrier in the overall design is essential for controlling moisture that can permeate from the substrate.
- Insulated roof systems are able to be fully adhered with approved adhesives or mechanically fixed with appropriate type tube washers and fixings.
- The thickness of the CNZ Insulation PIR board determines the R-value specified for the project.
- The inclusion of a high density coverboard placed over the CNZ Insulation PIR board is essential and must be included in the overall design of the insulated roof system.
- The choice of an appropriate membrane type must be considered in the overall insulated roof system.

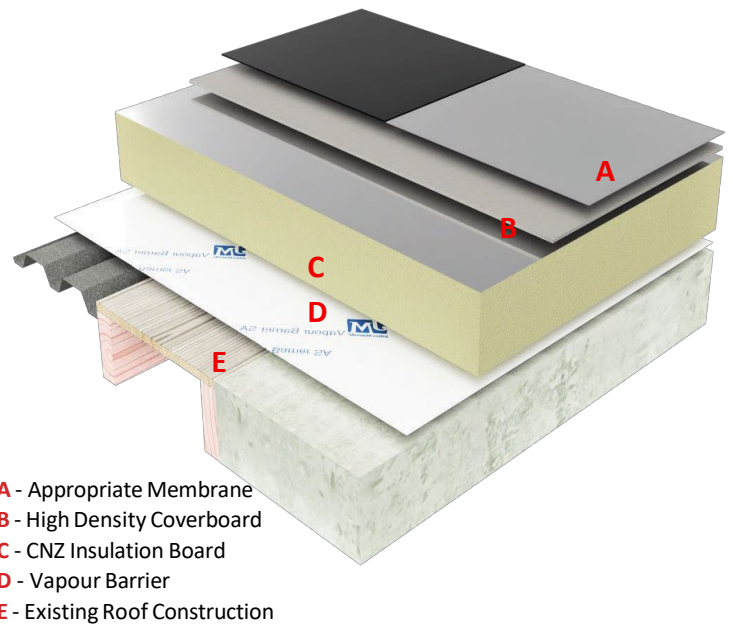
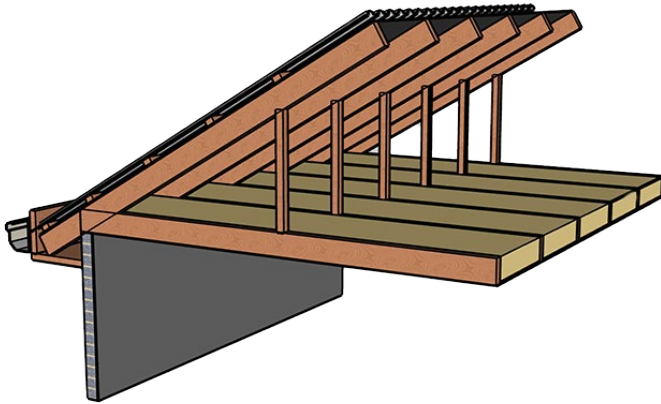


Figure 7.1. Insulated Roof System

7.1 MECHANICALLY FIXED METHOD

- Ensure the chosen substrate material has been installed to the manufacturer's specification.
- Install the vapour barrier directly to the chosen substrate to the manufacturer's requirements.
- Place the CNZ insulation PIR board to the fully adhered vapour barrier using a brick bond pattern.
- Place the approved cover board at right angles to the CNZ Insulation PIR board using a brick bond pattern.
- Mechanically fix the cover board and CNZ Insulation PIR board through to the substrate using an approved tube washer and appropriately sized fixing.
- The amount of required fixings will be determined by the specified wind zone requirement for the project.
- Consult the manufacturer of the supplied fixings for the correct required amount of fixings and position in relation to the insulated roof system components.
- Install the chosen membrane type to the manufacturer's requirements to the fully adhered insulated roof system components.

8. SKILLION ROOF SYSTEM

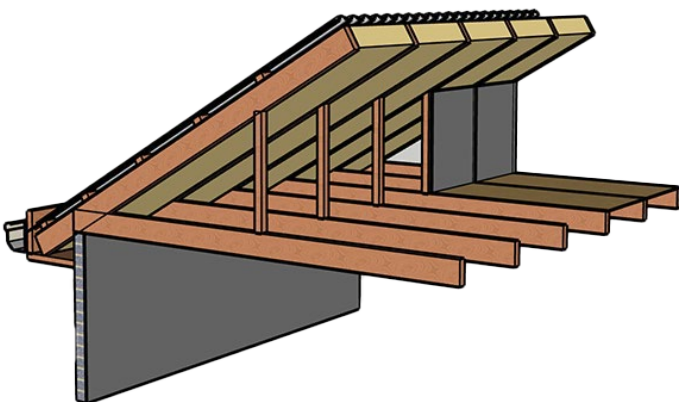
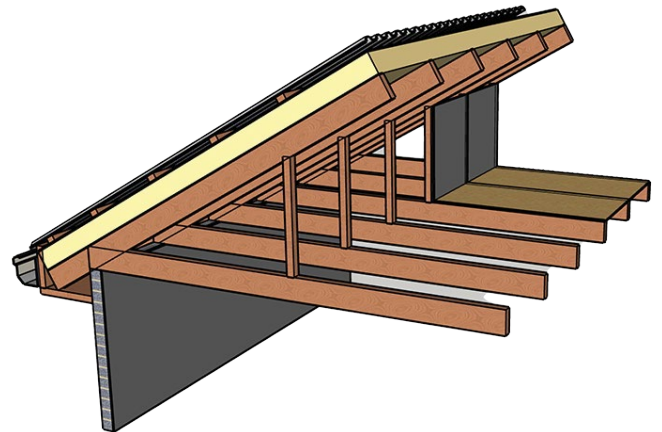


Ceiling Insulation

This detail depicts CNZ Insulation PIR board installed between the joists at ceiling level. This can be explained as a typical 'cold roof' application.

New Roof

This detail depicts CNZ Insulation PIR board installed above the rafters as a continuous insulation layer forming a 'warm roof' construction that does not require ventilation and maintains the roof structure at, or close to, the internal temperature. A non-permeable vapour barrier is placed on top of the PIR. In this application the dew point is to the outside.



Retrofit

This detail depicts CNZ Insulation PIR board installed between rafters at roof level. This is considered a warm roof application because it maintains the roof space at a similar temperature to the room below. However, the rafters act as a thermal bridge, making this approach less efficient than a new roof application where PIR insulation is installed above the rafters.

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