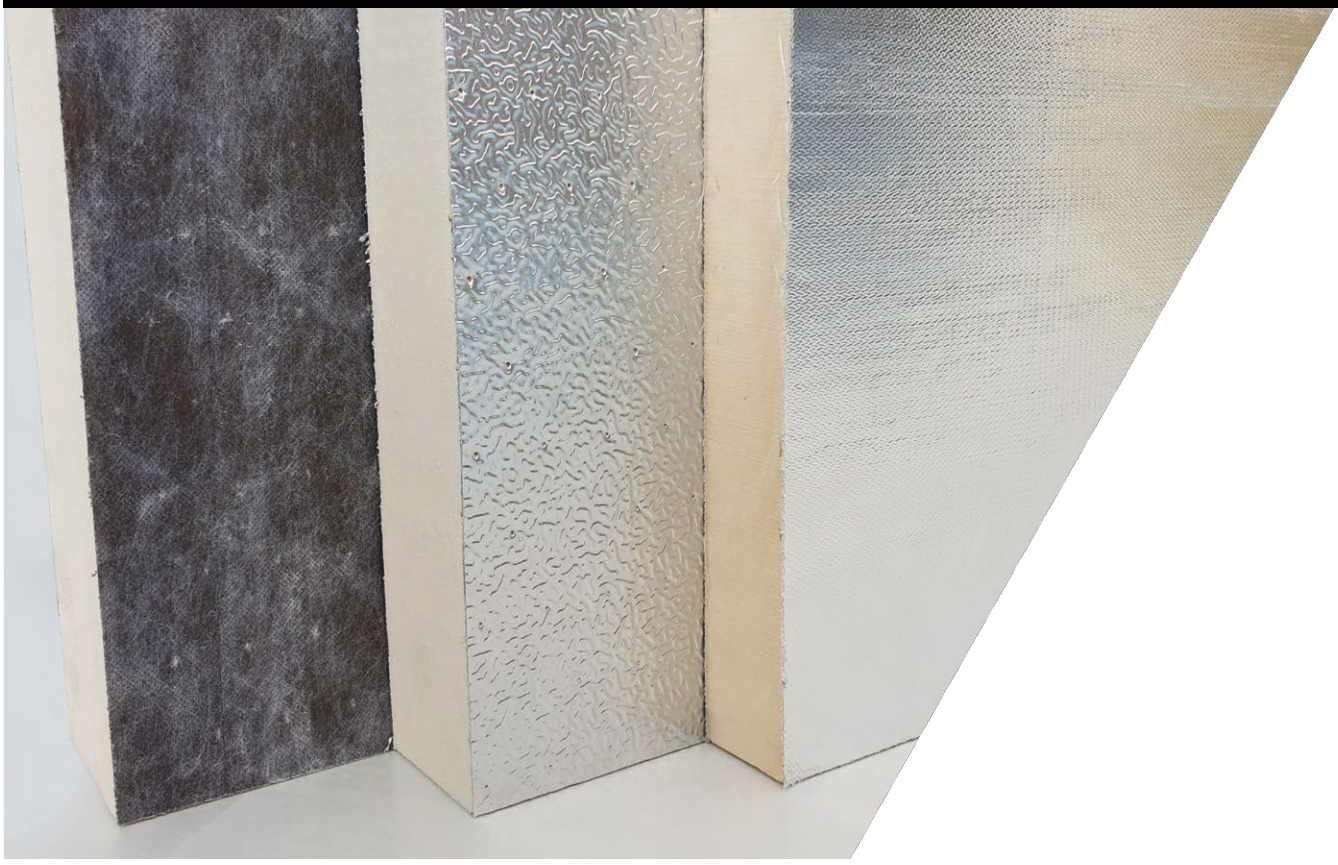
CNZ INSULATION BOARD

TECHNICAL SPECIFICATIONS AND PROFILES



CNZ Insulation has a policy of continuous product improvement; we reserve the right to change design or specifications without prior notice. Version 2

INSULATION ASSOCIATION

CNZ INSULATION

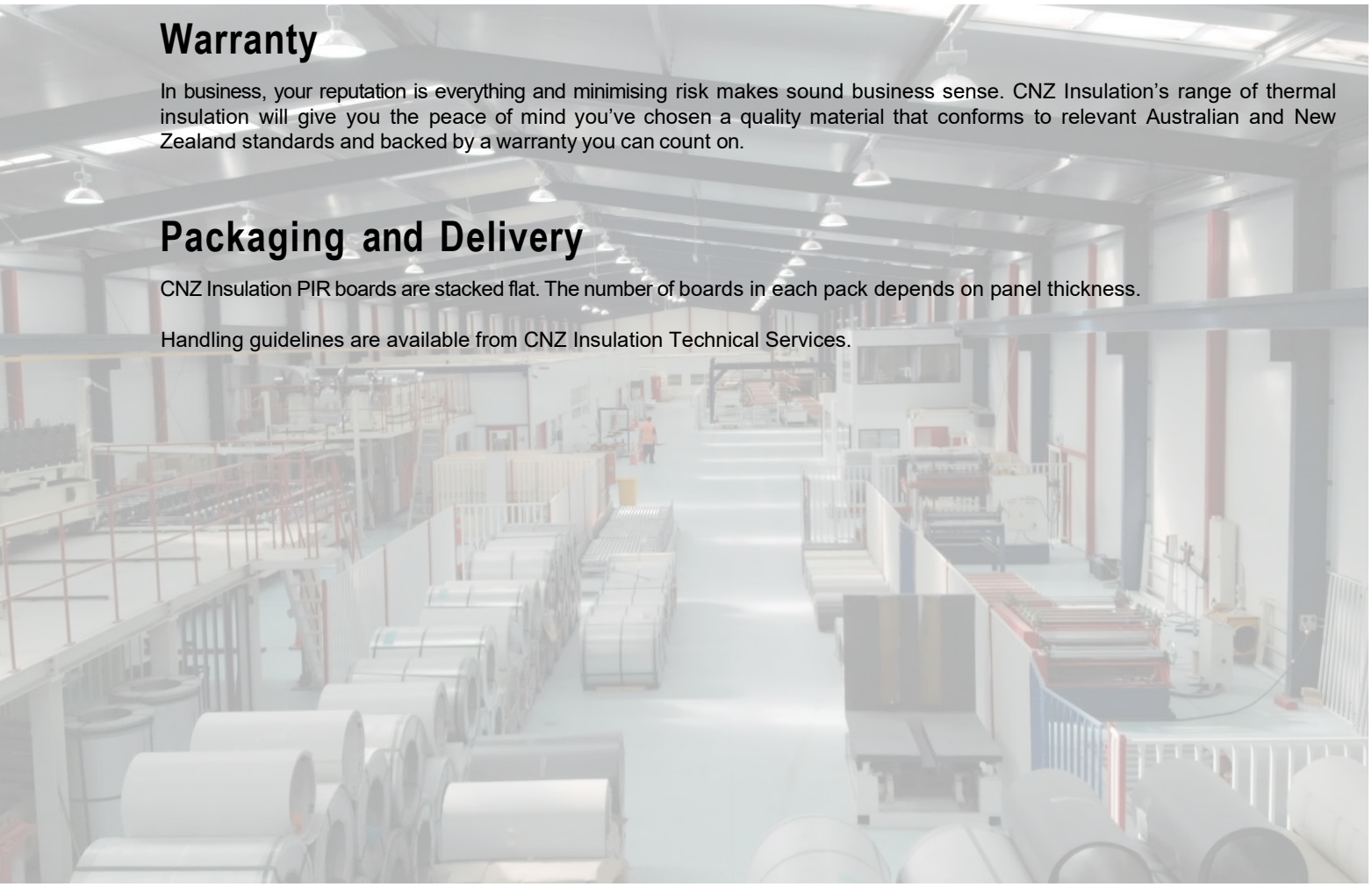
Welcome to CNZ Insulation

We are a supplier of PIR foam core insulation, and other insulation products.

The capability to custom cut and laminate board enables us to provide unique solutions. We continue to build our product portfolio looking to the future of insulation and the needs of our customers.

Quality and Durability

CNZ Insulation boards are tested to AS1366.2/ASTM 2498.3 standards from the highest quality materials, using state of the art production equipment to rigorous quality control standards, ensuring long term reliability and service life.



Warranty

In business, your reputation is everything and minimising risk makes sound business sense. CNZ Insulation's range of thermal insulation will give you the peace of mind you've chosen a quality material that conforms to relevant Australian and New Zealand standards and backed by a warranty you can count on.

Packaging and Delivery

CNZ Insulation PIR boards are stacked flat. The number of boards in each pack depends on panel thickness.

Handling guidelines are available from CNZ Insulation Technical Services.

WHY PIR CORE?

ECONOMIC ADVANTAGES

Accelerated construction reduces site time and the energy efficiency of PIR core can reduce operating costs by up to 50%.

INSULATION PROPERTIES

Due to the low heat conductibility of its fully formed closed cell structure, PIR is thermally efficient. This superb thermal performance allows buildings to achieve premium levels of energy efficiency, with some of the thinnest available solutions.

DURABILITY

As PIR does not sag or absorb moisture you can be confident of consistent performance which will last the full lifetime of the building.

MOISTURE RESISTANCE

Water absorption through exposure to moisture, or in exceptional circumstances through floods, is a significant factor with any modern insulation product. Due to having a closed cell structure PIR is a hydrophobic product meaning it does not absorb water. This allows the thermal performance and integrity of the product to be retained regardless of water exposure.

FIRE RESISTANCE

PIR will self-extinguish as soon as the cause of fire is removed. PIR foam is a thermosetting material. It does not melt, flow or drip when exposed to fire and it will form a strong char that helps protect the foam core and prevent flame spread within the boards.

OCCUPANT ADVANTAGES

- Passive temperature control for a more stable environment.
- Superior water, condensation and moisture proofing.
- Low allergenic qualities.
- High fire rating for maximum inhabitant safety.
- Lifetime performance, with no deterioration of airtightness or insulation values.

INSULATION BOARD

PRODUCT INFORMATION

Polyisocyanurate (PIR) insulation is suitable for use in buildings, extensions and renovations, and is one of the most effective insulation materials used in construction. PIR insulation core sandwiched between a choice of high performance embossed foil, or glass fabric creates a durable, light weight insulation board with superior performance and reduced material cost. Also, available in facing free.

Thickness (mm)	**20**	**25**	**30**	**40**	**50**	**60**	**70**	**75**	**80**	**90**	**100**	**140**	**150**
Embossed Foil R–Value *	0.85	1.06	1.27	1.69	2.10	2.52	2.97	3.19	3.40	3.82	4.31	6.31	6.77
Weight (kg/m²) **	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 according to AS/NZS 4859.1 Part 2 Section 5.2													
** Weight for glass fabric / glass fabric facings													

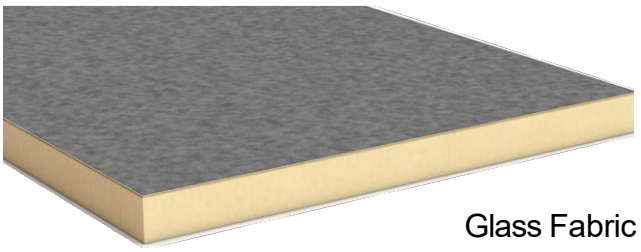
FIRE PERFORMANCE

Embossed Foil	
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/VM2	Group 2 / 3
Please confirm which group you require	

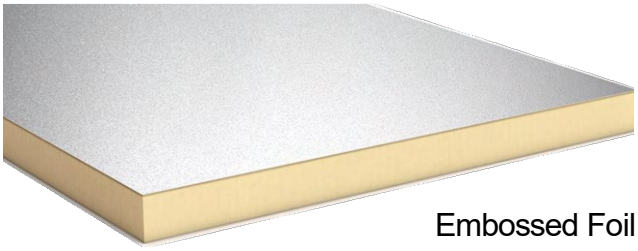
PRODUCT PROPERTIES

Water vapour transmission rate	10-15 g/m²/24hrs
Standard width	1200mm
Standard length	2400mm
Thickness (mm)	20, 25, 30, 40, 50, 60, 70, 75, 80, 90, 100, 140 and 150

Profile Cut



Glass Fabric



Embossed Foil

Facing Free

BUILDING CODE 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 (RESIDENTAL)

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

- The boards are produced in the standard size of 2400 x 1200mm. They must be fixed directly to the concrete soffit using a minimum of 11 insulation fasteners, with incorporated washer head diameter of 30 mm (min). The fasteners should provide a minimum embedment of 40mm into the solid substrate and they must be evenly distributed over the entire surface of the board. (Note: The substrate and fixing materials must be fit for purpose. Design loading on the board is not to 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 advice.

- Use two rows of 4 fasteners along the length, between 50 to 150mm from edge of the board; and 3 fasteners along the middle in an offset position from the exterior rows of fasteners as shown in figure 1.2.

- The board joints can be staggered or aligned as shown in Figures 1.2 and 1.3. Repeat steps to install the board in a continuous layer on the underside of the concrete soffit.

Figure 1.1. Direct fix to concrete soffit

- If required, tape all joins with a minimum 100mm wide insulation tape. Ensure to seal around the perimeter and joins, this will prevent air flow between any air cavities formed below or above the boards.

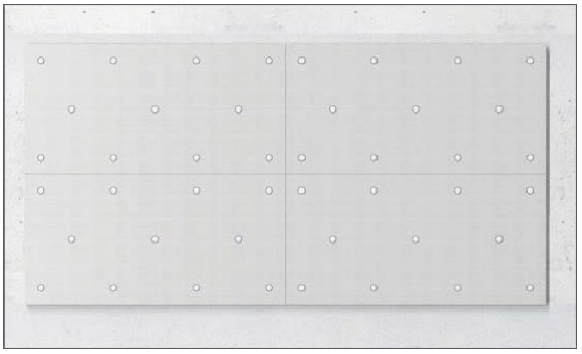


Figure 1.2. Board joints aligned. Fastener pattern (11 fixings per board)

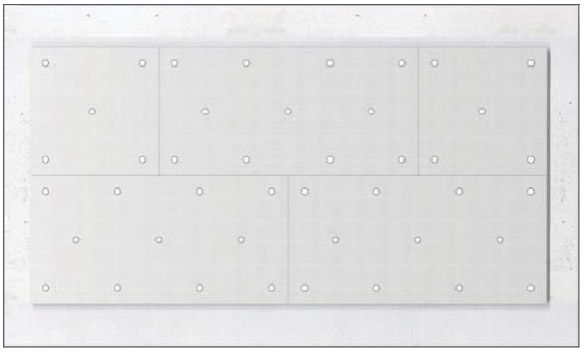


Figure 1.3. Board joints staggered

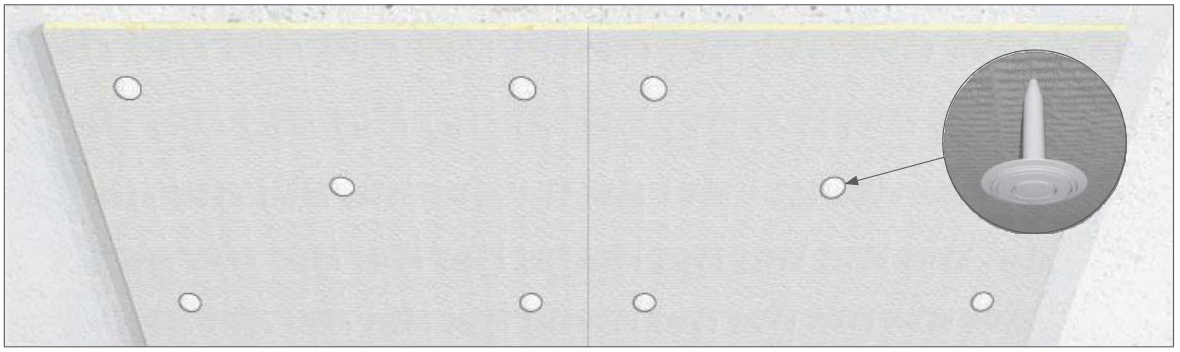


Figure 1.4. Insulation fastener

1. DIRECT FIXING (continued)

1.2 DIRECT FIXING OF THE BOARDS TO MASONRY AND / CONCRETE WALL

1.2.1 WITH CONSTRUCTION ADHESIVE BONDING

- Using construction adhesive, the board can be installed directly to dry and structurally sound walls free from moisture penetration. The wall should also be free from contaminant (e.g. oil, grease, paint) that may affect the adhesive bonding.
- 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 CRS 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.
- 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.

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.
- Screws should be fixed at a maximum of 600mm CRS horizontally and 300mm vertically as shown in figure 1.6. (Note: The substrate and fixing materials must be fit for purpose. Design loading on the board is not to 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 advice.
- Ensure that the existing walls are straight and plumb and remove any protrusions that may result in an irregular surface finish.
- 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 will result in three rows of battens, lining up with the two edges and the centre of the boards. The battens are to be fixed to the soffit as per manufacturer's recommendations.

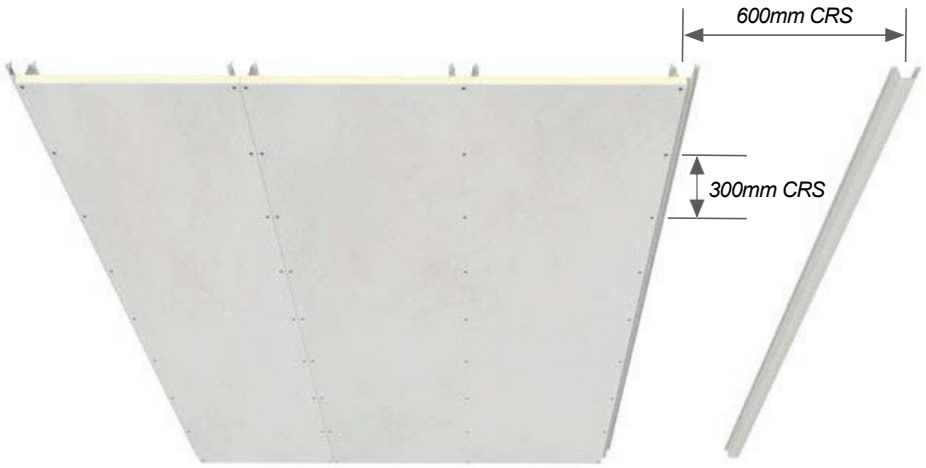


Figure 2.1. Masonry brick or block wall

Figure 2.2. Masonry brick or block wall

- Use screws at a maximum of 300mm CRS to fix the boards to the furring metal battens. For timber battens use screws or nails at a maximum of 200mm CRS. The screws or nails must be in rows less than 600mm apart. Note: The substrate and fixing materials must be fit for purpose. Design loading on the board is not to 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 advice.

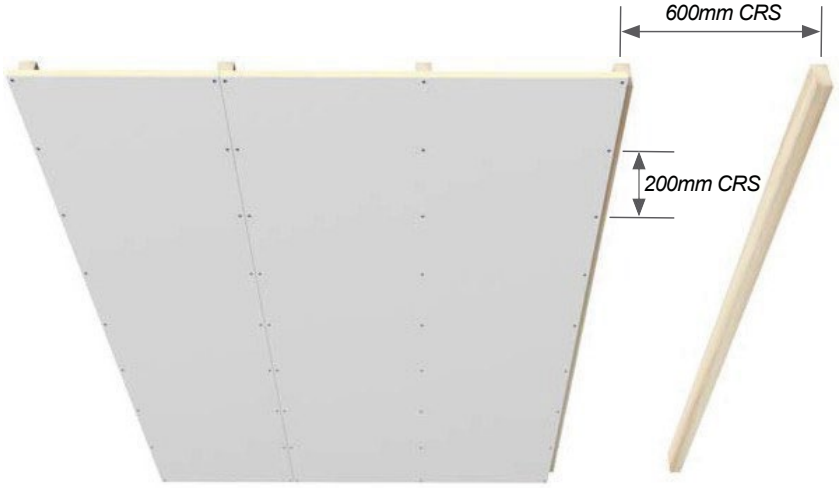
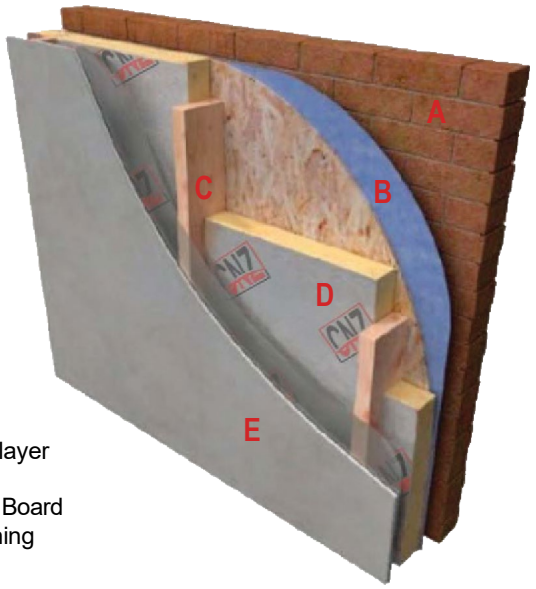


Figure 2.3. Masonry brick or block wall

Figure 2.4. Masonry brick or block wall

3. FIXING BETWEEN STUDS

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



A - Existing Wall
B - Vapour control layer
C - Timber Batten
D - CNZ Insulation Board
E - Plasterboard lining

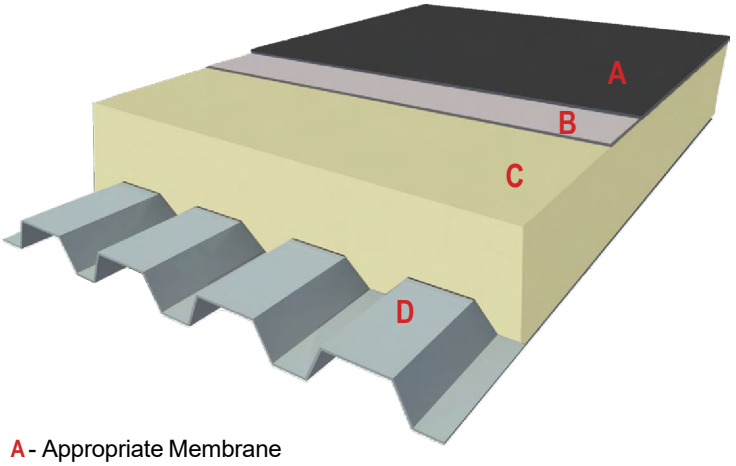
Figure 3.1. Fixing between studs

4. SERVICE PENETRATIONS

- Installation of the boards should tightly fit around penetrations and fire collars to reduce the effect of thermal bridging. Use appropriate methods to fill in the gaps where there is danger of overheating around flues, electrical cables and equipment.

5. PROFILED CUT ROOF INSULATION

- CNZ Insulation profiled cut roof board is bespoke designed to match any profiled roof and is suitable for new or refurbishment applications and will improve the thermal performance of an existing profile roof and of the building.
- The insulation 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 roof insulation boards are positioned on top of existing profiled cladding sheet and covered by either a weatherproofing membrane or new profiled cladding sheet.
- This installation method extends the life of an old roof, provides a good surface for a new waterproof membrane, is durable, lightweight and easy to handle, fast installation and improves the aesthetic appearance of old roofs.



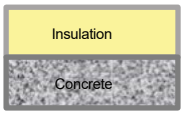
A - Appropriate Membrane
B - High Density Coverboard
C - CNZ Insulation Profiled Cut Board
D - Existing Profiled Roof Cladding

Figure 5.1. Profiled Cut Roof Insulation

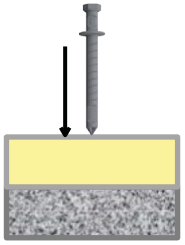
6. INSULATED PRECAST SYSTEM

6.1 NON-COMPOSITE

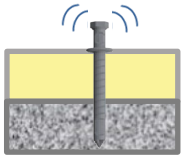
HOW IT WORKS



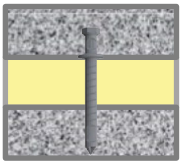
Place PIR insulation board on freshly poured concrete immediately after leveling (within 15-30 minutes).



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 insulation board near each tie, or otherwise vibrate the tie or the area around the tie.

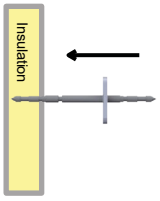


Place specified reinforcement and cast second layer of concrete either immediately or after the bottom layer has cured.

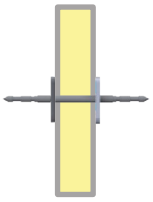
6.2 VERTICAL POUR

HOW IT WORKS

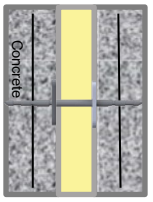
Place retention clip on one side of VP tie.



Push the opposite pointed end through the insulation.



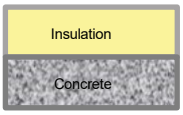
Apply the second retention clip to the VP tie.



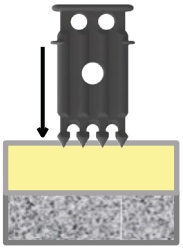
Install specified reinforcement, place assembly in forms or modular mold and cast both layers of concrete.

6.3 COMPOSITE-ACTION

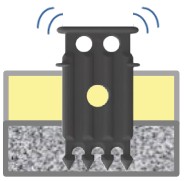
HOW IT WORKS



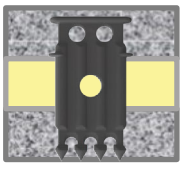
Place PIR insulation board on freshly poured concrete immediately after leveling (within 15-30 minutes).



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



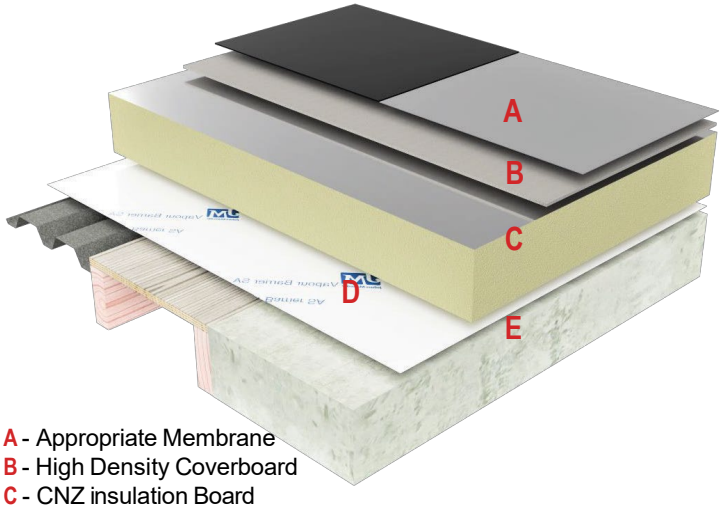
Apply repetitive foot pressure on the insulation board near each tie, or otherwise vibrate the tie or the area around the tie.



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, or warm roofs as they are more commonly known, are a very good option for flat roof designs and can be utilised 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 CNZ insulated boards are produced in the standard size of 2400mm x 1200mm. The thickness of the CNZ insulation board will determine the correct R-Value that has been nominated for the project.
- The inclusion of a high density coverboard placed over the CNZ insulation 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.



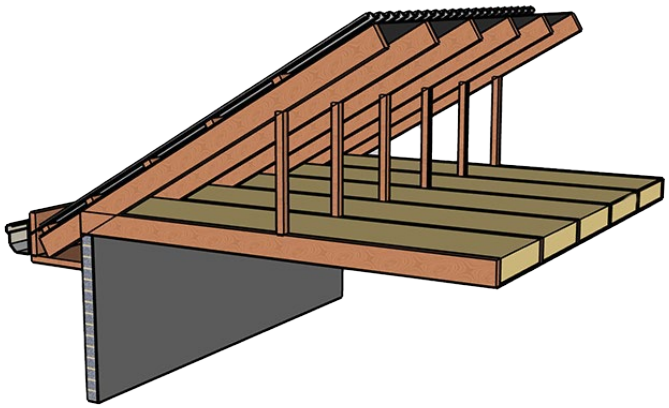
A - Appropriate Membrane
B - High Density Coverboard
C - CNZ insulation Board
D - Vapour Barrier
E - Existing Roof Construction

Figure 7.1. Insulated Roof System

7.1 MECHANICALLY FIXED METHOD

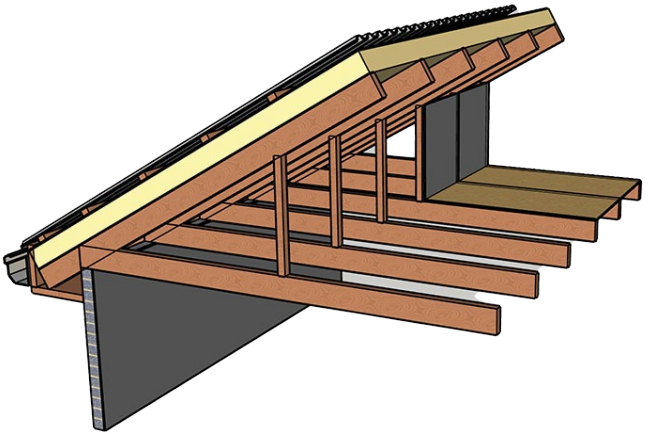
- Ensure the chosen substrate material has been installed to manufacture's specification.
- Install the vapour barrier directly to the chosen substrate to the manufacturer's requirements.
- Place the CNZ insulation board to the fully adhered vapour barrier using a brick bond pattern.
- Place the approved cover board at right angles to the CNZ insulation board using a brick bond pattern.
- Mechanically fix the cover board and CNZ insulation 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



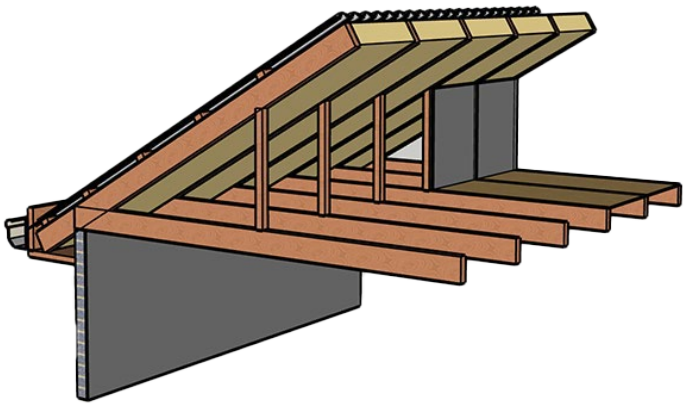
Ceiling Insulation

This detail depicts PIR insulation installed between the joists at ceiling level. This can be explained as a typical ‘cold roof’ application.



New Roof

This detail depicts PIR Insulation board 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.



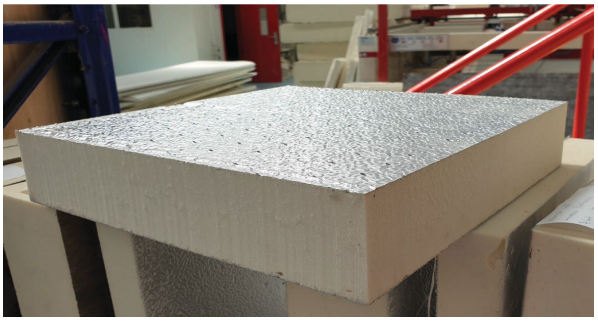
Retrofit

This detail depicts PIR insulation between the rafters at the roof level. This is considered a ‘warm roof’ application, maintaining the roof space at a similar temperature to the room below. However, in this application the rafters act as a thermal bridge. Therefore, this is less efficient compared to ‘new roof’ where PIR insulation is installed above the rafters.

9. GALLERY

Figure 9.1. Glass Fabric

Figure 9.2 Embossed Foil



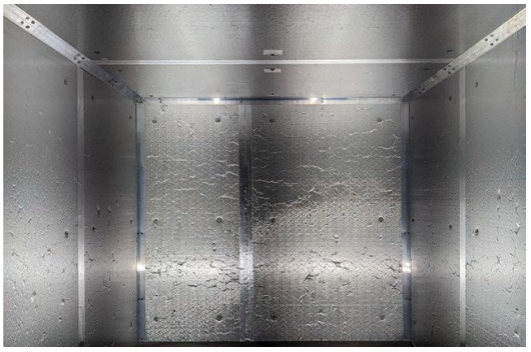
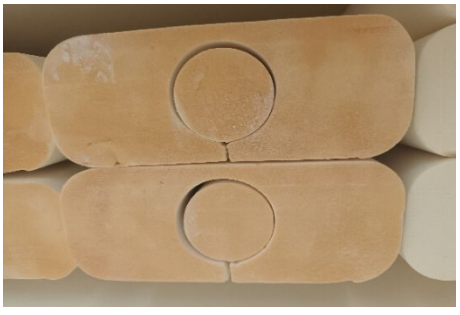
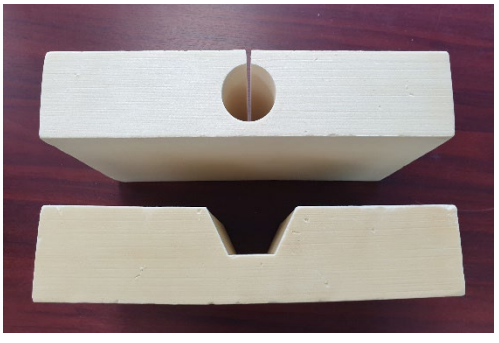


Figure 9.3 Profile Cut





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