CNZ INSULATION BOARD

TECHNICAL SPECIFICATIONS AND PROFILES

NEW ZEALAND MADE ®

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

CNZ INSULATION

CNZ Insulation is New Zealand's only manufacturer of PIR foam core panel products on a continuous line.

From our state-of-the art manufacturing plant in Christchurch we can manufacture a diverse range of panel products from a single production line, making it one of the most adaptable plants of its type anywhere in the world. This facility also has the unique ability to manufacture panels in lengths of up to 6m, enabling significantly more flexibility in building design.

Quality and Durability

CNZ Insulation panels are manufactured and 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.

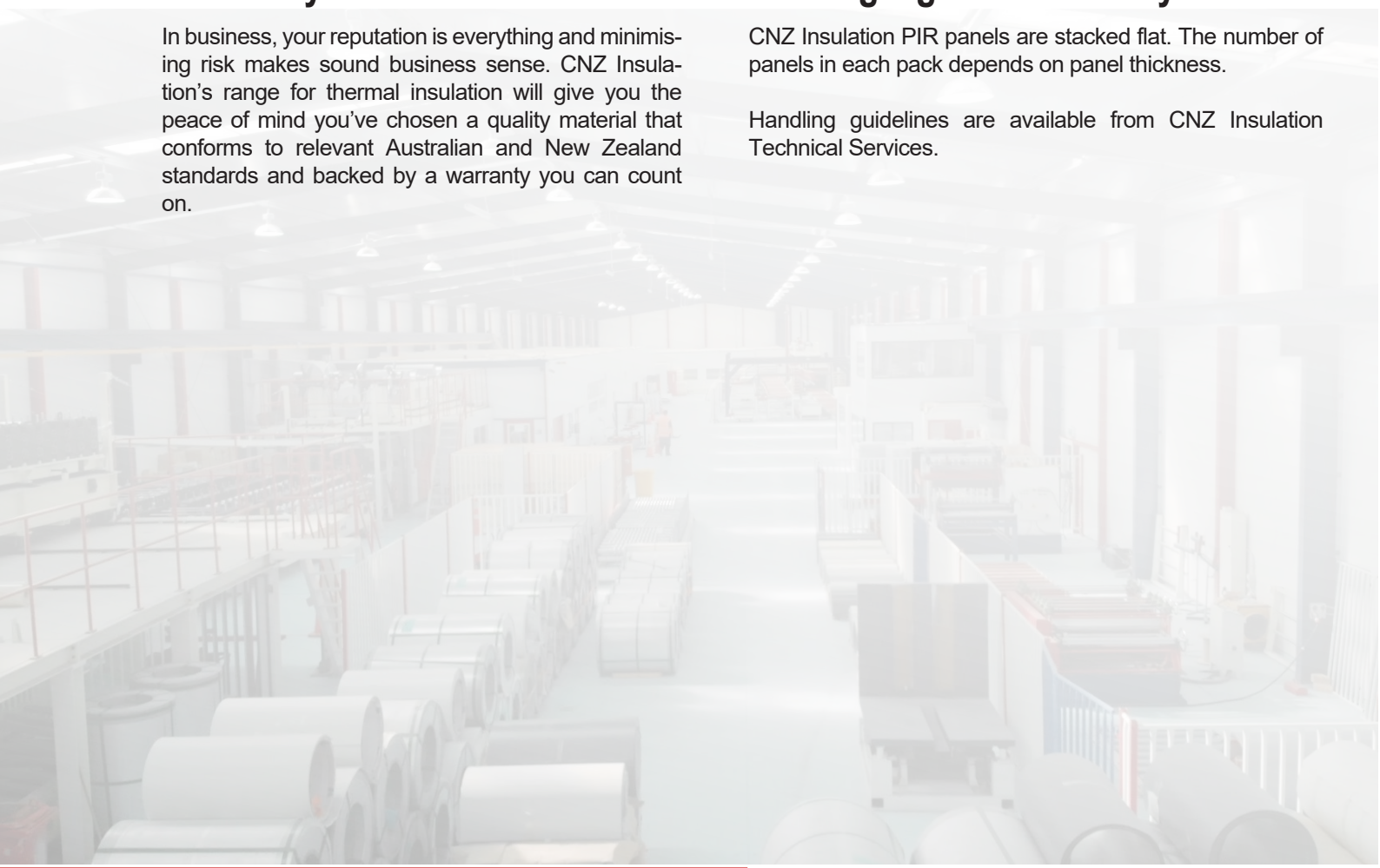
Warranty

In business, your reputation is everything and minimising risk makes sound business sense. CNZ Insulation's range for 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 panels are stacked flat. The number of panels 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 energy efficiency of PIR core, which 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.

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 panels.

OCCUPANT ADVANTAGES

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

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.

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 high performance fibreglass aluminium/ embossed foil/glass fabric facings creates a durable, light weight insulation board with superior performance and reduced material cost.

Thickness (mm)	20	25	30	40	50	60	70	75	80	90	100
R Value at 15°C (mK/W)	0.97	1.22	1.46	1.95	2.43	2.92	3.41	3.65	3.90	4.38	4.87
R Value at 23°C (mK/W)	0.93	1.17	1.40	1.87	2.34	2.80	3.27	3.50	3.74	4.21	4.67
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

Weight for glass fabric/glass fabric facings

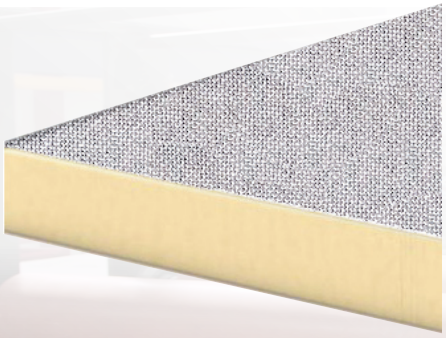
FIRE PERFORMANCE

Fibreglass Aluminium	
AS ISO 9750	
NCC Volume One Specification C1.10 Clause 4 determined in accordance with AS 5637.1	Group 2
NZBC Verification Method C/VM2	Group 2-S

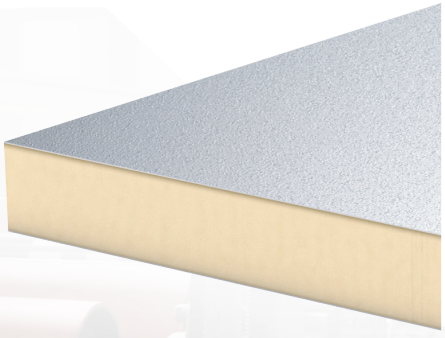
PRODUCT PROPERTIES

Density	38-42kg/m³
Compressive strength	≥0.09MPa
Shear strength	≥0.11MPa
Water vapour transmission rate	10-15 g/m2.24h
Thermal conductivity at 15°C	0.0205 W/m.K
Thermal conductivity at 23°C	0.0214 W/m.K
Dimensional stability	≤3% (70C/95%RH,20hrs)
	≤1% (-10C,20hrs)
Width	900-1200mm
Length	Up to 6000mm
Thickness (mm)	20, 25, 30, 40, 50, 60, 70, 75, 80 90 and 100

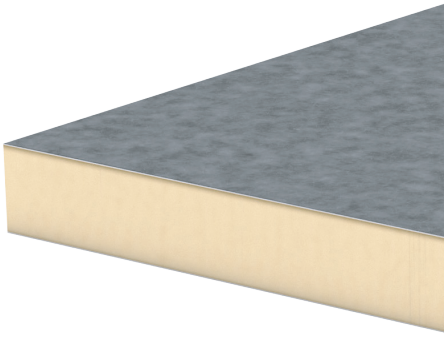
Fibreglass Aluminium



Embossed Foil



Glass Fabric



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 1.0. Direct fix to concrete soffit

- If required, tape all joins with a minimum 96mm 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.

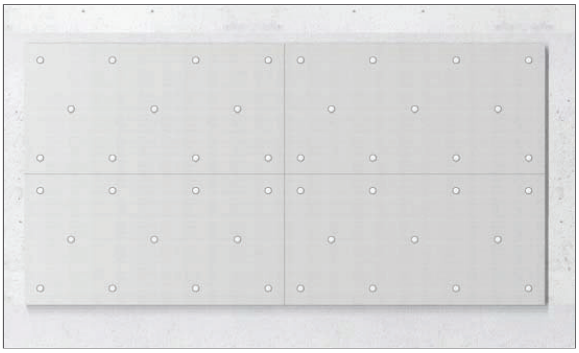


Figure 1.2. Board joints aligned. Fastener pattern (11 fixings per board)

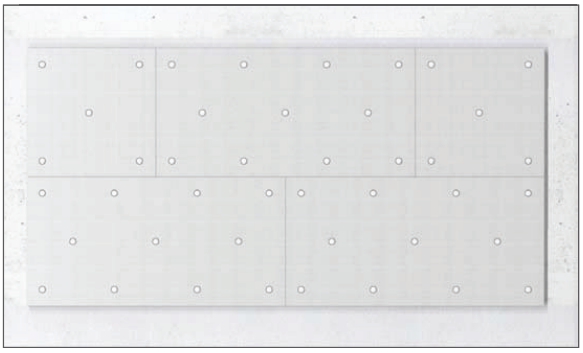


Figure 1.3. Board joints staggered

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.

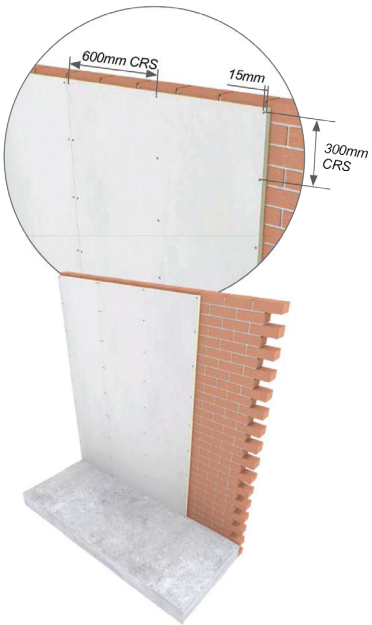


Figure 1.6. Masonry brick or block wall

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.
- Mechanical fixings should be positioned in the tapered edge of the plasterboard which will be covered after installation.
- 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 Conqueror NZ 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.
- Ensure the fixings are driven straight, with the heads embedded just below the surface of the plasterboard. Do not overdrive screws.

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.

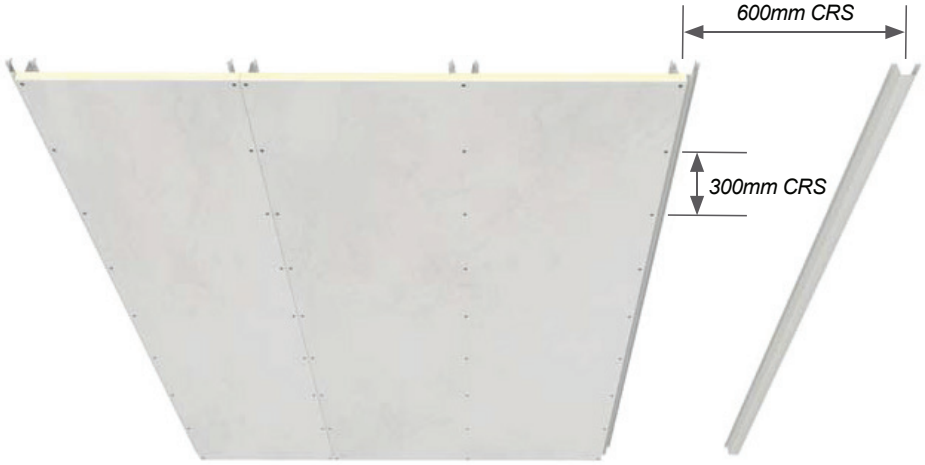


Figure 2.1. Masonry brick or block wall

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 Conqueror NZ for advice.

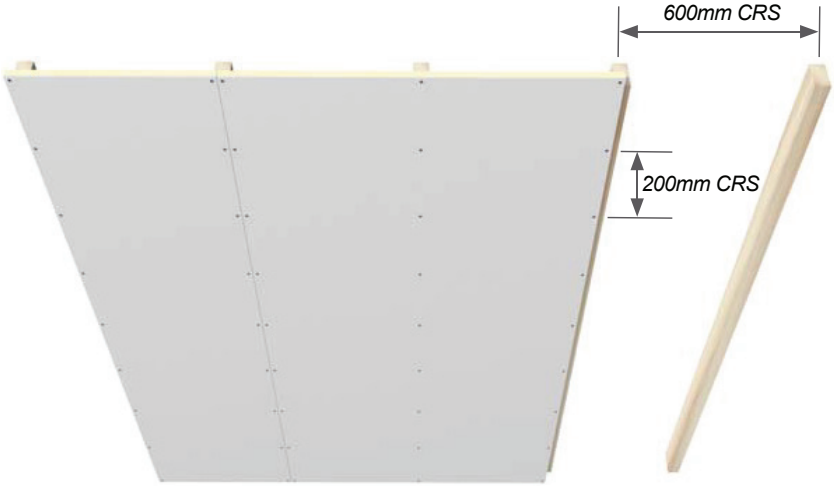
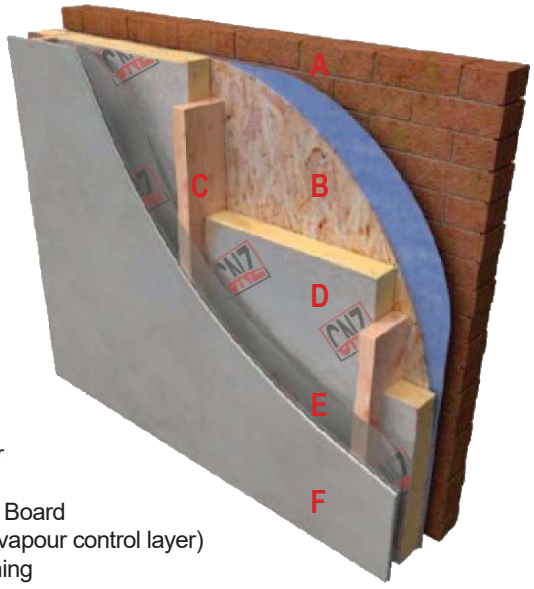


Figure 2.3. Masonry brick or block wall

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.
- Install an AVCL (air and vapour control layer) with lapped and sealed joints across the inner face of the studs, before applying the internal surface finish of the wall. This AVCL is necessary in light framed walls to prevent condensation forming within the wall. The AVCL will also help reduce air leakage into the stud cavity.
- Add the finishing touches (plasterboard lining).
- Relevant accredited details should be followed to ensure you reach the calculated performance.



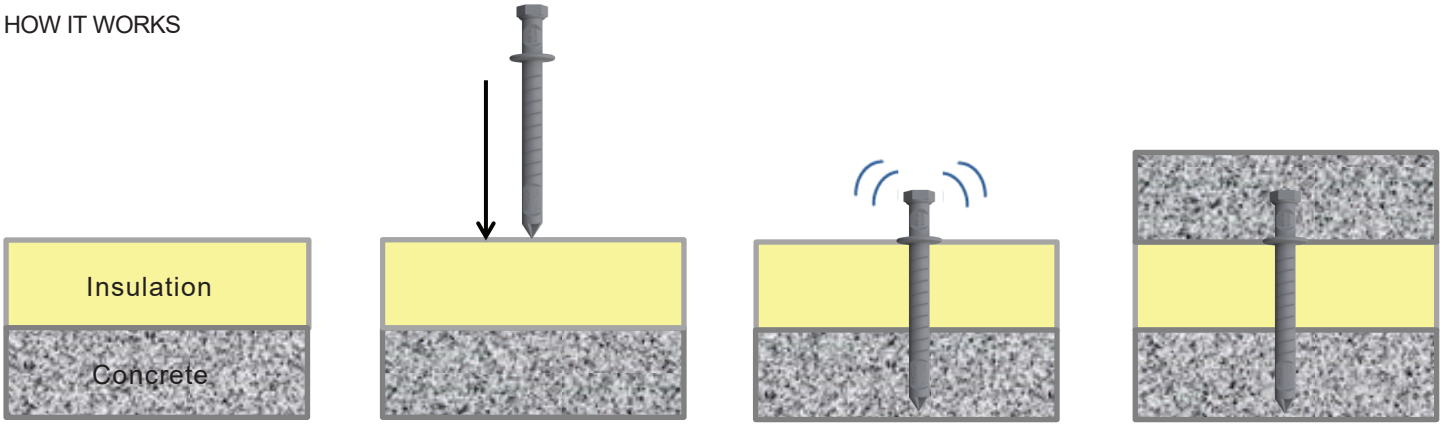
A - Existing Wall
B - Existing Plaster
C - Timber Batten
D - CNZ Insulation Board
E - AVCL (air and vapour control layer)
F - plasterboard lining

Figure 3.1. Fixing between studs

4. INSULATED SANDWICH PANEL SYSTEM

4.1 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.

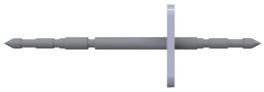
Apply repetitive foot pressure on the insulation board near each tie, or otherwise vibrate the tie or the area around the tie.

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

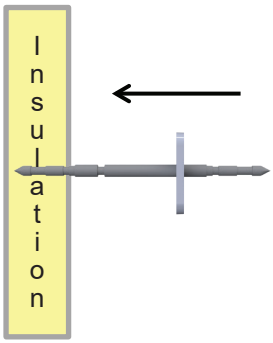
4. INSULATED SANDWICH PANEL SYSTEM (continued)

4.2 VERTICAL POUR

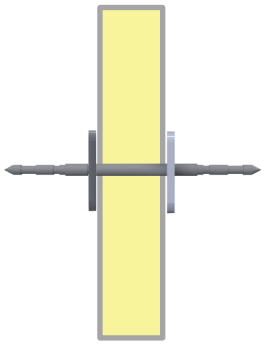
HOW IT WORKS



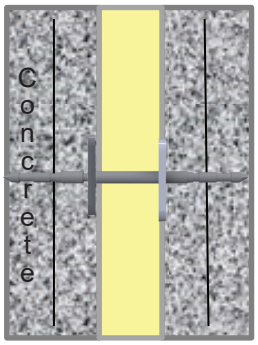
Place retention clip on one side of VP tie



Push the opposite pointed end through the insulation



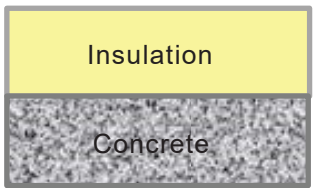
Apply the second retention clip to the VP tie



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

4.3 COMPOSITE-ACTION

HOW IT WORKS



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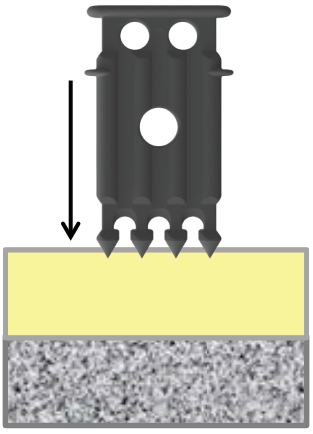
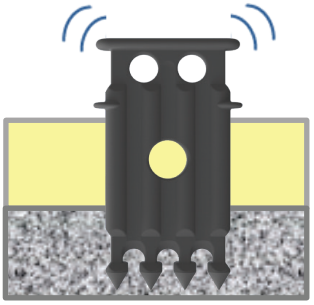
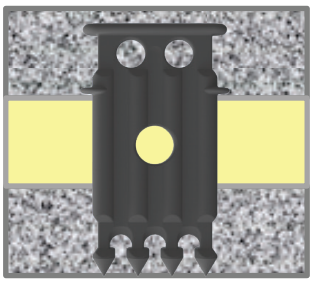


Push the pointed end through the insulation into fresh concrete until the embedment stop is even with the top surface of the insulation.



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.

5. 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.

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