



TH 1100

Insulation Board

Design and Installation Guide



TH 1100 Insulation Board with a aluminium embossed finish.

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Metecno NZ

State-of-the-art \$30 million, 8,500sqm manufacturing facility in Hamilton, New Zealand, supported by United Industries Group.

About Metecno

Metecno Group

Founded in Italy in 1961, Metecno Group has been a global leader in insulated building materials for over 58 years, delivering cutting-edge solutions across 16 countries. Our expansion into New Zealand marks a significant step in local manufacturing, lowering emissions and meeting the growing demand for energy-efficient cladding and roofing solutions.

Metecno NZ

We're proud to strengthen our global presence with a state-of-the-art \$30 million, 8,500sqm manufacturing facility in Hamilton, New Zealand, supported by United Industries Group.

TE RAPA PLANT HIGHLIGHTS:

Producing insulated panels & Insulation boards, supporting residential, commercial & controlled environments.

Driving local economic growth & sustainability.

This facility isn't just an expansion—it's a commitment to a greener, more energy-efficient future for New Zealand's construction industry.

Metecno at a Glance

- **58 Years of experience**
- **16 Factories worldwide**
- **30 Offices worldwide**
- **2000 employees worldwide**

United Industries Group

Metecno NZ is part of United Industries Group Limited. United Industries is heavily involved in providing materials and services to the New Zealand construction market through its group companies.

For more information on United Industries, please visit:
www.unitedindustries.co.nz

Insulated Panels & Boards

INSULATED PANELS & BOARDS: SMARTER, FASTER AND MORE SUSTAINABLE.

Metecno NZ delivers a full range of insulated panel solutions designed for cool rooms, cold storage, architectural walls and roofing applications. Built for superior thermal efficiency, fire resistant and durable, our panels ensure seamless installation and long-term performance for residential, commercial and industrial projects.

INSULATED PANELS – PERFORMANCE, EFFICIENCY & SUSTAINABILITY

Proudly NZ-made, our insulated panels offer longer sheet lengths, shorter lead times and enhanced energy efficiency. Engineered for durability and high thermal performance, they support faster construction, reduced costs and long-term sustainability.

Committed to Local & Sustainable Sourcing

We prioritise New Zealand-based suppliers, sourcing high-quality steel from New Zealand Steel, our insulated panels are available in COLORSTEEL® CP (coolroom panel) and COLORSTEEL® MAXAM®, ensuring:

- Exceptional strength
- Superior weather resistance



Introduction

Reducing PET Waste Pollution

At Metecno NZ, sustainability is at the core of our innovation. 60% of the core material in our PIR insulated boards come from recycled PET waste, transforming discarded plastics into high-performance insulation.

By choosing Metecno TH 1100 insulation boards, you're helping to:

- Divert 63 million tonnes of PET from landfills & oceans
- Reduce 100,000 tons of CO2 emissions annually –the equivalent to planting 4,200 acres of forest

Non Ozone Depleting

Metecno's TH 1100 insulation board uses Pentane as the blowing agent, which has zero ozone-depleting potential, making it an environmentally responsible choice.

What is PIR?

Polyisocyanurate (PIR) is a high-performance rigid foam insulation widely used as the core of insulated panels in commercial, industrial and cold storage buildings. Its closed-cell thermoset structure provides excellent thermal insulation by minimising heat transfer, improving energy efficiency.

TH 1100 Insulation Board

Metecno's TH 1100 PIR insulation boards offer exceptional thermal efficiency, moisture resistance, durability and ease of installation. Their lightweight structure allows for effortless handling.

TH 1100 insulation boards are engineered for long-term performance, making them suitable for installation beneath concrete slabs within framed construction and as insulation incorporated within built-up warm roofing and cladding systems.

Features and Benefits:

NZ MADE –FASTER DELIVERY TIMES

- Great thermal performance
- Fire resistant core
- Non-hygroscopic –resists mould
- Closed-cell structure
- Fibre-free
- Non ozone depleting potential (ODP) PIR core
- Easy to handle and install
- NZBC compliant
- Custom lengths available

Durable and Moisture Resistant

PIR insulation does not absorb moisture, ensuring it maintains its thermal performance and remains durable in humid or damp environments.

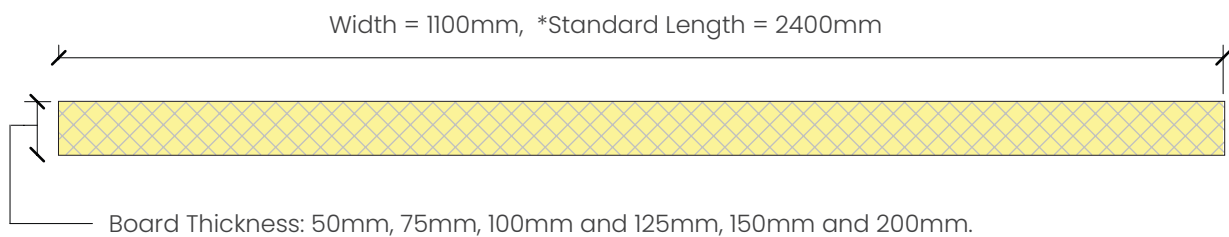
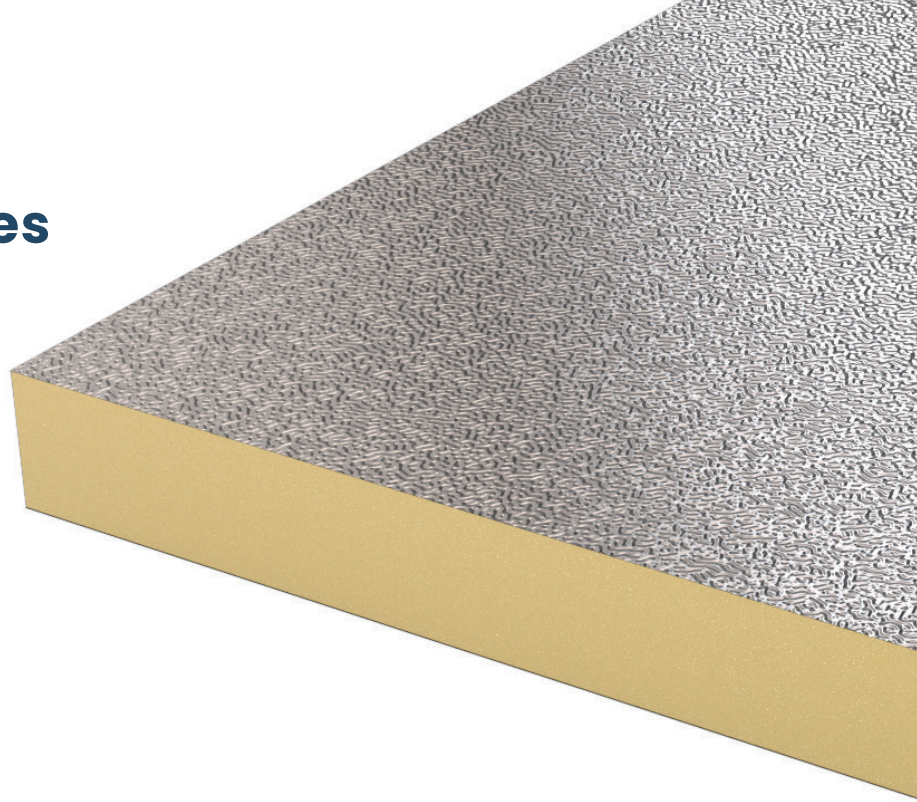
Its moisture resistance prevents swelling or degradation and keeps the board lightweight and dimensionally stable.

Product Properties

Typical Applications:

Metecno's TH 1100 insulation board delivers excellent thermal performance. It is designed for easy integration into:

- Multi level car parks
- Retrofitting existing buildings
- Built-up warm roofing systems
- Wall and roof cavities
- Ceiling Insulation
- Soffits
- Fixing Between Studs



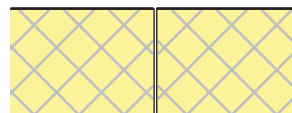
*Custom Lengths up to 6000mm are also available, longer lead times apply.
All dimensions are nominal and may vary with manufacturing tolerances.

Facing Options

- Aluminium embossed foil
- Kraft paper
- Non-woven fabric
- Bare board

Butt Joint

Metecno's TH 1100 insulation boards are to be installed with boards joints butted together.



Product Properties



3D Render- Facing omitted for clarity

Product Properties	
Place of manufacture	Metecno NZ, 10 Earthmover Crescent, Burbush, Hamilton, New Zealand
Core Density	Polyisocyanurate (PIR) Density 37Kg/m ³ core density may vary by + or - 5%
Core Compressive Strength	>100kPa to AS1366.2 / AS2498.3
Water Vapour Transmission	Water Vapour Transmission tested by BRANZ in accordance with AS2498.5. Water vapour transmission rate (WVT): 11.4 g/m ² /24h (equivalent to 132.1 µg/m ² .s) Branz Test Report: DC21639-01-1
Water Absorption	Water absorption tested by BRANZ in accordance with AS2498.8 Negligible (<0.20% by mass) Branz Test Report: DC21639-01-1
Width	1100mm
Trafficability	Not Trafficable
Length	Standard 2400mm Custom up to 6000mm Lengths may be restricted by handling and transportation. to site
Thickness	50mm, 75mm, 100mm and 125mm, 150mm & 200mm
Joint	Butt joint
Environment	Non Ozone Depleting Potential (ODP)

Product Properties



3D Render- Facing omitted for clarity

Thermal Performance and Weight

Properties	Panel Thickness (mm)					
	50	75	100	125	150	200
Product R-Value (m2K/W) *	2.15	3.25	4.35	5.40	6.50	8.70
In-Service R-Value (m2K/W) **	2.33	3.43	4.53	5.58	6.68	8.88
Weight (kg/m2) ***	1.95	2.93	3.90	4.87	5.85	7.80

* Product R-Value = Aged thermal performance at 15°C in accordance with AS/NZS 4859 Parts 1 & 2 2018; applicable prior to installation of insulation boards.

** In-Service R-Value - Thermal resistance of the product as part of a building element, including surface air films in accordance with NZS 4214:2006.

*** Flexible facing may affect overall mass: actual mass may vary by + or - 10%.

Fire Performance

Limitation of Use: When used as external wall cladding insulation TH 1100 insulation board is limited for use in buildings with height of building no greater than 10m and greater than 1m from the boundary.

Fire Performance	
ISO 9705: 2003 (R2016) Material Group Classification Number	Metecno's TH 1100 -100mm thick insulation board with a aluminium embossed foil facing has been tested in accordance with ISO 9705:2003 (R2016) and has achieved a Material Group Classification Number of 2s. Branz Test Report: FI21484-01. For other thicknesses and substrate types, refer to Branz Assessment Report: FC21592-01-1 Please contact Metecno for more information.
Combustibility	PIR is combustible.

Installation Guidelines

Site Storage

Metecno's TH 1100 insulation boards must be stored on a flat, firm surface, kept dry and protected from soiling and moisture at all times. When stored on site, position packs off the ground and on a slight incline to allow for drainage and ventilation.

Prolonged exposure to weather, particularly direct sunlight on the protective coating, should be avoided. Where necessary, relocate the boards or provide additional cover to minimise exposure.

Wet boards should not be installed.

Face Separation

Insulation boards with facings, require special care. Do not lift the insulation board by the edges of the external facing. This will cause the insulation board's face to separate from the core. The workers must lift only on the bottom face of the insulation board.

Installation Method

In all applications, the boards must be installed in accordance with the New Zealand Building Code (NZBC) requirements, particularly Clause H1 Energy Efficiency, and in compliance with NZS 4246:2016 – Energy Efficiency – Installing Bulk Thermal Insulation in Residential Buildings.

Installation must ensure all work meets the performance requirements of the NZBC, including provisions for durability, weather-tightness, and thermal performance.

Reparation General Precautions

When working with insulated boards and accessories, always use appropriate dust extraction equipment during cutting to minimise airborne particles. Ensure you wear suitable personal protective equipment, including hearing, eye and respiratory protection. To maintain a clean and safe work area.

Panel Cutting

- Insulation boards are to be cut & trimmed to ensure a flush finish.
- Insulation boards are to be confirmed square & plumb as per project requirements.
- Insulation boards are to be cut with a fine tooth hand saw. Angle grinder is not recommended.

Fastener Plugs

- Fastener plugs are to be installed without over tightening to prevent distortion of the insulation board.
- All accessories must be of a compatible material.

Sealing Tapes

- All penetrations, junctions must be fully taped and sealed.

Installation Guidelines

Safe Panel Handling Carrying, Positioning, Erecting

SAFE PANEL HANDLING

Assess the weight of the TH 1100 insulation board and ascertain if they can be handled manually.

- Use lifting equipment wherever possible for example crane, forklift, trolleys, pallet jacks, lifter & suction handling grips.
- Ensure operators are trained, competent & where applicable, licensed for operating lifting equipment.
- Always use gloves when handling TH 1100 insulation board.

SITE HANDLING REQUIREMENTS

- Ensure clear access paths
- Maintain safe lifting zones
- Keep boards off ground and dry
- Protect from direct sunlight

CONTRACTOR'S RESPONSIBILITY

Improper handling of the insulation boards can be hazardous to the workers and can cause damage to the insulation boards and adjacent materials.

It is recommended that the insulation boards are always handled with appropriate lifting equipment. However when it is necessary to manually handle the insulation boards, it is the contractor's responsibility to provide adequate manpower to safely lift and carry the insulation boards.

CAUTION:

Do not attempt to tilt up insulation boards that are longer or heavier than the capability of the available manpower.

MANUAL HANDLING OF INSULATION BOARDS – SAFE WORK PRACTICES

Before lifting or installing Metecno's TH 1100 insulation boards, ensure a safe working environment is established and all personnel are equipped with the required personal protective equipment (PPE), including safety footwear, cut-resistant gloves and arm guards.

Assess the insulation boards weight and dimensions to determine the number of trained workers needed—ideally of similar height and build—positioned evenly along each edge to lift in unison and prevent sagging or twisting.

Always keep the load close to the body, maintain a straight back, bend the knees and lift using leg muscles, avoiding twisting by moving the feet and maintaining stable footing. Where feasible, use mechanical lifting aids such as cranes, forklifts, trolleys, pallet jacks, or suction lifters, ensuring all operators are licensed and competent.

Designate a team leader to coordinate team lifts and maintain clear communication. Ensure the travel path is clear of obstructions and once the insulation Board is in position, confirm it is stable and secure. Follow safe practices when using powered tools.

Direct Fixing to Underside Concrete

Direct Fixing To Underside Concrete

Fastener type and placement depend on the thickness of panel used, specific loads, and application. Metecno's TH 1100 insulation boards are designed to carry self weight and wind loads—they are not trafficable, storage, or supporting ceiling fixtures.

Keep the boards away from high heat, moisture, and direct sunlight. Joints can be aligned or staggered as needed and panels should be fixed to flat surfaces without pressing them tightly together.



3D Render- Facing omitted for clarity

Minimum Pull-Out Capacity of the Fasteners

ULS Pressure (kPa)	Panel Thickness (mm)	Minimum Required Design Pull-Out Capacity of the Fasteners* (kN)			
		5 Fixings	6 Fixings	10 Fixings	11 Fixings
0.25	50-200	0.18	0.15	0.10	0.07
0.50	50-200	0.36	0.30	0.19	0.13
0.75	50	-	0.45	0.29	0.20
	75-200	0.54	0.45	0.29	0.20
1.00	50-75	-	0.60	0.39	0.27
	100-200	0.72	0.60	0.39	0.27

* Minimum Fastener head or washer diameter is 50mm.

NOTES:

- Optimum number of fixings need to be selected based on internal pressure, fixing capacity and panel thickness. Maximum span over deflection under serviceability wind load has been limited to 150.
- For higher pressures or unusual conditions, please contact Metecno.
- Fixings to have a minimum 40mm embedment into structure.
- All Insulation fasteners should have a minimum head diameter of 50mm, with any head deformation remaining within acceptable limits.
- Insulation fastener capacities range from 0.15kN to 0.4kN. High-capacity mechanical anchors (1–3 kN) are available where required.
- Always refer to the fastener manufacturer's specifications for guidance on length, pull-out strength, and installation.
- All panel joints may be taped using insulation tape as per project specific requirements. Panel joints and perimeter can also be sealed to prevent airflow and minimise moisture ingress.
- If Metecno's TH 1100 insulation boards are subject to external wind loads the additional fixings must be verified by a Chartered Professional Engineer.

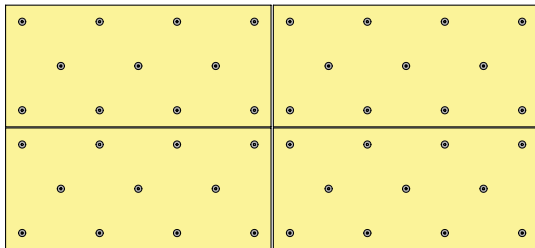
Direct Fixing to Underside Concrete and Concrete Walls

Fixing Options

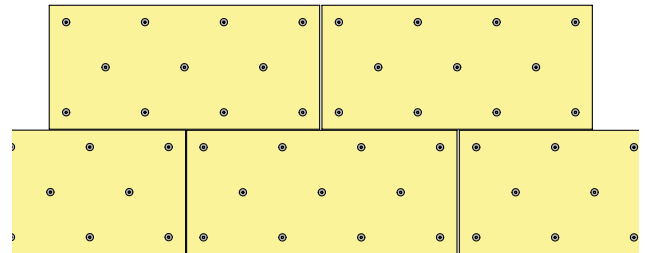
Metecno's TH 1100 insulation boards can be attached directly to concrete slabs or block walls using several fixing methods.

Layout Options

STRAIGHT LAYOUT



STAGGERED LAYOUT

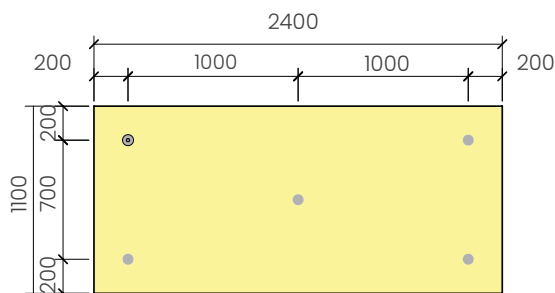


Fixing Layout

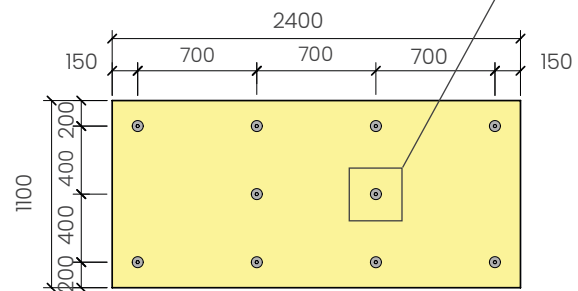
Below Fixing Layout to be read in conjunction with table and notes: Minimum Pull-Out Capacity of the Fasteners,

Fixing patterns must comply with all applicable fire design requirements where relevant.

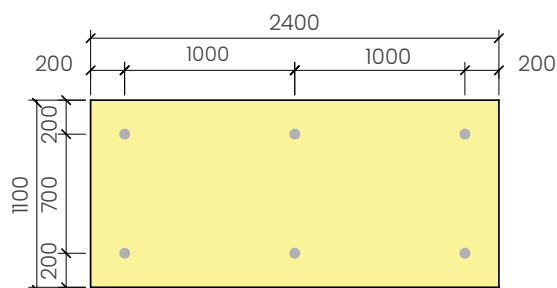
5 FIXINGS PER BOARD



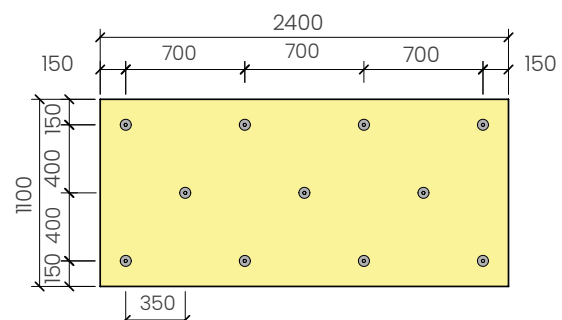
10 FIXINGS PER BOARD



6 FIXINGS PER BOARD



11 FIXINGS PER BOARD



Insulation Within Built-Up-Warm Roofs

The dimensional stability of Metecno's TH 1100 insulation boards and good compressive strength make them suitable for use within built-up warm roofing systems.

Built-up warm roof systems can be configured with a variety of top and bottom layers, including metal roof sheets or membrane finishes, each suited to different building requirements.

A properly designed built-up warm roof system includes a dedicated vapour barrier to control moisture ingress from the substrate, helping to maintain the durability and thermal performance of the roof.

Metecno's TH 1100 insulation boards can be installed either fully adhered to plywood substrates using approved adhesives or mechanically fixed with suitable tube washers and fasteners.

When designed and installed correctly, insulated roof systems provide reliable thermal performance and moisture control, supporting the long-term resilience of flat roof structures.

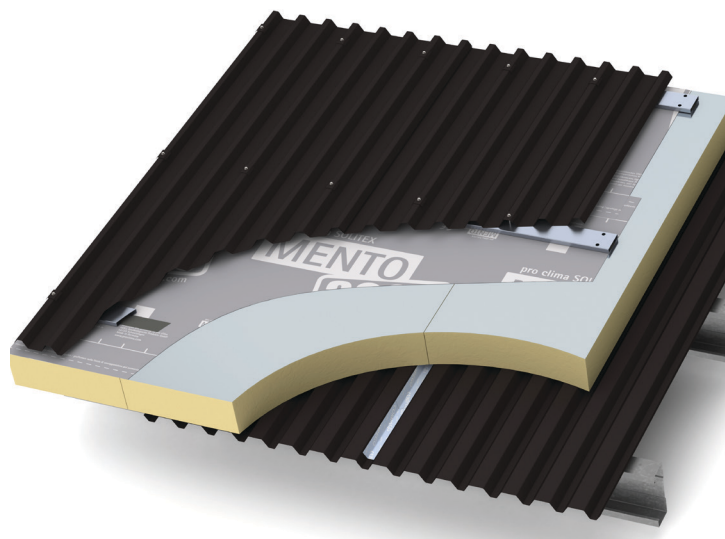
It's important to follow the Built-Up Warm Roof System Manufacturer's Installation recommendations as these systems comprise of many components and their specific installation requirements must be adhered to.

Mechanically Fixed

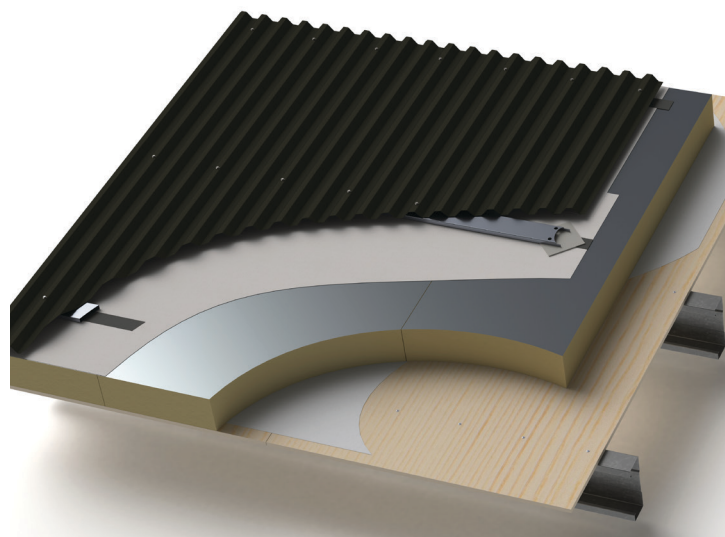
Confirm the substrate has been installed in accordance with the Manufacturer's requirements and is suitable to receive the built-up roof. Install the vapour barrier directly to the substrate in accordance with the vapour barrier manufacturer's instructions to provide a continuous vapour barrier seal.

Lay Metecno's TH 1100 insulation boards over the vapour barrier.

Secure the insulation boards with the approved fixings with tube washers of the appropriate length. The number and placement of fixings must be determined in accordance with the project wind zone requirements and the fixing manufacturer's recommendations.



Indicative render of a metal built-up warm roof showing PIR insulation board.



Indicative render of a metal built-up warm roof on a plywood substrate showing PIR insulation board.

Fixing To Studs and Penetrations

General Notes

Insulating Stud Walls

Metecno's TH 1100 insulation boards should be installed tightly between the studs, openings and penetrations to minimise thermal bridging.

Then the boards are secured in place using nails or timber battens on the warm side of the insulation.

Penetrations

Metecno's TH 1100 insulation boards should be fitted tightly around penetrations, including pipes, ducts and fire collars, to minimise thermal bridging.

Compliance to New Zealand Building Code

TECHNICAL LITERATURE

Please refer to the Building Product Information sheet for compliance of Metecno's TH 1100 insulation Board to the New Zealand Building Code and for scope and limitations of use.

Metecno's product literature can be downloaded from:

www.metecno.co.nz

Technical Support

The guidance provided in Metecno's technical documentation reflects recognised industry practices; however, it should not be considered a complete source of all information required for design or installation. Because the performance of any Metecno system relies on factors beyond our control—such as design decisions, installation quality, and site conditions—Metecno accepts no liability for how these recommendations are applied or for the performance of the system in any specific situation, including meeting the requirements of the NZBC or any applicable laws, regulations, or standards.

It is the responsibility of the project's designer to confirm that the details and recommendations within Metecno's technical documents are appropriate for the intended application and to undertake any necessary project-specific design.

Contact Metecno for Technical Support.

Contact Us

HAMILTON

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For more information on Metecno visit:

www.metecno.co.nz

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