Metrapanel Technical Data Sheet

Engineered wood panel

At the heart of the Metrapanel system is a propriety construction grade particleboard wood panel with a special blend of resin to obtain very high moisture resistance and strength.

Metra panel has been fully tested for:

- Weather exposure
- Moisture resistance
- Structural strength
- Load bearing capacity
- Bracing
- Fire resistance
- Sound resistance

A range of specialised walls and ceilings has been developed to meet the needs of specific requirements.

BRANZ Appraised

The Metrapanel system has been BRANZ Appraised for residential construction and meets the 50 Year durability requirement of the New Zealand Building Code. BRANZ Appraisal Number 364 [2007]

BRANZ Appraised
Appraisal No.364 [2007]

Interior walls

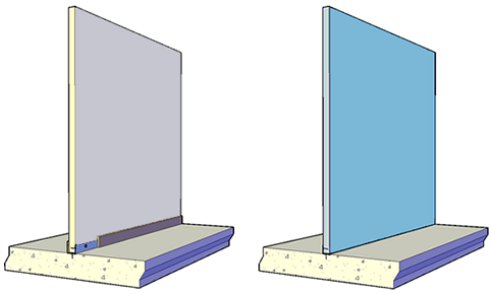
All interior walls are supplied pre-cut in sizes up to 7.34 metres long. Walls are supplied at standard sizes of 2.44 metres high and 2.7 metres high. Walls more than 2.7 metres high may be 'stood on end' and will require joins at 2.44 metres maximum.

Walls are suppled painted with primer/sealer both sides and all edges.

Standard walls

METRA 36 is the primary wall type used for interior walls. METRA 36 is a 36mm thick self supporting single wall panel.

METRA BLUE is specifically designed for wet areas such as bathrooms and laundries.

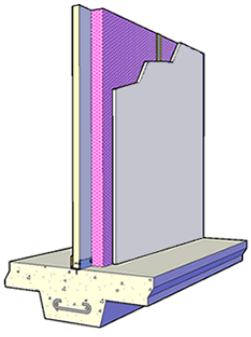


METRA 36
Standard

METRA Blue
Wet area

Internal insulation wall

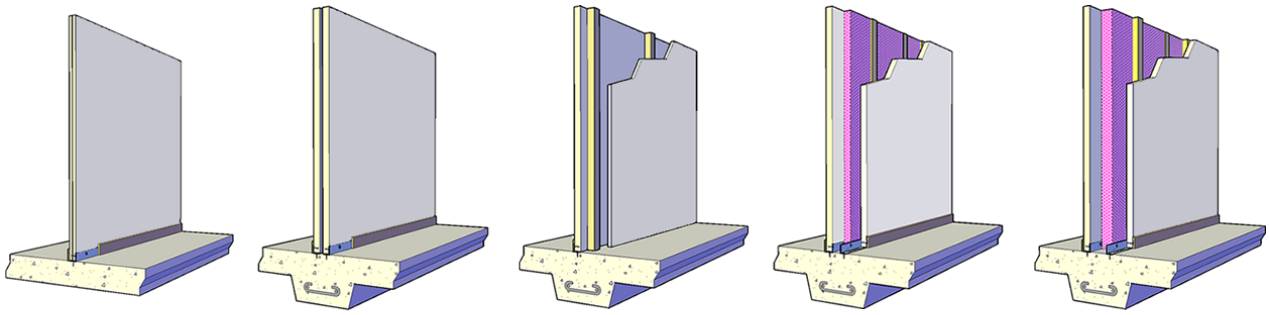
METRA R2 is an insulation wall for use between an attached garage and house to minimise heat loss.



METRA R2
Wiring & plumbing cavity

Sound & cavity walls

Metra sound wall solutions reduce sound transmission between rooms. STC refers to Sound Transmission Class, and is a measure of sound insulation. It is measured as per the requirements in section G6/VM1 and G6/AS1 of the New Zealand Building Code.



METRA STC 36
Laminated

METRA 2 x 36
Wiring cavity

METRA Cavity
Wiring & plumbing cavity

METRA Sound
Wiring & plumbing cavity

METRA I.T.
STC 61 Inter tenancy

Recommended sound wall locations	
STC 28	**Standard walls with low level noise**
STC 36	**Standard walls with improved sound rating**
STC 45	**Walls between toilets/bathrooms and bedrooms. Walls between lounge and bedrooms**
STC 50	**Wall between noisy areas such as music rooms and home theatre rooms**
STC 61	**For inter tenancy walls between separate household units**

Recommendations for reducing the level of sound transmission between occupied spaces of separate occupancies, and sound transmission between common spaces and any occupied spaces include:

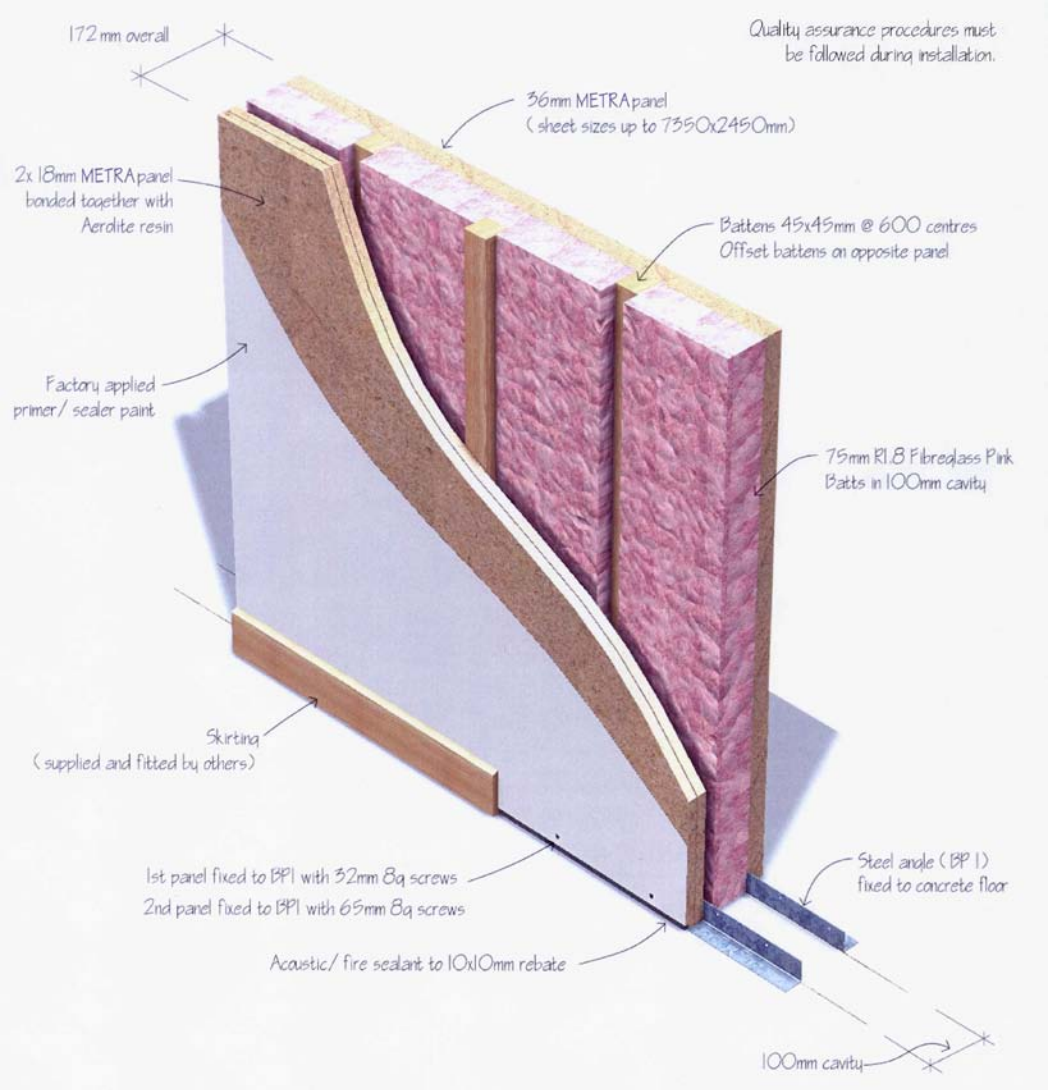
Reducing the level of sound transmission
• **Physical isolation of the two sides of any wall, floor or ceiling**
• **Use of resilient floor coverings**
• **Sound absorbing material in cavities**
• **Avoidance of wall penetrations**
• **Avoidance of flanking paths through design and construction checks to review details**
• **Using resilient mounts for pipes, services and appliances**
• **Insulate service ducts for sound avoidance of wall penetrations**
• **Avoid fixing plumbing pipes and services to common walls**
• **Include noise attenuating mats at changes in direction of waste pipes**
• **Specify acoustically tested door and glazing solutions**
• **Place carpet underlays under floor coverings to cut down footfall noise**
• **Do specify bottom door seal over smooth floors, vinyl and tiles, etc**
• **Don't place impact noise sources on internal walls.**
• **Don't use down lights in a lower story ceiling of a two-story dwelling**

Inter tenancy wall STC 57 / STC 61 FRR 30/30/30

Fire Resistance Ratings refer to assessments as to the degree to which the Metrapanel system is able to meet the categories of Structural Adequacy/Integrity/Insulation in accordance with AS 1530.4 – 1990, “Fire Resistance Tests of Elements of Building Construction”, and AS 4072.1 – 1992, “Service Penetrations and Control Joints”.

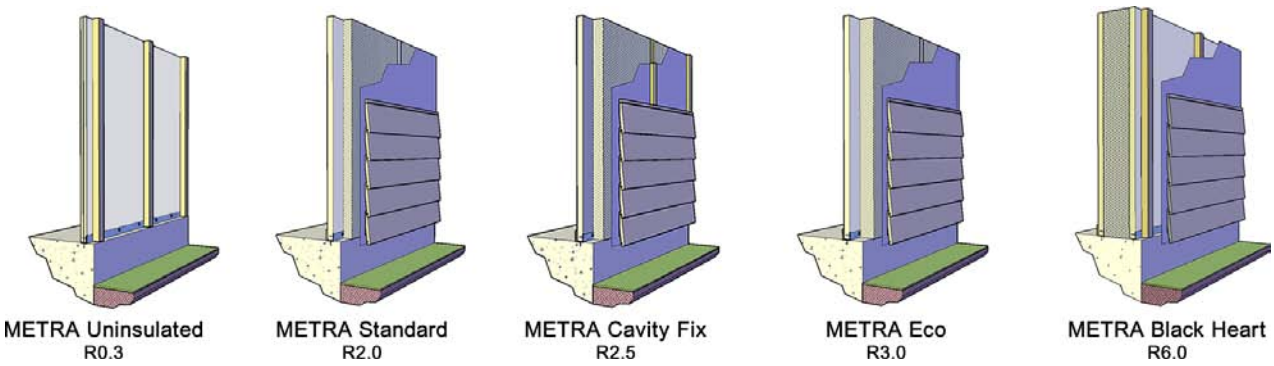
The fire resistance of the specimen is the time, expressed in minutes, before failure occurs under one or more of the following criteria:

- Failure in relation to Structural Adequacy is deemed to have occurred when collapse occurs
- For an element intended to separate spaces and resist the passage of flame from one space to another, failure in relation to Integrity is deemed to have occurred upon collapse, or the development of cracks or fissures, or other openings through which flames or hot gases can pass, or if flaming takes place on the unexposed surface of the specimen.
- Failure in relation to Insulation is deemed to have occurred when either:
  a) The average temperature of the relevant thermocouples attached to the unexposed face of the test specimen rises by more than 140K above the initial temperature; or
  b) The temperature of any of the relevant thermocouples attached to the unexposed face of the test specimen or penetrations rises by more than 180 K above the initial temperature.



Exterior walls

Metra exteriors walls are available in a range of options up to R6.0 thermal insulation. Joinery and exterior cladding is fitted conventionally as for timber framed buildings.



The construction R-values of the following Metra Panel systems were calculated using the NZS4214:2006 calculation method.

- **Metra Uninsulated** - for uninsulated areas such as garage walls. This option has 45x45 timber battens at 600mm centres.
- **Metra Standard R2.0** - for direct fixed cladding. This option has 55mm Black Pearl polystyrene between 45x45 timber battens. A 10mm HD polystyrene packer is fitted over the 45x45 timber battens.
- **Metra Cavity Fix R2.5** - for cavity fixed cladding. This option has 65mm Black Pearl polystyrene between 70x45 timber battens. A 20mm timber cavity batten is fitted over the 70x45 timber battens.
- **Metra Eco R3.0** - for direct fixed cladding. This option has 90mm Black Pearl poly between 70x45 timber battens. A 20mm HD poly packer is fitted over the 70x45 timber battens.
- **Metra Black Heart R6.0** - This is a SIPs alternative (structural insulated panel) with two layers of Metra panel. There is no thermal bridging of the Black Pearl polystyrene layer as the 45x45mm timber battens are on the exterior.

Construction R-value

The following table shows the complete construction R-values for some common cladding materials.

Construction R-value							
	70 series brick veneer	Linea weatherboard	Paliside weatherboard	Timber bevel back weatherboard	9mm plywood (Axon panel / Shadowclad)	Titan	Corrugated metal
METRA Uninsulated	0.3	0.3	0.3	0.3	0.3	0.3	0.3
METRA Standard	2.0	2.0	2.0	2.0	2.0	2.0	2.0
METRA Cavity Fix	2.5	2.5	2.5	2.6	2.5	2.5	2.5
METRA Eco	3.1	3.1	3.2	3.3	3.1	3.1	3.1
METRA Black Heart	6.0	6.0	6.0	6.1	6.0	6.0	6.0

Wall specifications

Wall specifications				
Name	**Sound rating**	**Fire rating**	**Wall thickness**	**Insulation R Value**
Interior walls				
METRA 36	STC 28	-/30/30	36mm	0.3
METRA Blue	STC 28	-/30/30	36mm	0.3
METRA STC 36	STC 36	-/30/30	36mm	0.3
METRA R2	STC 40	-/30/30	124mm	2.0
METRA 2 x 36	STC 45	-/30/30	90mm	0.6
METRA Cavity	STC 45	-/30/30	99mm	
METRA Sound	STC 50	30/30/30	122mm	
METRA I.T.	STC 61	30/30/30	172mm	
Exterior walls				
METRA Uninsulated		30/30/30	81mm	0.3
METRA Standard		30/30/30	91mm	2.0
METRA Eco		30/30/30	126mm	3.0
METRA Black Heart		30/30/30	287mm	6.0

Ceilings specifications

Metra ceilings are supplied in full size sheets with plastering chamfers and tongue and groove edges for easy on-site installation.

Metra ceiling sheets are supplied painted both sides with primer/sealer.

Ceiling specifications				
Name	**Size**	**Thickness**	**Fire rating**	**Insulation R Value**
METRA Ceiling	7350 x 2420mm	25mm	-/15/15	0.2

Physical properties

Technical properties

Physical properties of Metra panel							
Description	**Length**	**Width**	**Density**	**Weight**	**MOR**	**MOE**	**IB**
36mm Panel	7350mm	2440mm	658 kg/m3	23 kg/m2	20000MPa	2700MPa	1000mm
25mm Panel	7350mm	2420mm	635 kg/m3	15.9 kg/m2	20000MPa	2800MPa	1050mm
18mm Panel	7350mm	2440mm	655 kg/m3	11.8 kg/m2	21000MPa	2700MPa	800mm

Fire properties

Fire properties of Metra panel	
Description	**Index**
Spread of flame index	0
Smoke developed index	4
Ignitability index	5
Heat evolved index	2

Compliance

The Metra Panel Construction System has a BRANZ Appraisal, Certificate No. 364, for use under the NZBC.

In the opinion of BRANZ, the Metra Panel Construction System will meet or contribute to meeting the following provisions of the New Zealand Building Code:

- B1 STRUCTURE: Performance B1.3.1, B1.3.2 and B1.3.4 for the relevant physical conditions of B1.3.3.
- B2 DURABILITY: Performance B2.3.1 (a), the Metra panel wall and ceiling system, not less than 50 years.
- C1 OUTBREAK OF FIRE: Performance C1.3.2.
  NZBC Acceptable Solutions C/AS1 requires that foam plastics such as Expanded Polystyrene (EPS), which is an insulating material in the Metra Wall System, must be protected from direct exposure to fire. Metra wall panels, when joined with screw/nail fixed back blocking or metal strips, in accordance with the details in this manual, will satisfy the NZBC Acceptable Solution C/AS1 requirements as a flame barrier.
- E2 EXTERNAL MOISTURE: The system requires the addition of a building envelope to meet performance E2.3.2 and E2.3.6.
- E3 INTERNAL MOISTURE: Performance E3.3.1, E3.3.4. and E3.3.5.
- F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1.
  The System will not present a health hazard to people.
- H1 ENERGY EFFICIENCY: Performance H1.3.1 and H1.3.2.
- STRUCTURAL AND DURABILITY TESTING
  The Metra System and its components have been extensively tested by a range of independent agencies.