

# DESIGN & INSTALLATION GUIDE

## INDEX

General	3
Supporting information	3
Use of Metalcraft insulated panels	3
Metalcraft CodeMark explained	4
Scope of use	4
Limitations	4
Applications	5
Restricted building work	6
Designer/installer skill level	6
Health and safety	6
Equipment	7
Structural panel wall bracing	7
Capacity adjustment for different wall lengths	9
Capacity adjustment for different heights	9
ThermoSpan and ThermoPanel strength and fixing capacities	11
Metalcraft panel fixings	11
ThermoSpan panel span table	12
Engineering details	12
Nominal weights	13
Thermal resistance	13
Dimensions and tolerances	13
Compliance with the NZ Building Code	13
Warranty general terms and conditions	13
ThermoPanel EPS	14
ThermoPanel product properties	14
ThermoSpan EPS	15
ThermoSpan product properties	15
Finishing	16
Reference	16

## GENERAL

This document is intended for designers and installers to ensure that Metalcraft Insulated Panels (ThermoSpan and ThermoPanel) are specified and installed correctly.

### SUPPORTING INFORMATION

This document must be read in conjunction with the:

- CodeMark certificate: GM-CM30078 (RevC).
- CodeMark Declaration.
- Metalcraft PASS™ (Product Assurance Supplier Statement) for ThermoSpan and ThermoPanel Insulated Panels (V2.2 / June 2019).
- Metalcraft Specification for ThermoSpan and ThermoPanel Insulated Panels.
- Metalcraft Care and Maintenance (V1/May 2017).
- Metalcraft Warranty General Terms and Conditions (V1/May 2017).
- ThermoSpan - Commercial Roofing Guide (CREPS / 14/12/2018).
- ThermoSpan - Residential Roofing Guide (RREPS / 2016).
- ThermoPanel EPS - Controlled Environment Guide (TPEPS / 14/12/2018).
- ThermoPanel EPS - Wall Details (TPWD / 14/12/2018).
- Metalcraft ThermoSpan and ThermoPanel Data and Span Tables
- Engineering Reviews and Detailing
- Insulated Panel Industry Guides

### USE OF METALCRAFT INSULATED PANELS

Metal faced insulated core panels are manufactured for use as finished roof and wall cladding systems.

The physical properties of insulated panels with weathertight tongue and groove edge profile allow for quick and efficient construction. The panels are lightweight, strong, durable and the panel core provides both thermal insulation and fire resistance.

The Metalcraft Insulated Panel System is a fully finished double sided internal/external wall and roofing system. When installed it may be overlaid with an internal or external lining if an alternative aesthetic appearance is required.

- The Metalcraft Insulated Panel System may be used as a structural panel system or non-load bearing system where it is fixed to a primary structural frame.
- The Metalcraft Insulated Panel System must be installed using ancillary products supplied with the system.
- The panels are manufactured from an expanded EPS core with factory laminated 0.59 mm COLORSTEEL® flat or profile facings. They are manufactured in the following thicknesses (mm): 50, 75, 100, 150, 200, 250, 300.
- Panels can be made to order in lengths up to 10 m.
- The Metalcraft Insulated Panels are branded as:
  - > ThermoPanel
  - > ThermoSpan
- System ancillary products supplied as part of the Metalcraft Insulation Panel System are:
  - 40 x 40 x 1.6 mm aluminium angles 12 mm hold-down bolts
  - 10 mm mushroom bolts
  - Flashings
  - Silicon sealant
  - 4.8 x 14.3 mm (ASMG63.66) aluminium rivets
  - 70 x 50 x 5 mm plate washers
  - 14 gauge self-drilling screws with 25 mm steel washer Silicone sealant



## METALCRAFT CODEMARK EXPLAINED

Metalcraft Insulated Panels is the certificate holder of CodeMark (GM-CM30078) for ThermoSpan and ThermoPanel Insulated EPS Panels. CodeMark is a third party certification, allowed for under the Building Act 2004. This means that under law, a Building Consent Authority must accept the specification of ThermoSpan and ThermoPanel EPS Insulated Panels (the panel and the installation details) as complying with the NZ Building Code, providing that all conditions of the certificate have been met.

Achieving CodeMark also focuses on the quality of ThermoSpan and ThermoPanel Insulated EPS Panels, and the quality and competence of the support provided by Metalcraft Insulated Panels. This means that designers and installers can use ThermoSpan and ThermoPanel Insulated EPS Panels with confidence that, providing all instructions are followed, ThermoSpan and ThermoPanel Insulated EPS Panels will result in building work complying with the NZ Building Code.

CodeMark Certificate- GM-CM30078 issued by Global-Mark Pty.

**Refer -** MBIE, Product Performance- <https://www.building.govt.nz/building-code-compliance/product-assurance-and-multiproof/>

## SCOPE OF USE

The Metalcraft Insulated Panel System is certified for use as a fully finished internal/external wall system within the following scope:

- The Metalcraft Insulated Panel System must be specified and designed in accordance with all Metalcraft Insulated Panel System technical documentation. Refer on-line [www.metalcraftgroup.co.nz](http://www.metalcraftgroup.co.nz) for current versions.
- In new buildings and where the Metalcraft Insulated Panel System is to be load bearing.
- In new buildings and where the Metalcraft Insulated Panel System is to be used as non-load bearing.
- Sub-floor and flooring structure (concrete, steel or timber) that comply with the NZ Building Code.
- A timber or steel framed structure that complies with the NZ Building Code.
- Existing buildings where the designer and installer are satisfied that the existing building is adequate for the intended building work.
- Joinery that complies with NZS4211:2008.
- A maximum building height of 10 m no closer than 1.0 m to the relevant boundary.
- Where compliance with G3.3.2 (a, b) is required, COLORSTEEL® CP-Antibacterial must be specified as the internal lining to the panel.

## LIMITATIONS

### Site conditions

1. The designer must consider the location regarding corrosion and environmental zones. The correct surface coating selection must be specified by the designer to ensure the long term performance of the Metalcraft Insulated Panel. The designer may refer to NZ Steel product selection table for (ISO Categories 1-5) or Metalcraft Insulated Panels for technical assistance.
2. The designer must consider the roofing profile in relation to roof slope to ensure that water can shed and allowance is made for snow loads in alpine conditions.
3. Metalcraft Insulated Panels can be used in wind zones up to and including extra high as defined in NZS 3604: 2011, section 5.
4. Metalcraft Insulated Panels have been tested to a wind pressure of 2.5kPa ULS where the design parameters exceed 2.5kPa specific design calculations in support of the proposed design will be required.
5. The designer must consider building location, proximity to relevant boundary and spread of fire AS/C1-6. ThermoSpan and ThermoPanel Insulated panels may not be suitable in these situations.
6. Where the Metalcraft Insulated Panel System is to be used in a microclimate (as defined in clause 4.2.2, NZS3604:2011) Metalcraft Insulated Panels must be consulted for technical advice.

### Building work conditions

1. Installation shall be carried out or supervised by someone who is experienced in installing insulated panels.

### APPLICATION OPTIONS

The panels are suitable for a broad range of application options. Not all of these options are specifically covered within this installation guide. The following are brief descriptions of these options and reference to the primary source of installation instructions for each option.

#### IMPORTANT

Always refer to the project's installation drawings to confirm the specified panel applications and any specific installation requirements which may vary from the information in this installation guide.

- **Exterior Walls** - the installation of panels for the typical construction of exterior walls is shown in this installation guide.
- **Interior Walls (Partitions)** - the installation of the panels for the construction of interior walls or partitions is similar to the installation of exterior walls as shown in this guide, with exception of the base framing and flashing which may vary from the details in this guide. **Caution:** *Because of the interference of interior overhead construction, the installation of interior walls may require different panel handling and lifting procedures than shown in this installation guide.*
- **Vertical Panels** - the wall panels may be specified to be vertically oriented. Vertical oriented wall panels are set standing up on one end and joined side-by-side to construct the wall. The vertical panels are attached to horizontal framing members. The information in this installation guide shows how panels are installed in a vertical orientation.
- **Horizontal Panels** - the wall panels may be specified to be horizontally oriented. Horizontal oriented wall panels are set on their side and stacked on top of one another to construct the wall. The panel ends are aligned to form vertical end joints. The horizontal panels are attached to vertical framing members.
- **Architectural Flat Panels** - for architectural wall applications, the panels may be specified with a flat (no profile) exterior face. The installation of Architectural Flat wall panels is the same as the installation of exterior walls as shown in the guide, with the exception that the wall framing tolerances and panel handling requirements are more critical to avoid visible distortion of the panel face.
- **Parapet Walls** - the installation of panels which are extended to provide a parapet is similar to the installation of exterior walls as shown in this installation guide, with the exception that different head framing and flashing may be required.
- **Facades** - the installation of panels to construct a facade is similar to the installation of exterior walls as shown in this installation guide, with the exception that different framing and flashing may be required. Refer to the project's installation drawings for the specific requirements.
- **Cold Storage** - the installation of panels for cold storage applications is similar to the installation of panels for non-cold storage applications, with the exception that different perimeter flashing assemblies may be required for more critical vapour control and insulation continuity.

The information in this guide shows the installation of typical flashing assemblies for both cold storage and non-cold storage applications.

**NOTE:** The details that relate to cold room construction are specific to this form of construction.



## RESTRICTED BUILDING WORK

In some applications Restricted Building Work (RBW) provisions will apply. It is the responsibility of the designer and installer to ensure that they have met their obligations under these provisions.

## DESIGNER/INSTALLER SKILL LEVEL

Where ThermoSpan and ThermoPanel Insulated EPS Panels are specified and/or installed the designer/installer should have the appropriate skills, knowledge of the product and access to all Metalcraft Insulated Panels technical information (refer [www.metalcraftpanels.co.nz](http://www.metalcraftpanels.co.nz)).

Where this Certificate is to be submitted with a building consent application, a signed declaration that the building work falls within the scope of this certificate and that all conditions of the certificate have been met must be submitted. The person signing this declaration must either have the appropriate Licensed Building Practitioner design license class for the building that is the subject of the building consent or be a Registered Architect or a Chartered Professional Engineer. They must also have ready access to all applicable technical documentation.

## HEALTH AND SAFETY

When installing ThermoSpan and ThermoPanel Insulated EPS Insulated Panels take all steps to ensure your safety and the safety of others.

- Ensure that when cutting or drilling ThermoSpan and ThermoPanel EPS panels there is adequate ventilation or mechanical extraction.
- Ensure the ThermoSpan and ThermoPanel EPS panel is well supported when cutting or drilling.
- Appropriate close-fit clothing should be worn at all times.
- Ensure eye, ear, hand and footwear protection is worn when working with ThermoSpan and ThermoPanel EPS panels.
- Ensure all panel cut edges are treated as potential hazards.

### Site Considerations

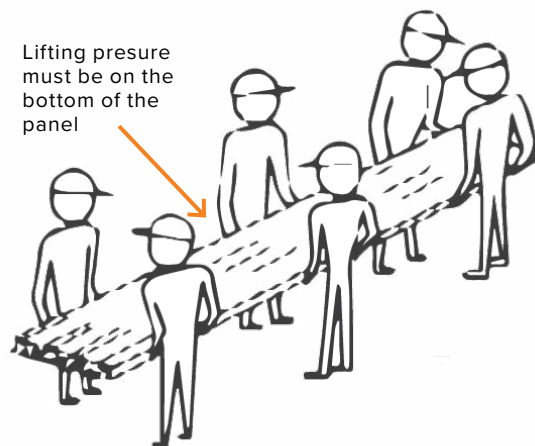
- Select the correct equipment for working from a height.
- Safe working with ladders and stepladders.
- Maintain a clear unobstructed work area.

## MANUAL HANDLING AND SETTING PANELS

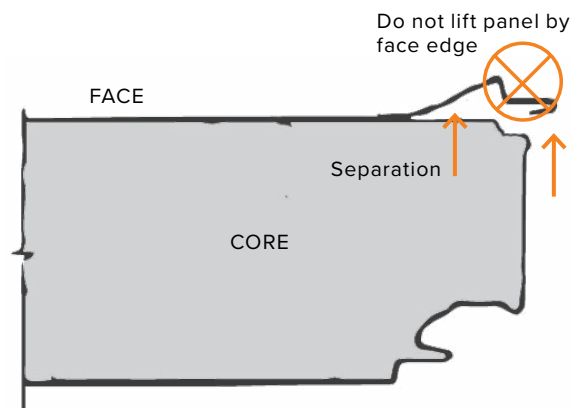
**Contractor's Responsibility** - improper handling of the panels can be hazardous to the workers and can cause damage to the panels and adjacent materials.

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

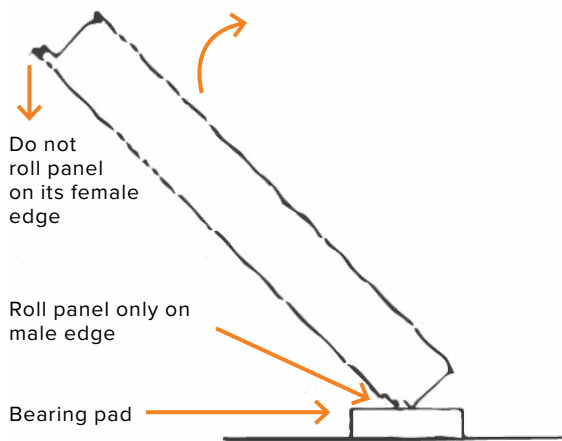
- **Caution** - Do not attempt to tilt up panels that are longer or heavier than the capability of the available manpower.
- **Manually handling panels** - lift the panels by a sufficient number of workers equally spaced along each edge of the panel, and lifting together so the panel does not sag or twist.



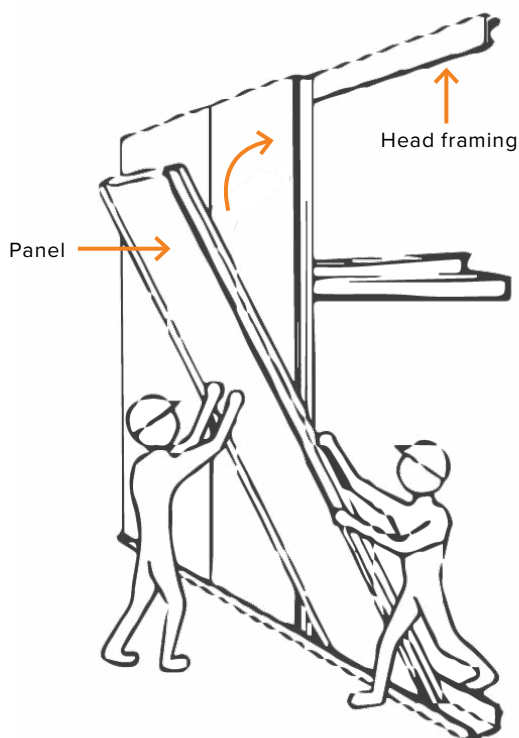
- **Face separation** - do not lift the panel by the edges of the topside face. This will cause the panel's face to separate from the core. The workers must lift only on the bottom face of the panel.



- **Blocking** - when a panel must be set on the ground, provide sufficient blocking so the panel is uniformly supported and is cushioned against face damage.
- **Turning panels** - when a panel must be turned over or tilted on its edge, roll the panel only onto its male edge and place cushioning material under the edge to prevent crushing and finish damage.



- **Setting the panel** - to manually set the panel, first check that the panel is ready to lift with its interior face turned upward. If not, the panel must be turned over.



- Lift the panel with a sufficient number of workers along each side and carry the panel to the building with its bottom end towards the building.
- Set the bottom end of the panel on the base and ensure that its edge is at least 1" clear of the edge of the previously installed panel.
- **Caution** - Use extreme care that the workers' fingers and feet are clear of the bottom end of the panel when the panel is being set.
- Pivoting the panel on its bottom end, tilt the panel upward into place against the support framing. Refer to the following panel installation details for further instructions on setting the panel and engaging the panel side joint.

### PROPER EQUIPMENT

Before receiving the materials and before starting the panel installation, the panel installer must ensure that the proper equipment and tools are on hand.

Handling and setting the individual panels will require suitable lifting equipment. The lifting equipment must be capable of carrying the panel's weight without damage to the panel and must be capable of the job site's travel and reach requirements.

In all cases, reference the equipment manufacturer's instructions to ensure that the equipment is of sufficient capacity for the panel's weight and length and to ensure the proper and safe operation of the equipment.

**Refer** - Metalcraft Insulated Panel System Site Specific Safety Plan checklist (V1 April 2008).

### STRUCTURAL PANEL WALL BRACING

Metalcraft ThermoSpan and ThermoPanel can be used as a structural bracing panel in most forms of construction. Bracing values can be assigned to the panels where used with a primary structural frame or stand-alone structural panel. Bracing units (BU's) can be derived from Metalcraft panel thicknesses of 100 mm and greater.



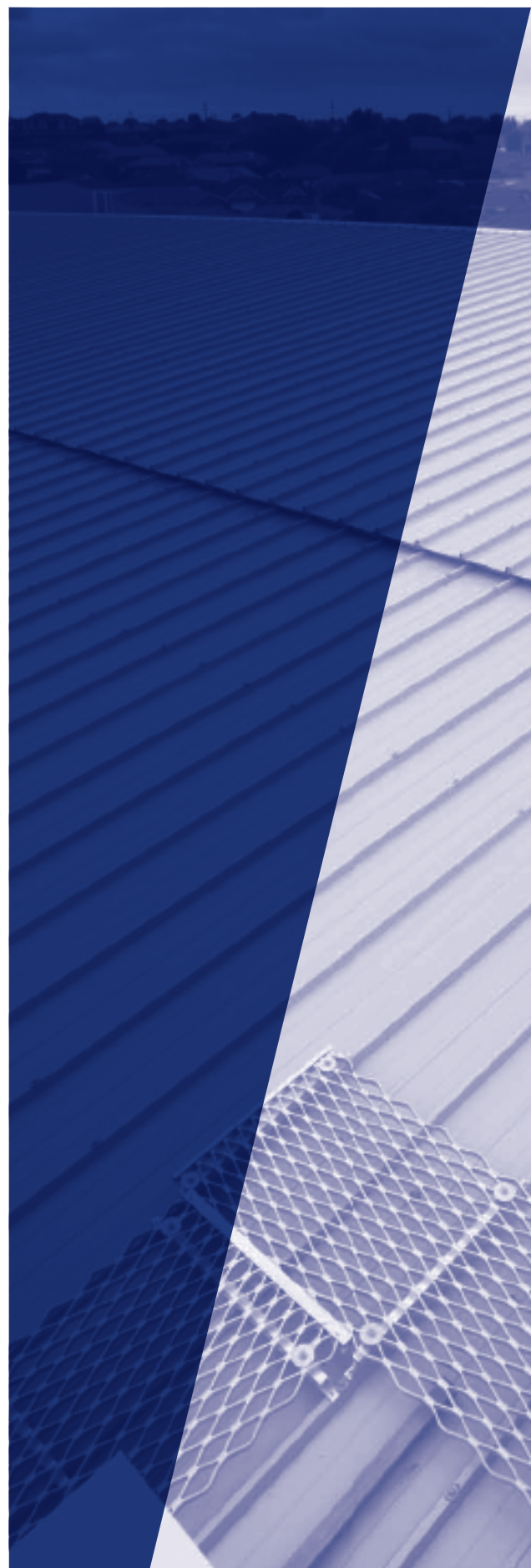
The use of BU's is intended for use with NZ3604 LTF types of construction and the BU rating assumes inherent redundancies associated with LTF buildings. BU capacities are not based on characteristic values but on mean ultimate values. Design engineers should be aware of these crucial differences and makes appropriate allowance for the resistance of critical structural elements. Consequently, where specifically designed bracing systems eg: steel portal frames or similar are used in conjunction with Metalcraft wall panel bracing systems, the use of strength reduction factors may be appropriate.

It is noted that, in the design of SED bracing elements such as steel portal frames, the SLS limit for steel portal frame usually determines the frame size, so the above factors are not likely to influence design of SED bracing systems if an appropriate rational **displacement based design** methodology is used.

Brace Type	MC-T12	MC-T6
<b>Panel Type</b>	ThermoPanel	ThermoPanel
<b>Core type</b>	EPS	EPS
<b>Minimum length (mm)</b>	1200	610
<b>Wind BU/m*</b>	161	105
<b>EQ BU/m*</b>	175	116

#### NOTES

1. Based on a test wall height of 2.4 m (capacity adjustment for walls of other heights).
2. \*Maximum BU/m= 120 for timber floors.
3. \*Maximum BU/m= 150 for concrete floors.
4. 100BU's = 5kN ie: 1kN = 20Bu's.
5. Higher values indicated maybe used with SED subject to CPEng (NZ) engineer verifying the capacity of the hold-down connections.
6. Panels with large openings are not considered suitable as bracing panels ie: only panels with small penetrations such as power outlets and pipe penetrations less than 40 mm in diameter maybe used for bracing.

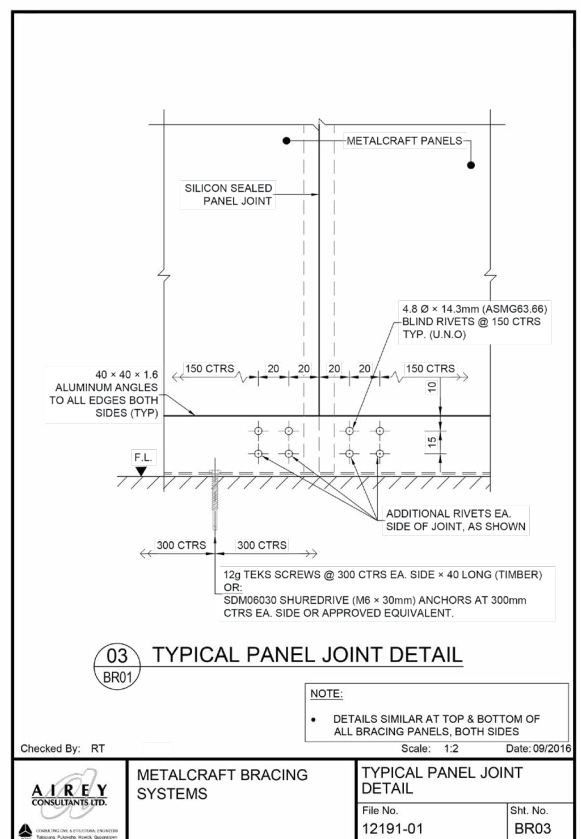
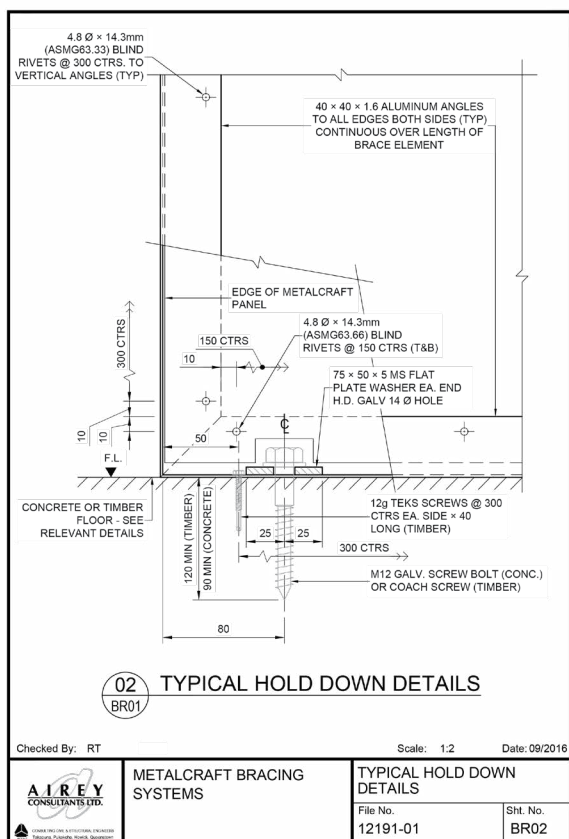
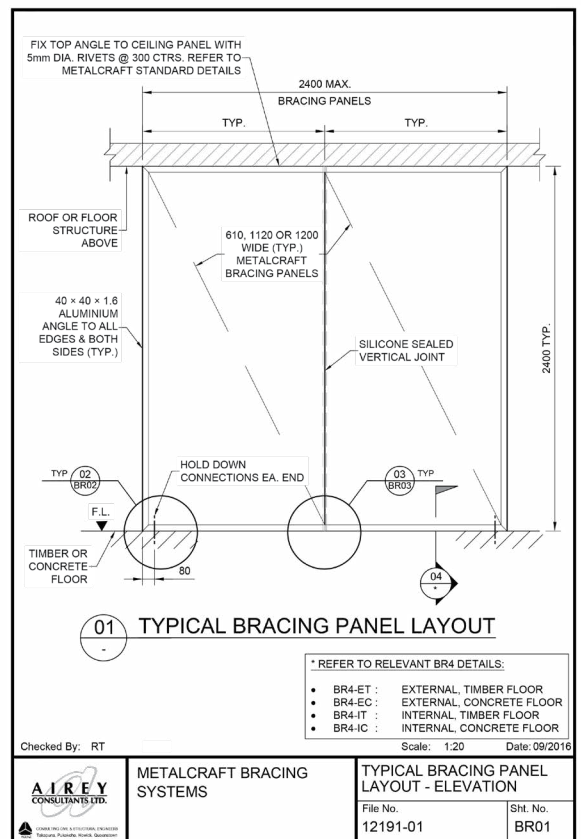


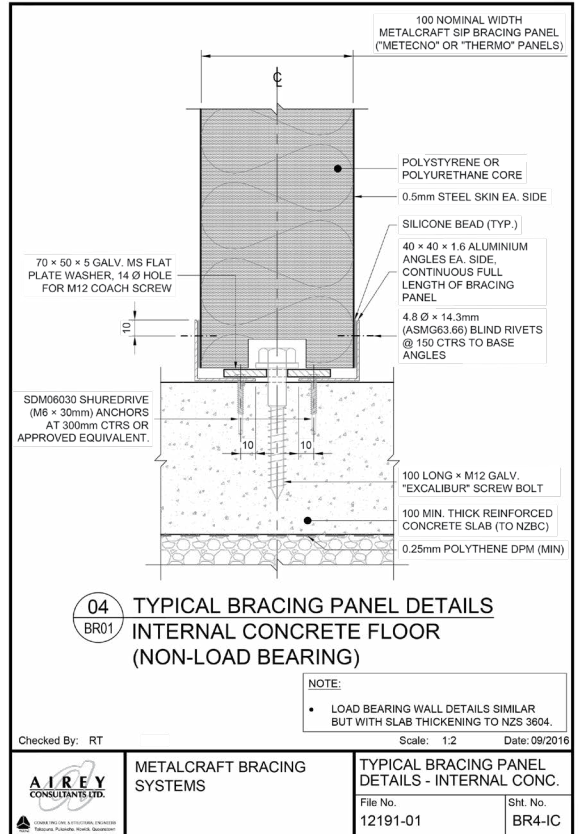
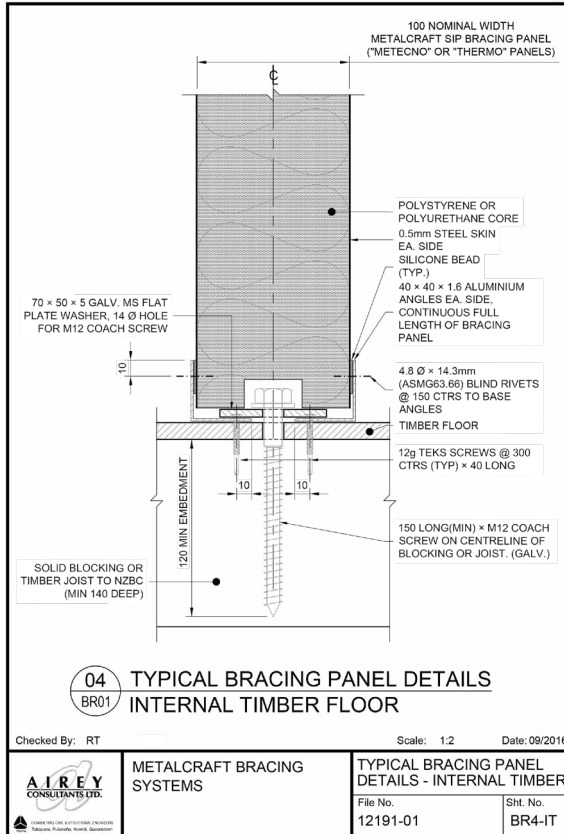
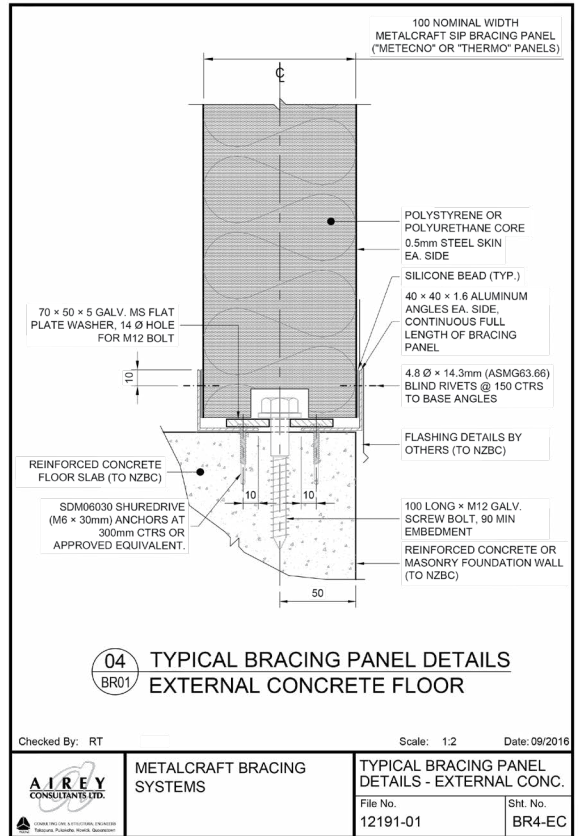
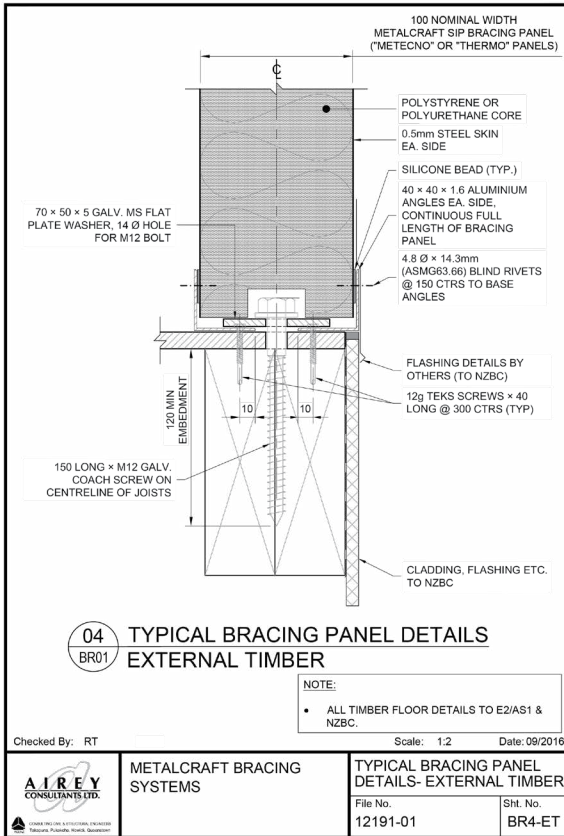
## CAPACITY ADJUSTMENT FOR DIFFERENT WALL LENGTHS

The P21 test method allows the bracing capacity in BU's/m determined from the test to be applied to walls up to twice the tested wall length eg: for all test wall length of 1.12 m, the bracing capacity maybe applied to wall up to 2.4 m in length.

## CAPACITY ADJUSTMENT FOR DIFFERENT HEIGHTS

The bracing capacity has been derived from tests of 2.4 m high panels. NZS3604:2011 Sec 8.3.1.4 applies a pro-rata factor to the capacity of walls of heights greater than 2.4 m but no adjustment is permitted for walls less than 2.1 m ie the rating must be the same as if the wall was 2.4 m high.





## THERMOSPAN AND THERMOPANEL STRENGTH AND FIXING CAPACITIES Metalcraft Panel Specification.

The panel strength data in this document applies to Metalcraft Panel with 0.6 mm steel skins structurally bonded to a core of S grade expanded polystyrene (EPS). The steel has yield strength of 300 MPa.

### Notes

1. Permissible pressure values incorporate a factor of safety of 1.8 on ultimate strength.
2. This table applies to live loads only. For dead loads (eg long term loads) the strength capacity is reduced – refer to Metalcraft in such cases.
3. Calculate Ultimate Limit State Value (kPa) = Permissible (kPa) Value from table x 1.8 (Saf. factor) x 0.9 (material factor).

**Metalcraft Panel Span Table for Uniform Live Loads (including wind loads)**

Panel span (mm)	Permissible Uniform Pressure Values (kPa) for various panel thicknesses							
	50	75	100	125	150	175	200	250
2500	1.61	-	-	-	-	-	-	-
3000	1.12	1.68	2.24	2.80	-	-	-	-
3500	0.82	1.23	1.64	2.05	2.46	2.88	-	-
4000	0.63	0.94	1.26	1.57	1.89	2.20	2.52	-
4500	0.49	0.74	0.99	1.24	1.49	1.74	1.99	2.48
5000	-	0.60	0.80	1.00	1.20	1.41	1.61	2.01
5500	-	0.49	0.66	0.83	0.99	1.16	1.33	1.66
6000	-	-	0.56	0.70	0.84	0.98	1.12	1.40
6500	-	-	-	0.59	0.71	0.83	0.95	1.19
7000	-	-	-	-	0.61	0.72	0.82	1.02
7500	-	-	-	-	-	0.62	0.71	0.89
8000	-	-	-	-	-	0.55	0.63	0.78

### METALCRAFT PANEL FIXINGS

- For Metalcraft Mushroom fixing with 10 mm threaded steel rod installed to Metalcraft details, Load Capacity perpendicular to face of the panel = 3 kN Permissible. Load Capacity parallel to and at the face of the panel = 1.0 kN Permissible.
- For 4mm (5/16") aluminium rivets attaching thin metal sections to Metalcraft panel skins, Shear Capacity of the connection = 0.45 kN Permissible per-rivet. For the shear capacity of a multi riveted connection, add the shear capacity of each rivet, provided the rivets considered are spaced at or more than 100 mm.

- For a 14 gauge Tek screw with 25 diameter steel washer fixed through the panel, the permissible live load fixing capacity in the Metalcraft panel part of the connection is:
  - at 100 mm from the Metalcraft panel edge = 1.5 kN.
  - at 50 mm from the Metalcraft panel edge = 0.6 kN.



**Notes**

1. Pressures are maximum permissible values with a safety factor of 1.8 on the ultimate mean failure load.
2. Where required, Ultimate Limit State Pressure values are obtained by multiplying table values by 1.8 (Safety factor) and 0.9 (Material factor).  
ie, Ultimate Limit State value (kPa) = Table value x 1.8 x 0.9 (kPa).
3. The maximum permissible pull-out load on a rib fixing is 1.8 kN. Always check that adequate fixing capacity is provided.
4. The spans are for single spans ie panel supported at the ends. The spans in multi-span cases are no greater than for the single span case.
5. The maximum overhang is 0.25 times the maximum span for the given conditions, provided this value does not exceed 600 mm for 50 ThermoSpan®, 1000 mm for 75 ThermoSpan® and 1200 mm for 90 ThermoSpan®.

**THERMOSPAN PANEL SPAN TABLE**

Thickness (mm)	Span (mm)															
	1500	1800	2100	2400	2700	3000	3300	3600	3900	4100	4500	4800	5100	5400	5700	6000
50	2.88	2.4	2.06	1.8	1.6	1.44	1.21	1.02	0.87	0.79	0.65	0.57	0.51	0.45	-	-
75	3	2.5	2.14	1.87	1.67	1.5	1.36	1.25	1.15	1.1	0.93	0.82	0.72	0.64	0.58	0.52
90	3.61	3	2.58	2.25	2	1.8	1.64	1.5	1.39	1.32	1.13	0.99	0.88	0.78	0.7	0.63
125	-	-	-	-	-	-	-	-	-	1.88	1.56	1.37	1.21	1.08	0.97	0.87
150	-	-	-	-	-	-	-	-	-	2.25	1.87	1.64	1.45	1.3	1.16	1.05

**ENGINEERING DETAILS**

	POLYPHEN	PIR	EPS
Water absorption W/V%	Very low	Very low	Very low
Crushing/compressive strength to 10% deformation	126kPa	>100kPa - average 130	86Kpa
Cross breaking strength	248kPa	240kPa	186kPa
Thermal control	Good	Best	Good
Recyclable	Yes	Yes	Yes
Workability	Excellent. No requirement for protection	Dust masks recommended	Excellent. No requirement for protection
Span capabilities	Good	Good	Better

**NOMINAL WEIGHTS (KG.M2)**

	PIR	EPS
50 mm	12.0	11.6
75 mm	13.0	12.0
100 mm	14.0	12.3
150 mm	15.5	13.1
200 mm	N/A	13.9
250 mm	N/A	N/A

**THERMAL RESISTANCE  
(R VALUE AT 15 DEGREES C)**

	PIR	EPS
50 mm	2.4	1.31
75 mm	3.6	1.96
100 mm	4.8	2.62
150 mm	7.1	3.92
200 mm	N/A	5.23
250 mm	N/A	6.54

**DIMENSIONS AND TOLERANCES**

BUILDING COMPONENT	PROFILE	EFFECTIVE COVER ±1 MM	MIN. LENGTH ±1 5 MM	MIN. ROOF PITCH
Wall & Ceilings - ThermoPanel	Flat, Ribbed, Satin Line	1200 mm	500 mm	N/A
Roofing - ThermoSpan	Flat, Ribbed, Satin Line	1000 mm	500 mm	3°
Roofing - ThermoPanel	Flat, Ribbed, Satin Line	1200 mm	500 mm	3°

**COMPLIANCE WITH THE NEW ZEALAND  
BUILDING CODE (NZBC)**

Where the Metalcraft Insulated Panel System is designed, installed and maintained in accordance with the conditions of CodeMark Certificate (No. GM-CM30078) the panel system will comply or contribute to compliance with the NZ Building Code.

**WARRANTY GENERAL TERMS AND  
CONDITIONS**

The warranty applies to Metalcraft Insulated Panel System where used in accordance with Metalcraft Insulated Panel Systems Information and requirements for a period: 15 years.

In addition to the Metalcraft Insulated Panel System warranty, NZ Steel warranty their 0.6mm COLORSTEEL® steel and coatings (subject to their specific warranty conditions).

**Refer:** Metalcraft Insulated Panels, Warranty General Terms and Conditions (v1/May 2017)

**Refer:** NZ Steel- <http://www.COLORSTEEL®.co.nz/products/COLORSTEEL®-maxx/>

**Notes**

1. Roof pitches will vary depending on the site conditions, loads, purpose, configuration, snow loading and span requirements.
2. Building designed with widely spaced purlins and portal frames may require a frame pitch increase of 1.2%.
3. The Metalcraft Insulated Panel is an Alternative Solution under NZBC. The Metalcraft Insulated Panel is a deemed to comply building method, providing all conditions of the Certificate of Conformity are met.



## THERMOPANEL EPS

ThermoPanel EPS is a stressed skin sandwich panel, comprised of pre-painted steel skins continuously laminated over a fire retardant Polystyrene (EPS) core. The EPS core is fire retardant. ThermoPanel EPS is available in a range of colours with a variety of profile finishes, providing greater strength in walls and a clean, smooth aesthetic look.

## PRODUCT PROPERTIES

**Width:** 1200 mm

**Panel external facing:** 0.59 mm CP grade prepainted galvanised steel. Titania colour standard.

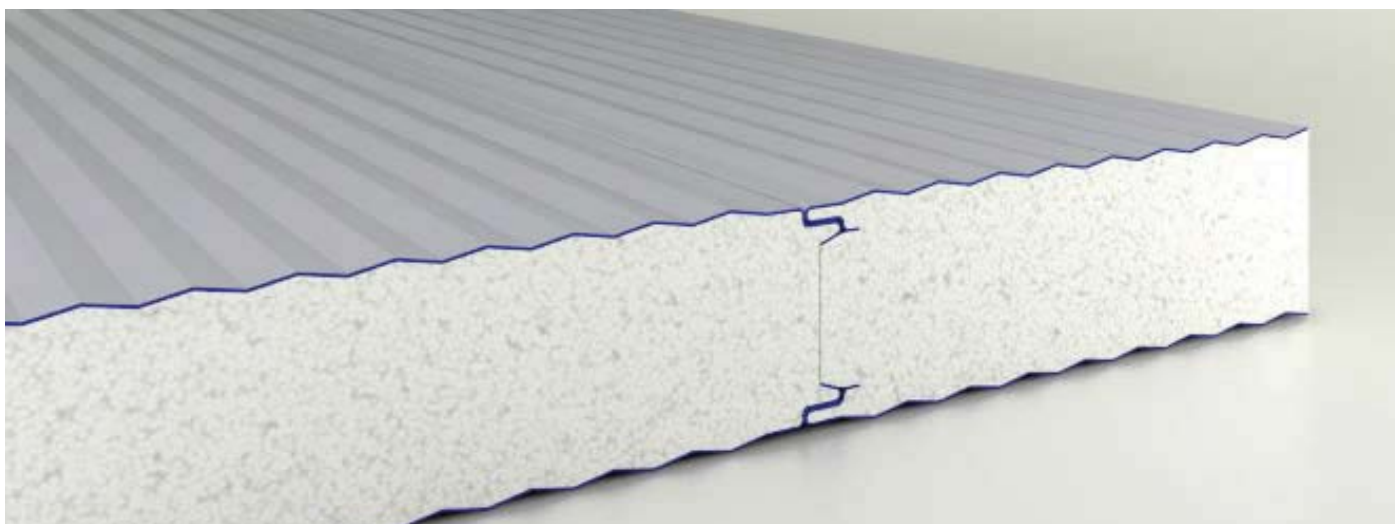
**Panel internal facing:** 0.59 mm CP grade prepainted galvanised steel. Titania colour standard.

**Panel Core:** Class S Standard

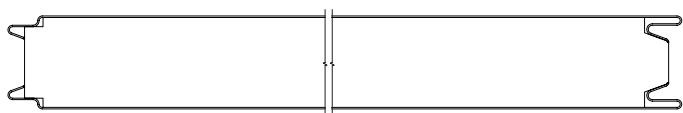
**Fire rated:** No

**Fire resistant:** No

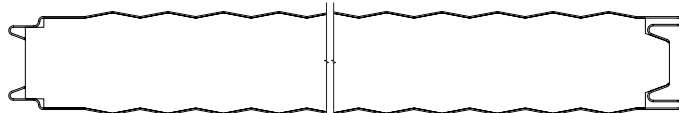
**FM approved:** No



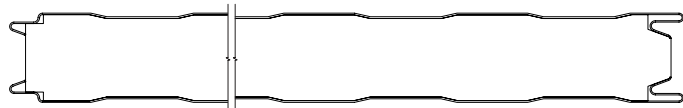
### PROFILE FINISH: FLAT



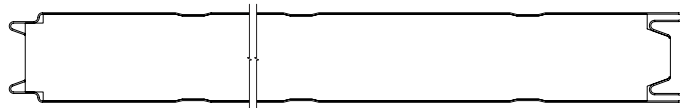
### PROFILE FINISH: SILKLINE



### PROFILE FINISH: MESA



### PROFILE FINISH: RIBBED



THICKNESS (MM)	50	70	100	125	150	200	250
MASS 9KG/M <sup>2</sup>	11.30	11.60	12.00	12.30	12.70	13.30	14.00
U VALUE (W/M <sup>2</sup> K)	0.76	0.51	0.38	0.30	0.25	0.19	0.15
R VALUE (M <sup>2</sup> K/W)	1.32	1.97	2.63	3.29	3.95	5.26	6.58

**THERMOSPAN EPS**

ThermoSpan EPS consists of a 0.59 mm profiled roofing sheet bonded to an EPS core with a ceiling panel sheet bonded to the underside. ThermoSpan EPS has a fire retardant EPS core and is available with a range of colour and ceiling profile finishes.

**PRODUCT PROPERTIES**

**Width:** 1000 mm

**Panel external facing:** 0.59 mm CP grade prepainted galvanised steel. Titania colour standard.

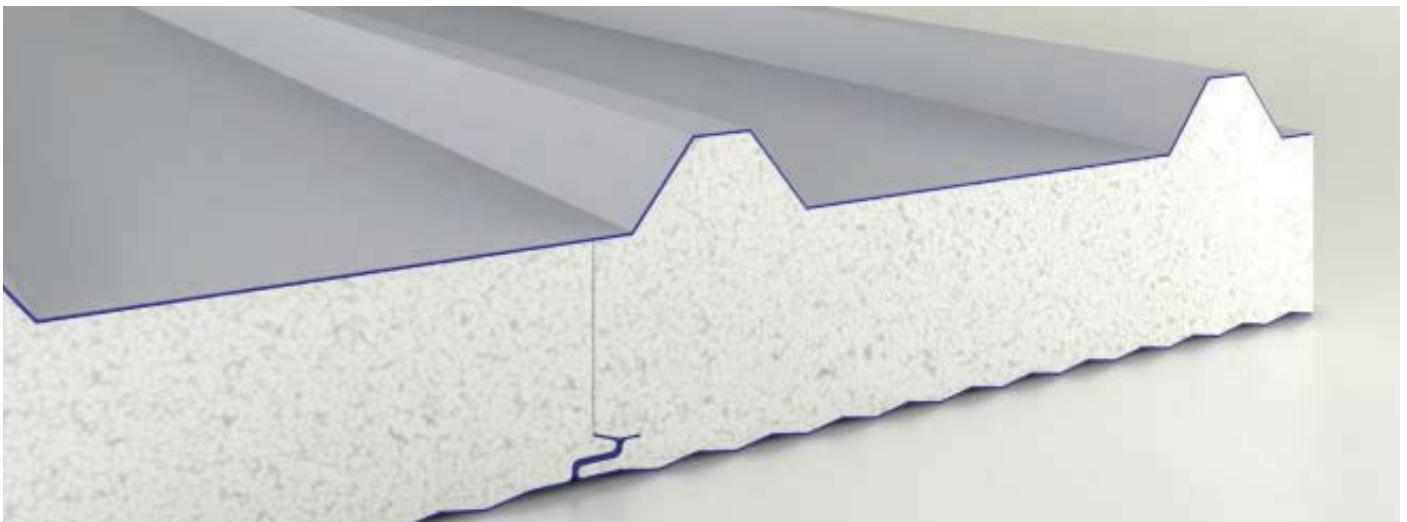
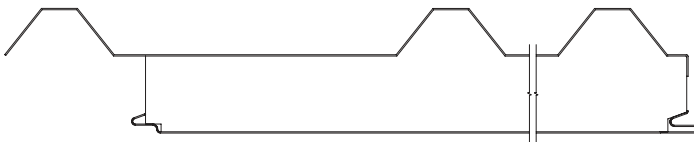
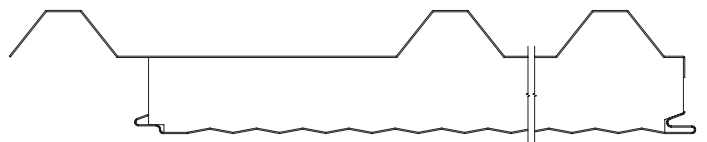
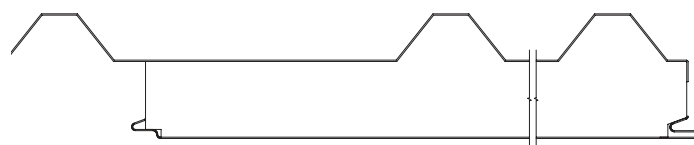
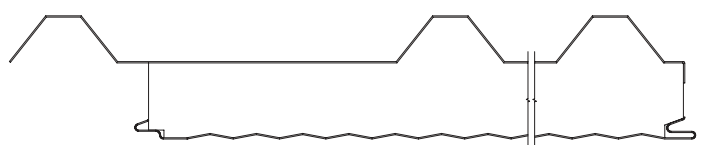
**Panel internal facing:** 0.59 mm CP grade prepainted galvanised steel. Titania colour standard.

**Panel Core:** Class S Standard

**Fire rated:** No

**Fire resistant:** No

**FM approved:** No

**PROFILE FINISH: FLAT****PROFILE FINISH: SILKLINE****PROFILE FINISH: MESA****PROFILE FINISH: RIBBED**

THICKNESS (MM)	50	70	100	125	150	200	250
MASS 9KG/M <sup>2</sup>	11.30	11.60	12.00	12.30	12.70	13.30	14.00
U VALUE (W/M <sup>2</sup> K)	0.76	0.51	0.38	0.30	0.25	0.19	0.15
R VALUE (M <sup>2</sup> K/W)	1.32	1.97	2.63	3.29	3.95	5.26	6.58



## FINISHING

Metalcraft Insulated panels are dispatched from the factory with a plastic protective film. Once removed, no additional surface finishing is required.

The surface coating applied to Metalcraft Insulated Panel by NZ Steel is a high quality durable surface coating that provides the coating is not scratched or damaged it will require no additional work.

It is recommended that all/any flashings required for weatherproofing or finishing should be specified at the time of design and be of the same grade and surface coatings as the insulated panel skin.

Ensure all exposed fixings are durable or adequate protective coatings are applied. The installer is responsible for the removal of all construction debris including metal off-cuts, filings and swarf.

Remove all paint or concrete splash or similar material from the panel finished surface.

Ensure the building owner or agent has a copy of the Metalcraft Insulated Panels, Care and Maintenance and Warranty General Terms and Conditions documents.

## REFERENCE

### Standards-

- NZS3604: 2011- Light Timber Framed Buildings
- AS/NZS 1170: 2002- Structural Design Actions
- NZS4211:2008- Specification for performance of windows

### Legislation

- New Zealand Building Code: 1992
- NZ Building Act: 2004
- Product Assurance- Codemark (Certificate of Conformity No. GM-CM 30078)
- Health and Safety in Employment Act 1992

### Additional resources

- Insulated Panel Council Australasia Ltd (IPCA)- Code of Practice (004.3:2007)  
Ref- <http://www.insulatedpanelcouncil.org/code-of-practice-v2/>
- NZ Steel product and technical information



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