



## MetecnoPanel® Information Guide

## Introduction

Bondor® has been the market leader in providing light weight thermal building products to the Australasian market since the 1950's. We understand the Australasian market, its harsh climatic conditions and local building standards and regulations.

MetecnoPanel® is an Australian made light weight sandwich panel with PIR fire-retardant core between two sheets of Bluescope Colorbond® Steel. As a standard, 0.60mm Colorbond® Steel is used for a superior finish and strength, however MetecnoPanel® is also available in 0.50mm and other alternative skins. MetecnoPanel® is FM Approved to FM 4880 – No Height Restriction.

MetecnoPanel® is suitable for all insulated panel applications including cold stores and freezers. It is also used in developments such as supermarkets, bulk goods, fast food and retail outlets as well as commercial and industrial premises. It is ideal where superior thermal performance and FM approval for insurance purposes is required.

The manufacturing process involves expanding PIR (rigid foam) between two skins of Colorbond® Steel, forming an exceptionally strong and durable, fire retardant building panel. MetecnoPanel® uses pentane as the blowing agent which has zero ozone depleting potential. Panel thicknesses of 50, 75, 100, 150 and 200mm provide varying levels of thermal, fire and span performance to meet the most stringent design criteria. The panel's exceptional strength allows greater spans and a substantial reduction in the buildings support structure.

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## MetecnoPanel® is the Answer

If you're looking for increased energy efficiency, reduced life cycle costs and insurer approved fire risk reduction properties, then MetecnoPanel® is the answer.

## What is PIR?

Polyisocyanurate (PIR) is rigid polyurethane foam made, as all rigid polyurethanes are, by mixing two chemical streams (isocyanate and polyol) with appropriate catalysts and a blowing agent.

In PIR, the isocyanate-to-polyol ratio is greatly increased to create an ISO/ISO reaction that finely disperses a fire-retardant trimer throughout the foam.

NB: MetecnoPanel® is manufactured using pentane as the blowing agent, which has zero ozone-depleting potential.



## Features and Benefits

- ✓ Fast, simple, safe install techniques
- ✓ FM Approved
- ✓ Environmentally responsible systems – Zero ODP, reduced carbon emissions
- ✓ Energy efficient performance reducing cost over the life of the building
- ✓ Composite panel strength allowing reduced structural costs
- ✓ Durable construction, long life cycle and extensive Australian warranty
- ✓ Insulation maintains its integrity over time
- ✓ Earlier occupation generating vital cash flow
- ✓ Lightweight alternative to masonry construction

## Thermal Insulation

| Panel Thickness (mm)     | 50   | 75   | 100  | 150  | 200  |
|--------------------------|------|------|------|------|------|
| 'R' (m <sup>2</sup> K/W) | 2.4  | 3.6  | 4.8  | 7.1  | 9.1  |
| 'U' (W/m <sup>2</sup> W) | 0.41 | 0.28 | 0.21 | 0.14 | 0.11 |

## Fire Hazard Properties

AS 1530.3 Indices

| Ignitability Index | Spread of Flame Index | Heat Evolved Index | Smoke Index |
|--------------------|-----------------------|--------------------|-------------|
| 0                  | 0                     | 0                  | 1           |

## Acoustic

Rw value for MetecnoPanel® ranges from 25 to 27 depending on thickness. Refer to Bondor® for your specific application.

## Spans

Bondor® provides the latest Ultimate Limit State load tables specifically developed for Australasian conditions. Whether you are selecting MetecnoPanel® for cyclonic or non cyclonic locations, our tables make selecting the right span and panel thickness easy.

### 3-Step Panel Selection

- Determine thermal and fire performance requirement
- Determine worst case fully factored design wind load that applies to any roof panel (kPa) in ULS (Ultimate Limit State)
- Select appropriate span vs. thickness from Region A or B table for single or multi-span case

Note that spans can be reduced at building edges by appropriate building design.

## Non-Cyclonic Region A and B (Wall Applications Only)

### Single span, wind pressure acting inwards/outwards

Maximum uniformly distributed ULS design wind load (kPa) for the given span:

| Span (m) | 1.5   | 2.7  | 3.9  | 5.1  | 6.3  | 7.5  | 8.7  | 9.9  | Panel Mass kg/m <sup>2</sup> |
|----------|-------|------|------|------|------|------|------|------|------------------------------|
| 50mm     | 2.93  | 1.63 | 1.10 | 0.64 | 0.37 | -    | -    | -    | 12.03                        |
| 75mm     | 4.39  | 2.44 | 1.65 | 0.96 | 0.63 | 0.45 | 0.33 | -    | 13.00                        |
| 100mm    | 5.86  | 3.25 | 2.20 | 1.28 | 0.84 | 0.59 | 0.44 | 0.34 | 13.99                        |
| 150mm    | 8.79  | 4.88 | 3.29 | 1.93 | 1.26 | 0.89 | 0.66 | 0.51 | 15.49                        |
| 200mm    | 11.72 | 6.51 | 4.39 | 2.57 | 1.68 | 1.19 | 0.88 | 0.68 | 17.39                        |

### Multi-span, wind pressure acting inwards/outwards

Maximum uniformly distributed ULS design wind load (kPa) for the given span:

| Span (m) | 1.5  | 2.7  | 3.9  | 5.1  | 6.3  | 7.5  | 8.7  | 9.9  | Panel Mass kg/m <sup>2</sup> |
|----------|------|------|------|------|------|------|------|------|------------------------------|
| 50mm     | 2.34 | 1.30 | 0.90 | 0.64 | 0.42 | 0.30 | -    | -    | 12.03                        |
| 75mm     | 3.52 | 1.95 | 1.35 | 0.96 | 0.63 | 0.45 | 0.33 | 0.26 | 13.00                        |
| 100mm    | 4.69 | 2.60 | 1.80 | 1.28 | 0.84 | 0.59 | 0.44 | 0.34 | 13.99                        |
| 150mm    | 7.03 | 3.91 | 2.70 | 1.93 | 1.26 | 0.89 | 0.66 | 0.51 | 15.49                        |
| 200mm    | 9.37 | 5.21 | 3.61 | 2.57 | 1.68 | 1.19 | 0.88 | 0.68 | 17.39                        |

#### Notes:

1. Pressures specified are for wind gusts only per AS1170.
2. Deflection limit of span/150 applies, and in accordance with Serviceability Limit State criteria per AS1170 – TABLE C1.
3. 14g tek screws (x4 off) or mushroom head bolts (x2 off) minimum per fixing point are required.
4. Extended span tables including cyclonic regions C&D are also available. Refer Bondor®.



## MetecnoPanel® Finishes and Specifications

### Product Specification

MetecnoPanel® insulated wall and ceiling panels have the following specifications.

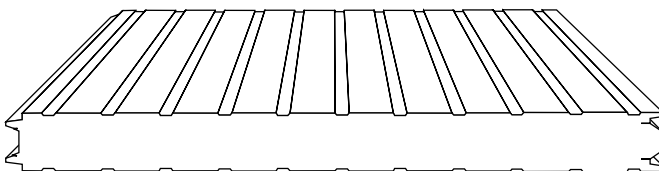
**The external and internal cladding skin** is manufactured with 0.60 G300 coated steel to AS1397. Colour to be nominated from BlueScope Colorbond® chart – standard is SurfMist®/ Permaguard® White (Anti-Bacterial).

**The insulated core** is available in a choice of 50, 75, 100, 150 or 200mm thick, polyisocyanurate (PIR) with zero ODP. The PIR core bonds to the inside and outside skin during manufacture.

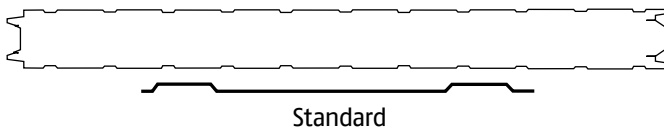
**Flashings** are manufactured from 0.55 G300, AZ150 BlueScope Colorbond® Steel and installed to Australian Standards.



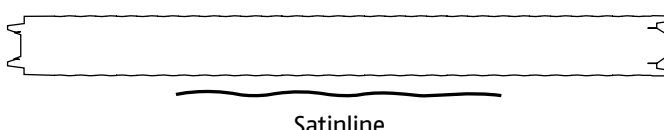
Composite panels are interlocked together.



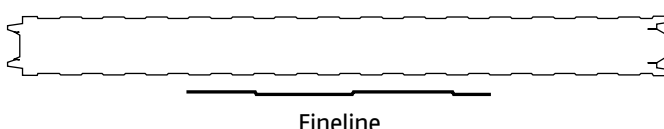
Detail of MetecnoPanel® joint. MetecnoPanel® wall section.



Standard



Satinline



Fineline



A combination of tests by accredited external facilities and our own in house laboratories assure MetecnoPanel® quality and performance.

### Fire

In many cases, MetecnoPanel® PIR panel is installed simply because of its superior thermal performance, cost savings and buildability. In these applications, MetecnoPanel®'s fire retardant characteristics are an added benefit.

In other cases, where specific fire certification is required, MetecnoPanel® can meet the most stringent performance requirements. Bondor® has gained approval for both PIR & Mineral Wool core wall and ceiling panels for FM4880 – No Height Restriction.

### Certification for Insurers

FM Approvals certifies industrial and commercial products and services for companies worldwide. They test materials and carefully appraise the construction methods vital to fire protection system certification.

Various FM Approved products apply for different applications:

- Wall construction requiring non combustible ceilings
- Wall and ceiling construction Class 1, rated to a ceiling height of 9.1 metres or No Height Restriction approval as required

To achieve Class 1 approval, performance in the following classifications must be satisfied:

- UB 26-3 Room test
- ASTM E84 Surface burning characteristics
- ASTM D482 Ignition residue test



## Professional Design Assistance

Bondor® offer specialist assistance during the early design and documentation phase. We have a dedicated in house technical team ready to assist with all design and engineering aspects of material finish, fire performance, panel spans, installation, thermal & acoustic performance. If you have a question, just ask. We're here to help.

## Packing For Shipment

MetecnoPanel® panels are manufactured with a protective film applied to both the internal & external skins. Panels per pack depend on the panel thickness. Long lengths are subject to reduced pack height. The maximum sheet length is 16.0 metres and the maximum pack height is 1.2 metres. All packs have MDF liner sheets applied to the top and bottom as well as metal packing angles to protect the panel during transport (Fig. 2).

## Delivery To Site

All deliveries are by road transport direct to site or store as arranged. To secure panels, cargo straps should be spaced approximately every 2.0m (Fig. 3). Unloading remains the client's responsibility. For lifting panels > 9.0m or flexible panels (e.g. Purline), use of a slip-on fork spreader is recommended (refer Fig. 4). Refer to figures 5 and 6 for recommended steps to unload panels of less than and greater than 8m in length. Panels should always be kept dry and if placed on site, stored off the ground, slightly inclined, allowing adequate drainage and ventilation of the panel pack.

## Maintenance Recommendation

All exterior metal surfaces not exposed to wash down by rain will benefit from occasional washing to remove a build-up of pollutants and corrosive salts. Refer to BlueScope steel Technical Bulletin, figure 7.

## Warranties

Bondor® provides project specific product warranties. Project warranty assessments can be provided during the design phase to assist with material finish selection. Our warranties are supported by our exclusive steel supplier, BlueScope Steel.



Fig. 1. Specifier Sample Kit.



Fig. 2. Sample of Packing Arrangement for Shipping.

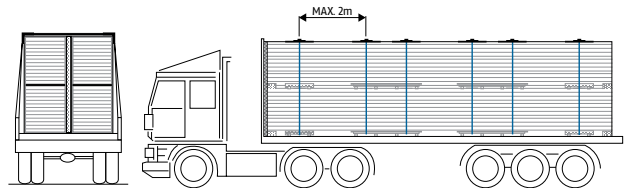


Fig. 3. Positioning of Panel Packs and Cargo Strap.

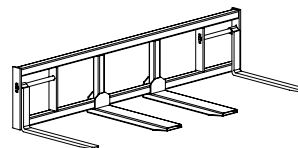


Fig. 4. Slip-On Fork Spreader.

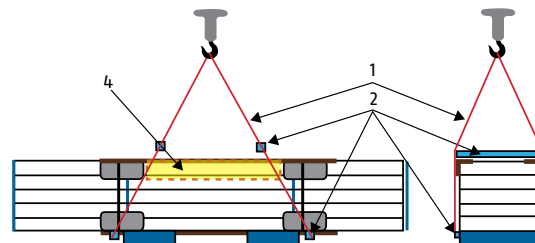


Fig. 5. Unloading of Panels of < 8.0m: 1. Lifting Sling; 2. Sling Separator (Timber/Channels).

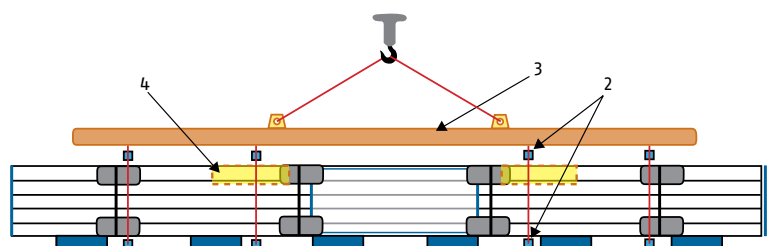


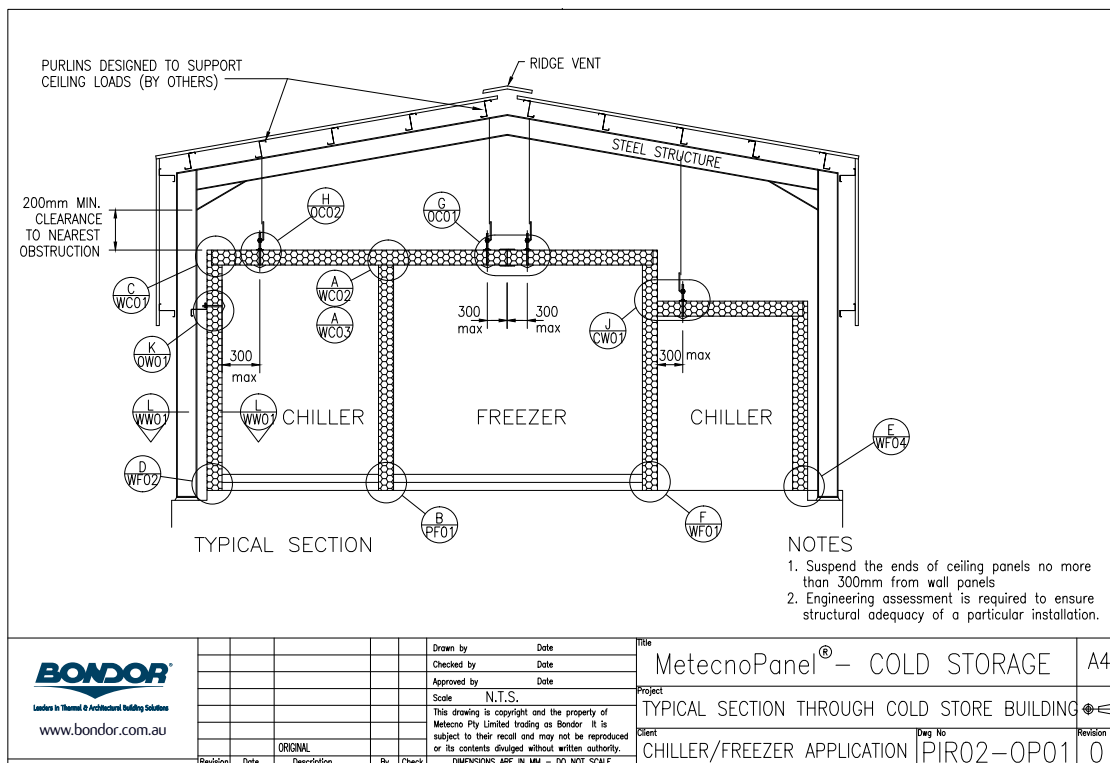
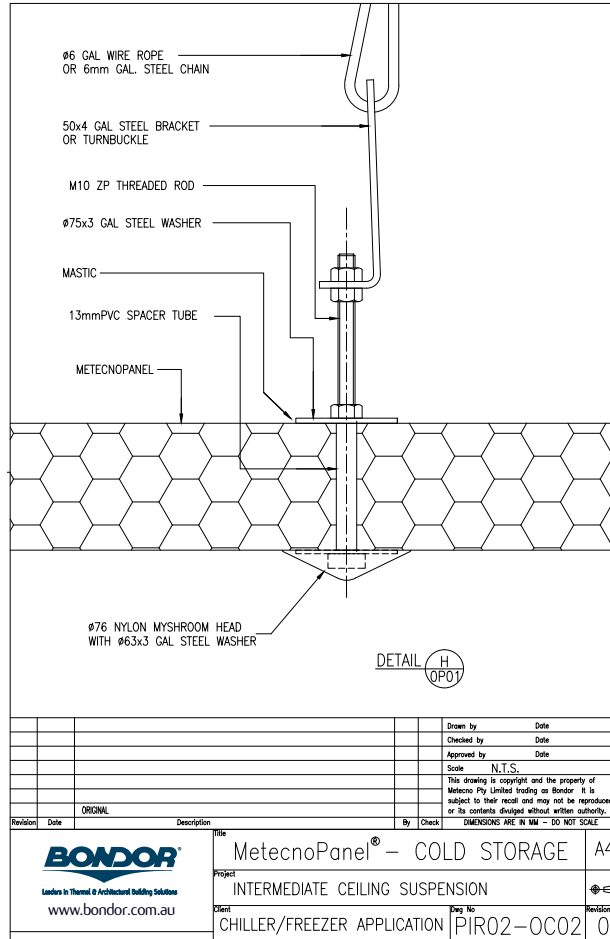
Fig. 6. Unloading of Panels of > 8.0 m: 3. Spreader Beam; 4. Strap-down Corner Angles.



Fig. 7. Bluescope Technical Bulletin.

## Standard Construction Drawings

Contact your Bondor® for recommended construction drawings for MetecnoPanel® installations.





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