STRUCTApanel H2

9mm Structural Panelling

Installation Guide

Bracing

Australian PANELS

www.australianpanels.com.au

Responsible Wood

PEFC

PEFC/21-31-145

AUSTRALIAN MADE AND OWNED

10.2023

Key Points

- STRUCTApanel H2 9mm is H2 Treated
- Formaldehyde emission meets the E1 general purpose requirement
- PEFC Certified
- Complies with BCA
- Durable to weather conditions
- STRUCTApanel H2 9mm complies with Australian Standards AS 1720.1 and AS 1684, parts 2 and 3
- Made in Australia from Plantation Radiata Pine for Australian houses and conditions
- Maximum 7.2kN/m racking resistance

Storage & Handling

Although highly moisture resistant STRUCTApanel H2 9mm should be protected from exposure to weather until it is installed, as moisture penetration of the product before installation may lead to gaps occurring at the bracing joints when the product dries out.

When storing outside, ensure packs of STRUCTApanel H2 9mm are kept clear off the ground on equal height timber battens.

Cover with waterproof sheeting so that the air circulates freely between the waterproof cover and the product.

STRUCTApanel H2 9mm should be allowed to acclimatise for 48 hours prior to installing. Minor movement can be expected in both vertical and horizontal sections of the board as it reaches its final resting moisture content (or EMC of the Site).

Termite Risk Management

STRUCTApanel H2 9mm is available with H2 treatment. It is resistant to termites both north and south of the Tropic of Capricorn.

Installation

Fastener Recommendation

Racking resistance capacities of the STRUCTApanel H2 9mm systems in this guide have been tested using 35mm x 2.8 dia flat head galvanised nails. Power driven nails, with equivalent or better characteristic strengths can be substituted, as detailed in AS 1684.

38mm long (1.59x1.35mm) BeA staples can be used, the spacings for staples are two thirds (i.e., fastener spacing multiplied by 0.66) those shown for nails or screws.

A minimum 2mm expansion gap must be allowed around the full perimeter of each panel and at any butt joint between STRUCTApanel H2 9mm panels to allow for hygroscopic movement.

Fastners with the equivalent dimensions, head size and shape, shank diameter and length to the fixing mentioned above are deemed acceptable.

Racking Performance

STRUCTApanel H2 9mm is certified to achieve racking strengths as indicated in the table below when installed.

Bracing designed using timber framing from joint group JD5. No reduction factors need to be applied.

If outside AS 1684-2010, a suitable qualified professional engineer should be consulted to determine the correct wind speed from AS 4055-2012 or directly from AS 1170.2-2006.

STRUCTApanel H2 9mm has been designed and independently tested and verified to AS 1684-2010.

Capacity Chart

Description	Racking Capacity (kN/m)	Refence to AS1684 min. panel width (mm)
System 1 - TYPE A		
With nominal fixings	3.4	900
System 2 - TYPE B		
With vertical M12 tie rods	6.4	900
System 3 - TYPE C		
With nominal fixings	6.0	900
System 4 - TYPE D		
With vertical M12 tie rods	7.2	900
System 5 - TYPE E		
Shortwall with coach screws	2.2	450
Shortwall with M12 tie rods	3.2	450

Cutting & Drilling

A hole 100mm x 100mm maximum within envelope of 100mm from top and vertical edges and 200mm of the bottom of the bracing panel will not significantly affect the bracing capacity. Up to 4 small circular service holes are allowable within the envelope but their centres must not be closer than 600mm.

Standard hand and power tools can be used to shape or cut STRUCTApanel H2 9mm. Ensure blades or cutters are sharp to ensure a clean cut is achieved. Ensure all relevant PPE equipment is worn when cutting.

The normal health and safety precautions should be taken when working with wood panel products. Machine tools should be fitted with dust extractors and work areas kept clean. If dust levels exceed Worksafe Australia standards the wearing of a dust mask (AS/NZS 1715 and AS/NZS 171) and safety glasses (AS/NZS 1337) is recommended.

Storage and work areas should be adequately ventilated.

Anchoring

Anchoring of bottom plates shall be in accordance with AS 1684 or designed in accordance with the relevant standard.

Additional fixings (cyclone rods) may be required to resist uplift forces and must be appropriately designed and installed.

Brick Ties

When used in the cavity of a brick veneer building, brick wall ties must be of the face-fixed type complying with AS 2699. The ties should be nailed through the STRUCTApanel H2 9mm particleboard bracing to the face of the stud.

Sheet Dimension & Weight Chart

Sheet Size	Pack Size	Area/ Pack (m^2)	Weight/ sheet (kg)	Weight/ pack (kg)
2440mm x 1200mm	60	292.8	19	1140
2745mm x 1200mm	60	329.4	21.4	1284
3050mm x 1200mm	60	366.0	23.8	1428

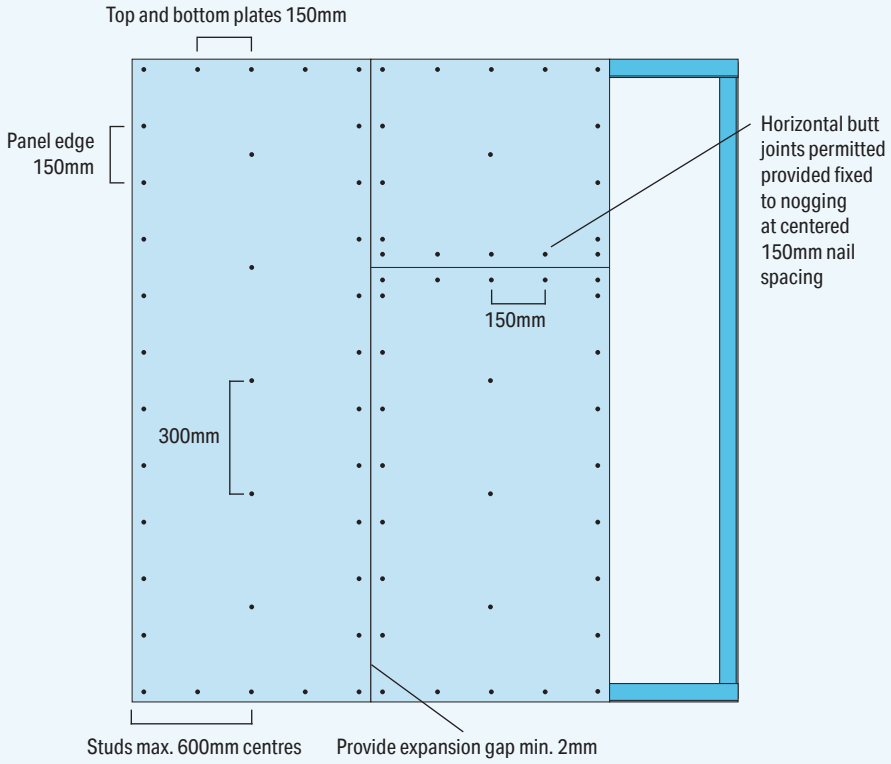
Installation Methods

The allowable racking resistance for systems 1 to 5 have been tested with bracing applied to one side only. If STRUCTApanel H2 9mm is applied to both sides of the wall frame, then racking resistance can be doubled provided bottom plate fixing/hold-down requirements are also doubled. Bottom plate sizing may require checking to ensure hold-down compliance. Bracing design capacities are valid for wall heights up to 2700mm. For wall heights above 2700 refer to AS 1684 section 8.3.6.4 for applicable reduction factors, as an example the current reduction factor for a 3m bracing panel = 0.9.

System 1: 3.4kN/m

Installation method:

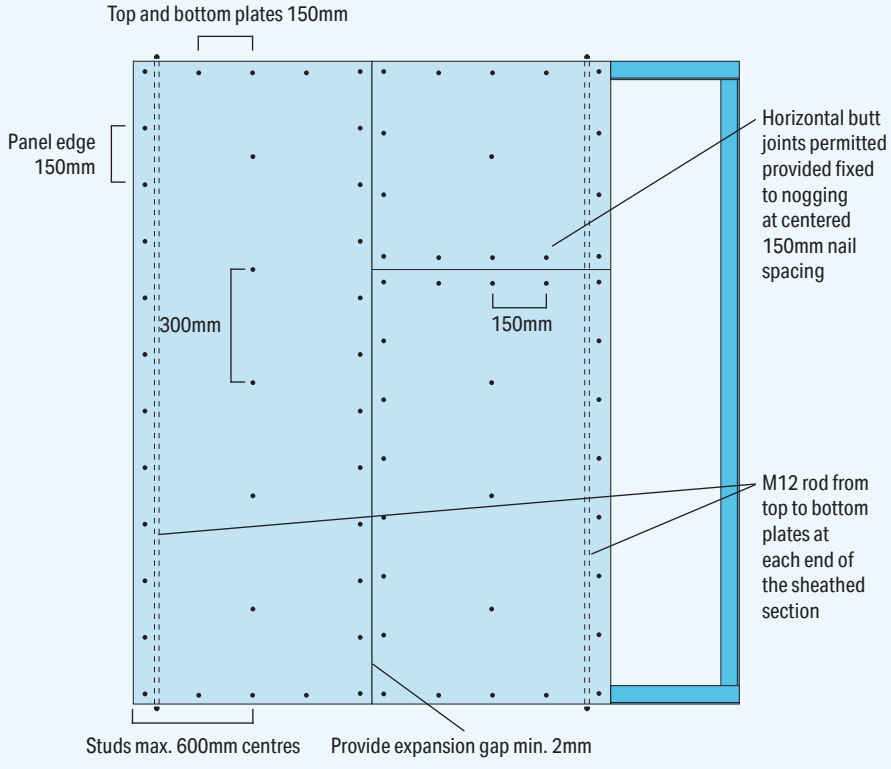
- Fixing centres:
  - 150mm for top and bottom plates
  - 150mm for vertical edges
  - 300mm for intermediate studs
- Allow 2mm expansion gap around perimeter of each panel
- Minimum bracing section 900mm
- For bracing panel length between 600mm and 900mm the capacity shall be calculated by multiplying the respective capacities by 0.5 adjusted linearly to 1.0 for 900mm
- For panel lengths less than 900mm refer to AS1684 for further detail



System 2: 6.4kN/m

Installation method:

- Fixing centres:
  - 150mm for top and bottom plates
  - 150mm for vertical edges
  - 300mm for intermediate studs
- M12 tie rods from top plate to floor or slab at each end of sheathed section
- Allow 2mm expansion gap around perimeter of each panel
- Minimum bracing section 900mm
- Anchors fixing the bottom plate to the floor or slab rated to 13kN at 1200mm maximum centres



Note

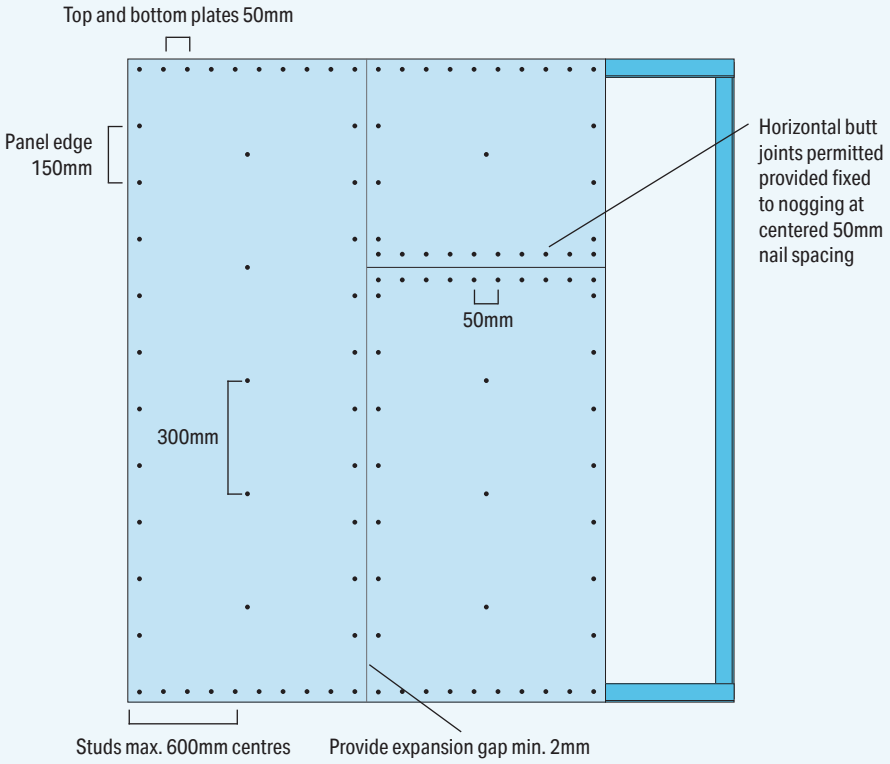
For all the above bracing systems, STRUCTApanel H2 9mm has been tested using timber framing with a minimum joint strength of JD5. Therefore no reduction factors need to be calculated for JD5 framing timber. AS 1684 Section 8.3.6.5 specifies that bracing capacity is reduced by 50% for bracing widths of 600mm in length and increases linearly in capacity up to up to full capacity at 900mm bracing width.

No noggings are required when using full height bracing sheets, unless being used as internal bracing.

System 3: 6.0kN/m

Installation method:

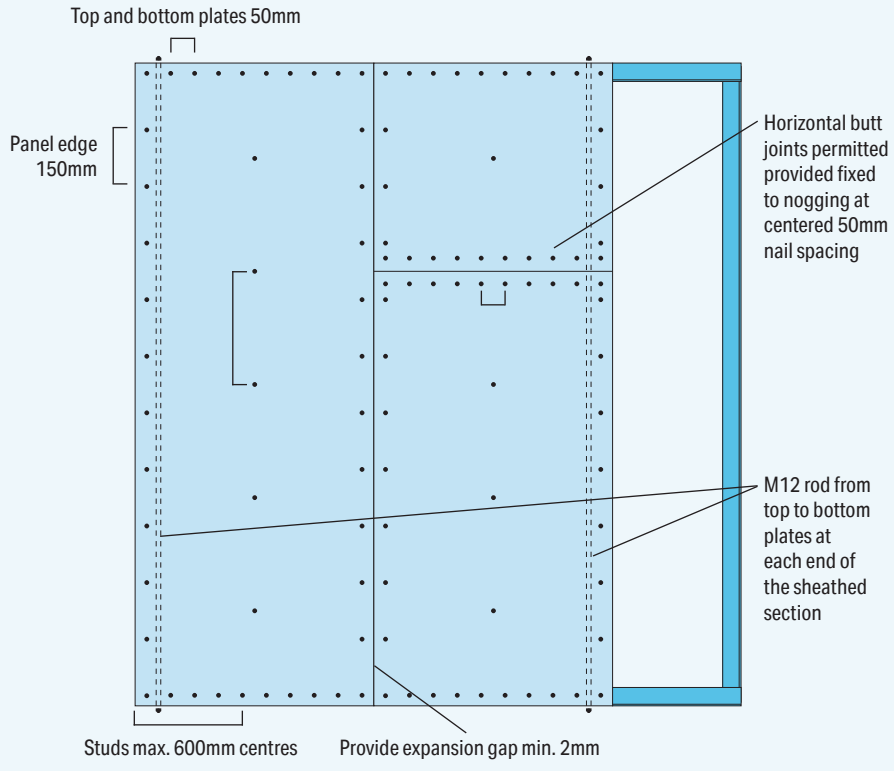
- Fixing centres:
  - 50mm for top and bottom plates
  - 150mm for vertical edges
  - 300mm for intermediate studs
- Allow 2mm expansion gap around perimeter of each panel
- Minimum bracing section 900mm
- Anchors fixing the bottom plate to the floor or slab rated to 13kN at 1200mm maximum centres



System 4: 7.2kN/m

Installation method:

- Fixing centres:
  - 50mm for top and bottom plates
  - 150mm for vertical edges
  - 300mm for intermediate studs
- M12 tie rods from top to bottom plates at each end of sheathed section
- Allow 2mm expansion gaps around perimeter of each panel
- Minimum bracing section 900mm
- Anchors fixing the bottom plate to the floor or slab rated to 13kN at 1200mm maximum centres



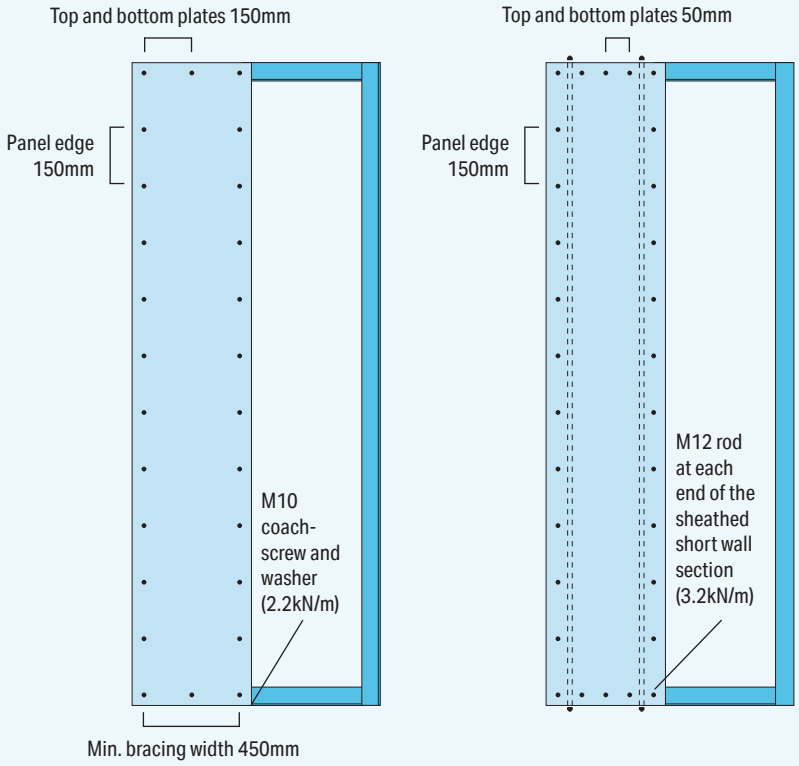
System 5: 2.2kN/m

Installation method:

- Fixing centres:
  - 150mm for top and bottom plates
  - 150mm for vertical edges
- M10 x 70mm coach screws with 50 x 50 x 3mm washers in each corner of sheathed section

Alternate installation method:

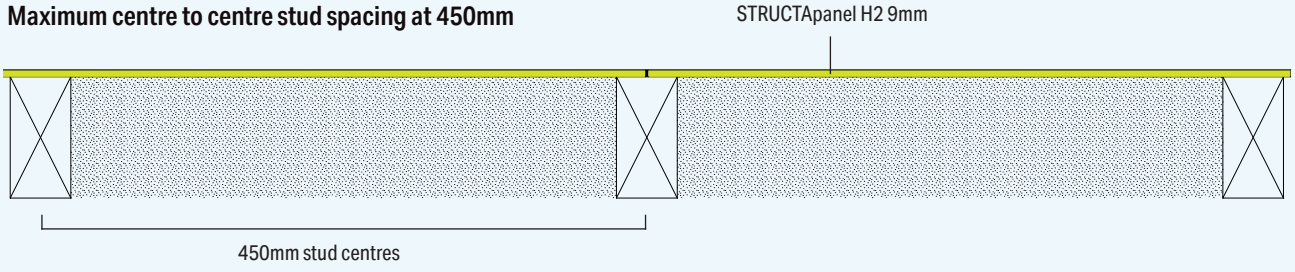
- Fixing centres:
  - 50mm for top and bottom plates
  - 150mm for vertical edges
- M12 tie rods at each end of short wall sheathed section to achieve 3.2kN/m
- Minimum bracing section 450mm
- Refer AS 1684 Section 8.3.6.5 for further details



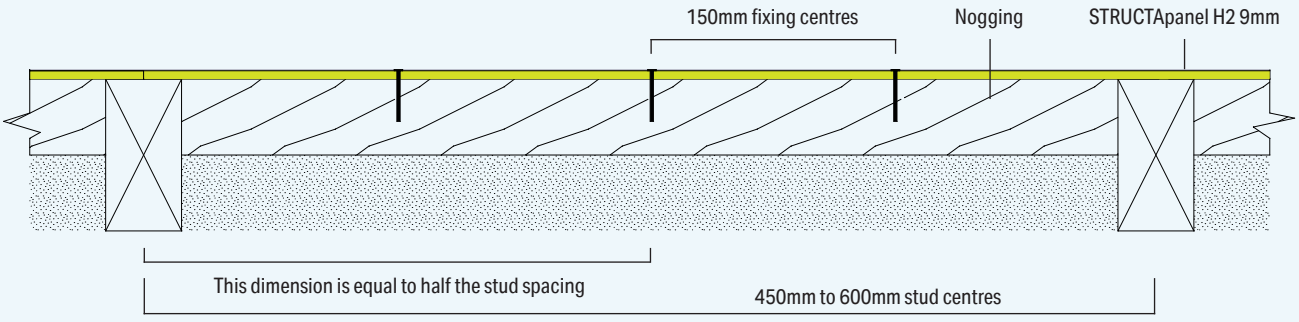
Internal Bracing Installation

The below diagrams show the recommended fixing details when using STRUCTApanel H2 9mm on internal walls that will be covered by plasterboard. Following the recommended fixing details will provide the best possible finish to achieve a flat surface for the plasterboard finish. STRUCTApanel H2 9mm should be allowed to acclimatise to the site moisture content (EMC) before installation. A 2mm expansion gap should be allowed around the perimeter of each panel and at any butt join between panels to allow for dimensional change in the product.

Maximum centre to centre stud spacing at 450mm



Maximum centre to centre stud spacing at 450mm and 600mm



Any additional noggings must be evenly spaced across the wall height. Two noggings are required for walls that are 2440mm or 2745mm high. For walls that are 3050mm high, three noggings are required. STRUCApanel H2 9mm must be fixed to noggings at a maximum of 150mm centres.

Certification Bracing using staples

THE UNIVERSITY OF QUEENSLAND
AUSTRALIA

School of Civil Engineering

Certificate of Structural Performance

Borg Manufacturing 9mm Structapanel- square flat edge.

The design methodology and criteria for applications using the 9mm Structapanel™ panels are based upon the results of full scale testing undertaken in 2020 at the Queensland University of Technology and previous work by the Plywood Association of Australia, and have been prepared in accordance with widely recognised engineering principles and are based upon use of the following documents:

1. AS1684 – 2021 SAA National Timber Framing Code
2. AS1720.1 – 2010 SAA Timber Structures Code – Part 1 Design Methods

When installed in accordance with the manufacturer's specification using 38mm long (1.59x1.35mm) BeA staples, 9mm Structapanel™ panels will comply with the requirements of the Building Code of Australia. The certified design properties (derived from full scale testing) for walls up to 2.7m in height, constructed of timber framing of grade JD5 (MGP10) or better, (using 2400 x 900, 2400 x 1200, 2700 x 900 and 2700 x 1200 panels) are as follows, when such loads are determined in accordance with AS1170 (parts 1 - 4):

Type 1 panels: 100/100/200 – WITHOUT tie down rods: minimum racking resistance of 3.4 kN/m

- nailing pattern and nominal fixings of the bottom plate to the floor or slab are similar to Detail (g), Table 8.18, Parts 2 and 3, AS1684.

Type 2 panels: 100/100/200 – WITH M12 tie down rods: minimum racking resistance of 6.4 kN/m

- M12 tie-down rods at each end of the braced wall, with anchors rated to 13kN at 1200mm c/c maximum spacings, and
- nailing pattern similar to Method A, Detail (h), Table 8.18, Parts 2 and 3, AS1684.

Type 3 panels: 30/100/200 – WITHOUT tie down rods: minimum racking resistance of 6.0 kN/m

- nailing pattern and anchors rated to 13kN at 1200mm maximum spacings similar to Method B, Detail (h), Table 8.18, Parts 2 and 3, AS1684.

Type 4 panels: 30/100/200–– WITH M12 tie down rods: minimum racking resistance of 7.2 kN/m

- M12 tie-down rods at each end of the braced wall, with anchors rated to 13kN at 1200mm c/c maximum spacings.

Product substitution is permitted for panel products of equivalent or lesser bracing capacity. This includes plywood (9mm F8; 7mm F11; 6mm F14; 4.5mm F27) and hardboard (4.5mm) products noted in Table 8.18 of AS 1684 – 2021 (Parts 2 and 3). 9mm Structapanel™ panels can also be used for short panels in accordance with AS1684 Section: 8.3.6.5, which specifies that the bracing capacity is reduced by 50% for walls of 600mm length, with a linear increase in capacity up to full capacity at 900mm length.

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October 23 2023

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Certification Bracing using nails or screws

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Certificate of Structural Performance

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When installed in accordance with the manufacturer's specification using 35mm long nails, 9mm Structapanel™ panels will comply with the requirements of the Building Code of Australia. The certified design properties (derived from full scale testing) for walls up to 2.7m in height, constructed of timber framing of grade JD5 (MGP10) or better, (using 2400 x 900, 2400 x 1200, 2700 x 900 and 2700 x 1200 panels) are as follows, when such loads are determined in accordance with AS1170 (parts 1 - 4):

Type 1 panels: 150/150/300 – WITHOUT tie down rods: minimum racking resistance of 3.4 kN/m

- nailing pattern and nominal fixings of the bottom plate to the floor or slab are similar to Detail (g), Table 8.18, Parts 2 and 3, AS1684.

Type 2 panels: 150/150/300 – WITH M12 tie down rods: minimum racking resistance of 6.4 kN/m

- M12 tie-down rods at each end of the braced wall, with anchors rated to 13kN at 1200mm c/c maximum spacings, and
- nailing pattern similar to Method A, Detail (h), Table 8.18, Parts 2 and 3, AS1684.

Type 3 panels: 50/150/300 – WITHOUT tie down rods: minimum racking resistance of 6.0 kN/m

- nailing pattern and anchors rated to 13kN at 1200mm maximum spacings similar to Method B, Detail (h), Table 8.18, Parts 2 and 3, AS1684.

Type 4 panels: 50/150/300–– WITH M12 tie down rods: minimum racking resistance of 7.2 kN/m

- M12 tie-down rods at each end of the braced wall, with anchors rated to 13kN at 1200mm c/c maximum spacings.

Product substitution is permitted for panel products of equivalent or lesser bracing capacity. This includes plywood (9mm F8; 7mm F11; 6mm F14; 4.5mm F27) and hardboard (4.5mm) products noted in Table 8.18 of AS 1684 – 2021 (Parts 2 and 3). 9mm Structapanel™ panels can also be used for short panels in accordance with AS1684 Section: 8.3.6.5, which specifies that the bracing capacity is reduced by 50% for walls of 600mm length, with a linear increase in capacity up to full capacity at 900mm length.

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Nov 30, 2021

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FLOORING

With an extensive range of options, Australian Panels can accommodate subfloors, suspended floors in multi-storey construction, building additions and extensions along with oversized commercial flooring spaces.

PANELLING

Made with the same durable materials used in our market leading STRUCTAflor particleboard flooring products, the new and exciting panelling products consist of STRUCTApanel H2 9mm Treated Structural and 12mm Non-Structural Panelling.

BOARD

Our CUSTOMwood (MDF) and CUSTOMpine (Particleboard) ranges both have Raw and Laminated options that make a versatile product to use in interior fitout solutions. Whether it be for the reliable quality that guarantees uniformity in size, density, and strength or for applications that are subject to humidity or moisture, such as bathroom vanities and kitchen cupboards, Australian Panels has the solution.

MOULDINGS

Manufactured in a wide range of design styles our mouldings and architraves are produced from premium grade MR CUSTOMwood MDF. They are pre-primed and ready to use on internal decorative trims, such as door jambs and skirtings and are guaranteed not to warp, buckle or split.

Scan the QR code to view the full range of products

Responsible Wood

PEFC™ PEFC/21-31-145

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