



Certificate of Structural Performance

Borg Manufacturing 19mm STRUCTAflor panel.

School of Civil Engineering

The design methodology and criteria for applications using the 19mm STRUCTAflor™ panels are based upon the results of full scale testing undertaken in 2022 at the Queensland University of Technology, 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 2.8 (ϕ) x 65mm (l) gun-driven nails, 19mm STRUCTAflor™ 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, (with a minimum wall length of 1600mm) are as follows, when such loads are determined in accordance with AS1170 (parts 1 - 4):

Type 1 panels: Sheathing on one side only: minimum racking resistance of 4.9 kN/m

- Sheathing is oriented vertically and fastened to timber framing with studs at 400mm max c/c spacings using a 50 / 150 / 300 nailing pattern, with double studs nail laminated with 3.05 (ϕ) x 75mm (l) framing nails at 100mm spacings, and bottom plate fixed to the floor frame or slab with a 13 kN capacity connection at each end of the braced wall and a 13 kN capacity connection at max 1200mm spacings, and having no tie-down rods (sheathing may be oriented horizontally if noggings are provided at all horizontal joints with nails at 50mm spacings);

Type 2 panels: Sheathing on one side only: minimum racking resistance of 6.3 kN/m

- Sheathing is oriented vertically and fastened to timber framing with studs at 400mm max spacings using a 150 / 150 / 300 nailing pattern, with double studs nail laminated with 3.05 (ϕ) x 75mm (l) framing nails at 100mm spacings, and bottom plate fixed to the floor frame or slab with a 13 kN capacity connection at each end of the braced wall and a 13 kN capacity connection at max 1200mm spacings, and having M12 tie-down rods at max 2400mm spacings (sheathing may be oriented horizontally if noggings are provided at all horizontal joints with nails at 150mm spacings);

Type 3 panels: Sheathing on one side only: minimum racking resistance of 2.5 kN/m

- Sheathing is oriented horizontally and fastened to timber framing with studs at 600mm max spacings using a 150 / 150 / 300 nailing pattern, having no noggings, with bottom plate fixed to the floor frame or slab with nominal fixings (see Cl. 8.3.6.10 and T. 9.4 in AS 1684.2), and having no tie-down rods.

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). 19mm STRUCTAflor™ panels are not recommended for bracing, in wall lengths under 1600mm.

Yours sincerely

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Professor & Director

ARC Industrial Transformation Research Hub to Advance Timber for Australia's Future Built Environment

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