

STRUCTA™

BUILD STRONG BUILD STRUCTA™

FLOORING INSTALLATION GUIDE

STRUCTAply™

PRODUCT INFORMATION

Product Details

Thickness: 12mm, 15mm, 17mm, 19mm, 21mm, 25mm, 32mm.

Surface Qualities: Manufactured to a CD grade standard.

Stress Grade: F11 parallel to the face grain.

Tongue system: Factory fitted, rigid PP tongues provide a secure fit and accurate alignment of unsupported edges.

Identification: Raw substrate with a white tongue for 2250 x 1200 and a blue tongue for 2400 x 1200.

Resin: Type A – Phenol formaldehyde.

Treatment: Available untreated as standard with H2 and H2S glueline and H3 LOSP options available on a made to order basis.

Emissions: Formaldehyde emissions are less than 0.3 mg/L, equivalent to Super E0 classification.

Characteristic Strengths and Stiffness

Structural plywood characteristic strength and stiffness values are typically allocated via the F grade classification system.

Table 1: Structural plywood – characteristic properties for F-grades.

Stress Grade	Characteristic values, MPa					
	Bending (f _b)	Tension (f _t)	Panel Shear (f _s)	Compression in the plane of the sheet (f _{tc})	Short duration average modulus of elasticity (E)	Short duration average modulus of rigidity (G)
F11	31	18	4.5	22	10500	525

Note: AS/NZS 2269.0 Plywood Structural Specification.

The Facts That Matter

- Manufactured from sustainably grown plantation resource.
- Carbon negative, even when manufacture and transportation are taken into account.
- Compatible with underfloor heating systems.
- Available in 2250 x 1200 or 2400 x 1200 sheet sizes.
- Lowest formaldehyde emission classification (<0.3mg/L tested to AS/NZS 2098.11).
- PEFC/Responsible Wood chain of custody certification.
- EWPA Certified to AS/NZS 2269:2012 Plywood – Structural.

Surface Grades

STRUCTAply™ Flooring is manufactured as defined in AS/NZS 2269. The below images are indicative only of the surface appearance that can be expected. Timber is a natural product and variations in colour and appearance can be expected.

Figure 1: STRUCTAply™ Flooring surface appearance.

Face Veneer Grade C

Face Veneer Grade D



Solid, sanded surface with Non appearance grade Filled holes and splits, with Intergrown knots.



Non appearance grade allowing open imperfections up to 75mm across the face veneer. Splits and knots allowable.



PRODUCT INFORMATION

Storage

For storage prior to installation, the sheets should be kept in a well-ventilated area protected from sun, rain, and wind to prevent rapid changes in temperature and humidity. Support should be provided at both ends and in the middle of the sheets to avoid distortion. The stack must be kept dry, clear of ground contact, and positioned where it will not be exposed to mechanical damage. Sheets should always be stacked flat, not on their edge. To prevent staining, fading, and surface checking, the sheets should not be exposed to weather while awaiting installation.

Moisture Content

At the time of dispatch from the mill, the equilibrium moisture content anywhere within the sheet when determined in accordance with AS/NZS 2269 will be between 8-15%. All wood products including plywood respond to changes in ambient humidity, so the eventual moisture content of plywood varies according to the environment it is in.

After manufacture, the moisture content will move to equilibrium with the environment.

Detailing and construction must allow for movement if the plywood is subject to cycles of moisture change.

Exposure

STRUCTAply™ Flooring will withstand rain and exposure during normal construction periods. Some discolouration and surface checking can be expected if plywood is exposed for extended periods. Plywood should be returned to below 18% moisture content before the installation of floor coverings.

For floors expected to be uncovered for periods greater than 3 months, H3 LOSP treated panels should be used to reduce the risk of decay.

In applications where the moisture content of the plywood may exceed 18% for prolonged periods, such as in areas of high rainfall, humidity or excessive condensation, it is recommended that plywood be treated to a minimum of H3 to resist decay.

Face Checks

Face checks are lengthwise separations of wood fibres in the face veneer of the plywood. They result from the normal swelling and shrinking of wood as it gains and loses moisture. These checks are superficial and are confined to the face veneer. They do not alter the structural integrity of the plywood in any way.



PRODUCT INSTALLATION

Laying

STRUCTApLy™ Flooring should be laid with the face grain of the plies at right angles to the line of the supporting joists and should be continuous over at least two spans (three framing members). For panels at floor edges where a continuous two span coverage is not possible, sheet edges must be supported by blocking. The ends of the sheets should be butted over joists with a 2-3mm expansion gap. Where possible, panel ends should be staggered. Sheets should not be cramped during installation. Avoid over driving nails or screws (Reference Figure 2 and 3).

Fasteners

STRUCTApLy™ Flooring may be fixed with nails or screws or a combination of mechanical fasteners and construction adhesives. Ring shank or annular grooved nails or screws are recommended for additional holding power.

Fasteners should be spaced at 150mm centers at each panel end and 300mm centers at intermediate joists. Ensure fasteners are located at least 7-15mm from the sheets edge (Reference Figure 2).

Adhesives

Site applied construction adhesives may be used together with nails and screws for non permanent loads, reduced fastener popping and to lower the risk of squeaking in floors. Always refer to the adhesive manufacturer for guidance on adhesive selection.

Use a bead of adhesive as per manufacturers recommendations then apply pressure using fastener patterns outlined in section 2.2: Sheet Fasteners and Fixing. Work from the middle of the sheet outwards to develop glueline pressure.

Table 2: Minimum Fastener Dimensions.

Thickness (mm)	12mm/ 15mm	17mm	19mm/ 21mm	25mm
Min. nail size in timber framing	50 x 2.8mm	65 x 2.8mm	65 x 2.8mm	75 x 3.15mm
Screw size in timber framing	8g x 40mm	10g x 40mm	10g x 45mm	10g x 50mm
1.15mm steel framing	10-16-45	10-16-45	10-16-45	10-16-45
Screw size in 2.80mm steel framing	10-16-45	14-20-45	14-20-45	14-20-45

Blocking

Blocking within the body of the floor is not required under tongue and groove edges unless otherwise specified (such as domestic garage floors).

Figure 2.

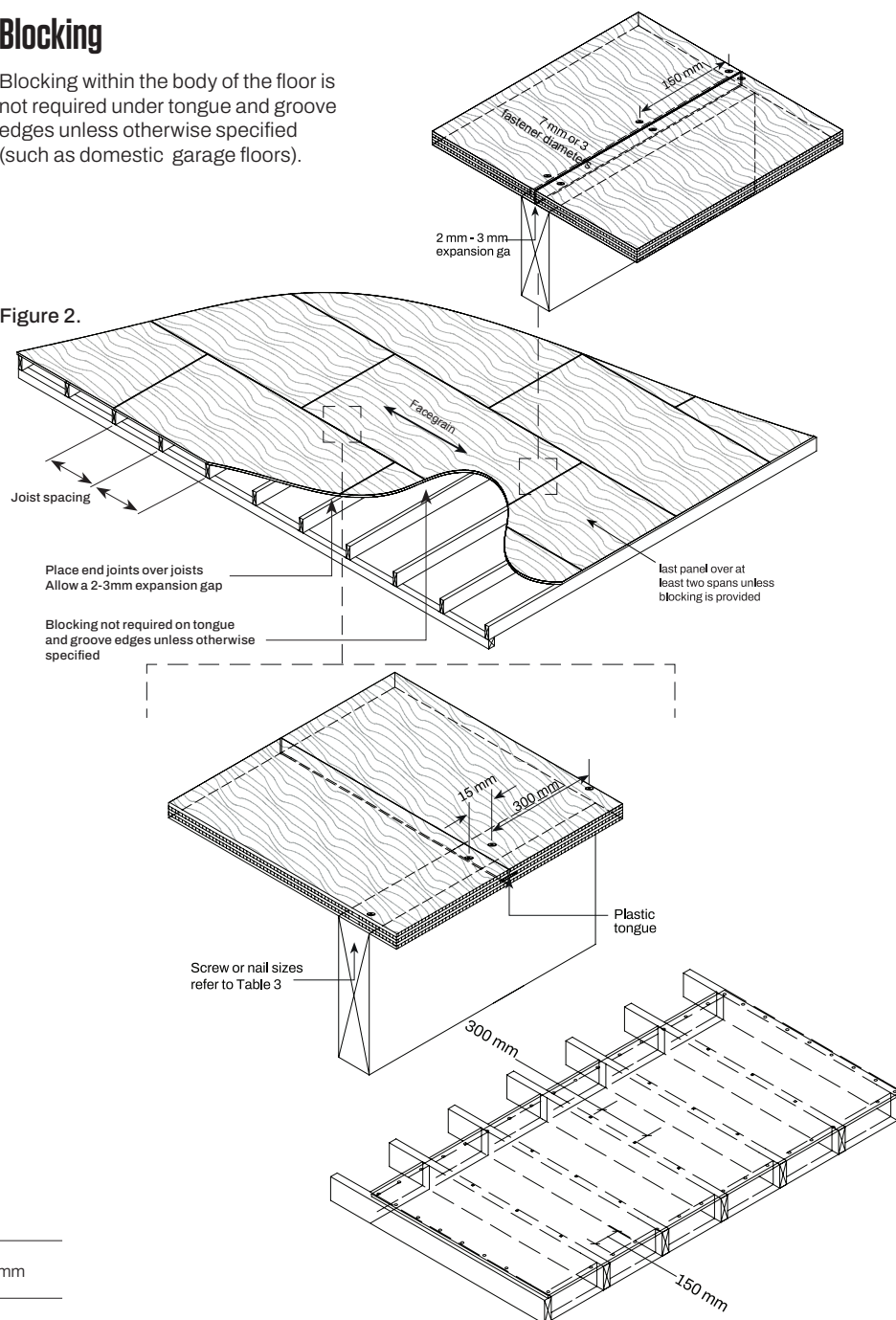
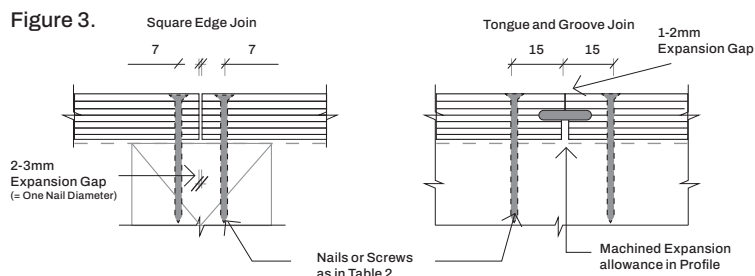


Figure 3.



PRODUCT INSTALLATION

Floor loads

For domestic garage floors, blocking is required under all edges to control wheel loads on the tongue. Testing with 113mm diameter load head (0.01 m²) confirms commercial floor capabilities.

Finishing

Flooring coverings such as carpet, vinyl, tiles or membranes may be installed over the panels. Paints and coatings should be applied in accordance with coating manufacturers instructions. Avoid heavy sanding that may affect the structural veneer thickness.

STRUCTAp^{ly}™ Flooring is made from radiata pine and could dent or mark more easily than hardwood flooring systems. Designers should consider the long-term appearance requirements of the project.

Ventilation

Sub floor areas should be well ventilated in accordance with Part 6.2 of the ABCB Housing Provisions to meet the National Construction Code requirements. Designers should consider that application of treated plywood flooring where moisture levels are high in subfloor regions. This should also take into account the application of floor coverings etc.

Wet Area Applications

STRUCTAp^{ly}™ Flooring can be installed in wet areas in residential and domestic construction to meet the requirements of the National Construction Code 2025 (Building Code of Australia – volume two) as a deemed to satisfy provision as per AS 3740:2021 Waterproofing for domestic wet areas as a water resistant substrate (refer Clause 3.3.2 Water Resistant Substrates).

Where H3 LOSP treatment has been applied, it is the designers responsibility to ensure that any waterproofing, membranes or similar are fit for purpose and compatible with LOSP treatment.

Under Floor Heating

STRUCTAp^{ly}™ Flooring is suitable for use with underfloor heating systems when installed according to manufacturer and regulatory guidelines.

STRUCTAp^{ly}™ Flooring uses a thermosetting phenol formaldehyde adhesive, cured at temperatures above 140 °C. This bond is stable and non-reversible under normal climatic conditions, meaning heat from underfloor systems does not compromise the glue line durability.

Unlike urea-bonded flooring products, which can degrade and emit gases at temperatures above 40 °C, phenolic bonded STRUCTAp^{ly}™ Flooring remains structurally reliable. For this reason, it is recommended for heated floor applications where higher temperatures may occur.

The panel ex-mill has low moisture content (typically 8-15%). For optimal performance with underfloor heating, maintain tight moisture control during storage, delivery and construction. Keep panels dry prior to installation to prevent swelling and shrinkage and use kiln dried framing to minimise movement.

Heating systems will generally reduce in-service moisture levels in the plywood to less than 10%, which can lead to minor surface checking. This is normal, does not affect structural performance and is usually concealed by floor coverings.

To assist with the above, builders should consider laying STRUCTAp^{ly}™ Flooring in the area to be heated after the roof is on. On other flooring types and for specifics relating to different systems, consult the heating hardware manufacturer.

Flooring Used As A Diaphragm

When structural plywood flooring is used as a floor diaphragm, it must be designed and installed to comply with the National Construction Code (NCC) and relevant Australian Standards.

The plywood must be certified structural grade in accordance with AS/ NZS 2269 – Structural Plywood, and the floor framing and connections must comply with AS 1684 (Residential Timber-Framed Construction) or be engineered in accordance with AS 1720.1 – Timber Structures.

The diaphragm must provide adequate in-plane shear capacity to transfer lateral loads to the building's vertical bracing elements, which requires appropriate panel thickness, fixing patterns, edge support or blocking, and connection detailing as specified by the applicable standard or structural engineer.

PRODUCT INSTALLATION

STRUCTAply™ Flooring Class 1 Domestic & Residential

Application	Maximum joist centers (mm) for F11 flooring with face grain across joists				
	Nominal thickness (mm)				
	12	15	17	19	21
Domestic flooring basic distributed live load 2.0 kPa – 1.8kN	420	520	560	620	670
Domestic garage floor** 2.5kPa – 9kN					270

Note: design in accordance with AS 1684.2-2020, Table 5.3 'Structural Flooring Maximum Allowable Spacing of Joists'.

STRUCTAply™ Flooring Class 2-9 Commercial

Imposed reference values for floor actions are summarized in the below table which has been adapted from Table 3.1 of AS 1170-2002 'Structural Design Actions – Part 1: Permanent, Imposed and other actions'. Reference should be made to the complete standard and the supporting frame must comply with the requirements of the Building Code of Australia and/or be certified by a professional engineer.

Examples of load categories from AS 1170.1 Floor imposed (live) loads**

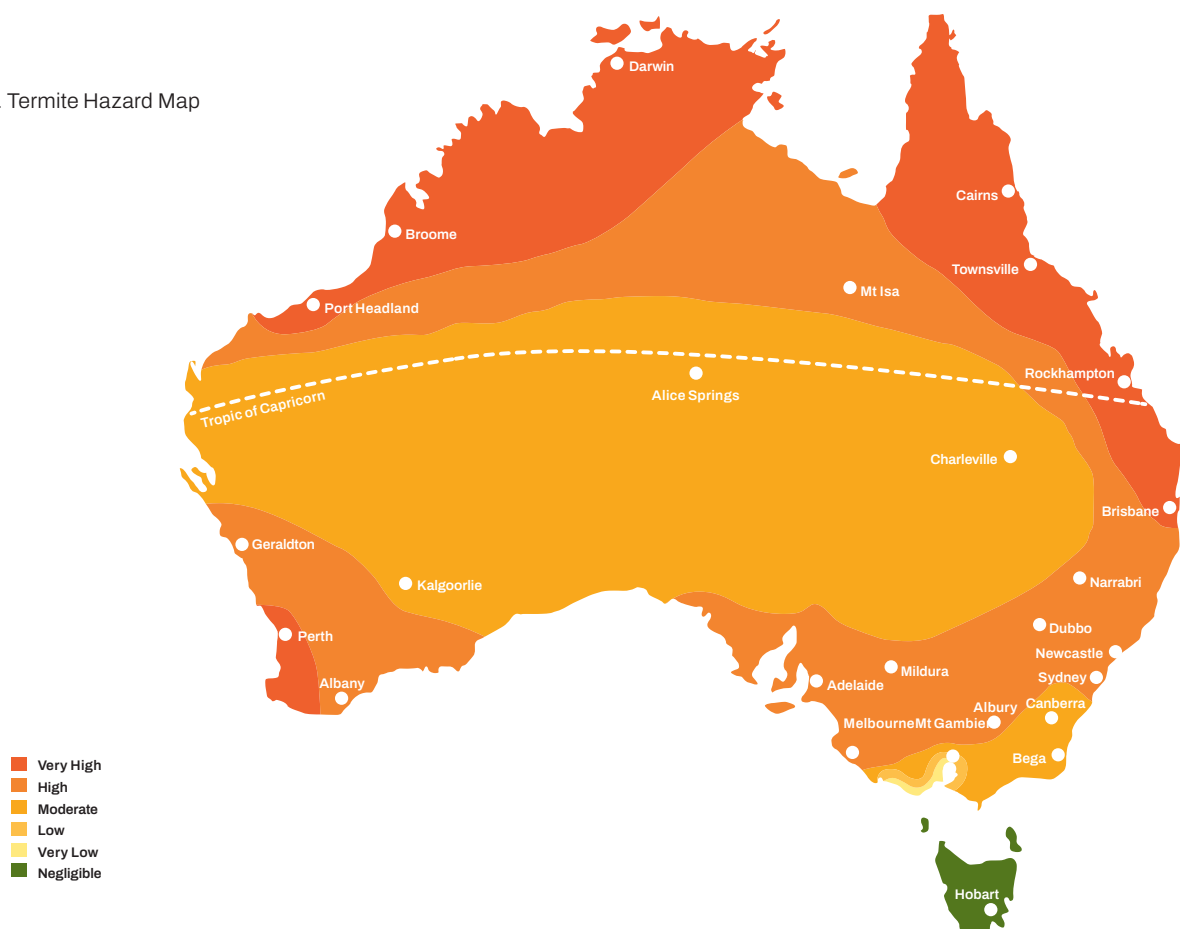
Application	Uniformly distributed load (kPa)	Concentrated load (KN)
Assembly areas	3.0-5.0*	2.7-3.6
Offices	3.0	2.7*
Retail sales area	4.0	3.6*
Office storage space, file rooms	5.0	4.5
Public corridors & spaces	4.0-5.0	4.5*
Stages	7.5	4.5
General storage	2.4 per meter of storage height	7.0*
Drill rooms and halls	5.0*	9.0*
Light vehicle traffic areas (<2500kg)	2.5	12*
Medium vehicle traffic areas (>2500kg and <10,000kg)	5.0	31*

*To be determined but not less than the given value

** reference to be made to the complete standard

TERMITE RISK MANAGEMENT

Figure 4. Termite Hazard Map



Termite Distribution

Termites (also known as white ants), feed on any cellulose based material, such as timber. In areas defined as termite-prone (check with your local authority), physical barriers such as ant caps or chemical treatments need to be applied in accordance with AS 3660.1.

Termites are generally not an issue for plywood provided the application does not involve ground contact. Proper building practices prevent termite access, though regular inspection and maintenance are important.

If there is a termite risk—such as ground contact or no termite barrier—materials should be preservative treated for durability. Borers rarely affect structural plywood except in marine environments.

Preservative Treatments

Preservative treatment types and preservative retention levels for treatment of structural plywood are specified in Australian Standard AS/NZS 1604.3 Specification for preservative treatment, Part 3: Plywood and AS/NZS 1604.4 Specification for preservative treatment.

H2 & H2S Glueline Treatment

STRUCTAp^{ly}™ Flooring is available in a H2S treatment for use against termite resistance South of the Tropic of Capricorn and H2 treatment for use against termite resistance North of the Tropic of Capricorn.

A glueline preservative Bifenthrin is added to the adhesive prior to bonding of the individual veneers. The flow of moisture from the glueline into the individual veneers during the hot press phase of manufacture carries the preservative into the individual veneers ensuring each individual veneer is preservative treated.

H3 LOSP Treatment

STRUCTAp^{ly}™ Flooring is available as a H3 LOSP treatment option for use against fungal attack and against termite resistance.

Pressure treatment of the finished plywood results in an “envelope” type treatment. The outer veneers and ends of the sheet will have been preservative treated but the preservative may not have penetrated through the gluelines to the inner veneers. If the plywood is cut after preservative treatment, a paint on preservative treatment should be applied to the cut edge.

Where possible, pressure preservative treatment of the finished product should be done after any machining, sawing and boring, members or similar are fit for purpose and compatible with LOSP treatment.

When using LOSP treated plywood, some residual solvent may be present on the sheet surface from the treatment process. Sheets feeling greasy to touch should be placed in a well-ventilated area and allowed to flash off. Allow 3-5 days for this to occur depending upon weather and environmental conditions.

Note: Overlays and membrane suppliers must be consulted regarding the suitability of LOSP treated plywood as it may not be compatible with some systems.

PHYSICAL PROPERTIES

Fire Hazard Properties

Table 3: Properties of typical untreated pine plywood (12–25mm thickness).

Properties	Range	Index
Ignitability	0-20	14
Spread of flame	0-10	8
Heat evolved	0-10	9
Smoke developed	0-10	2

Source: AS/NZS 1530.3 (Early Fire Hazard Properties) – untreated pine plywood.

Thermal Insulation

Plywood provides some insulation because it resists heat flow. This insulation ability is measured by the R-value, where a higher R-value means better insulation. Thicker plywood has a higher R-value, so it insulates more effectively. The thermal resistance or insulating effectiveness of plywood panels based on $k = 0.1154$.

Table 4: Thermal Resistance of plywood panels (R-Value).

Thickness (mm)	Thermal Resistance (RSI, $m^2 \cdot K/W$)
12	0.10
15	0.13
17	0.15
19	0.17
21	0.18
25	0.22
32	0.28

Temperature

Wood expands slightly when it is heated, just like most solid materials. However, the amount that plywood expands is very small, so normal temperature changes do not significantly affect its strength, durability, or structural performance when it is used at temperatures below about 54 °C. If the temperature rises above 55 °C, the wood can begin to deteriorate.

Fire, Critical Radiant Flux and Smoke Development Rate

STRUCTAply™ Flooring has been tested in accordance with the requirements of Specification C1.10 of the BCA and achieves a CRF of 2.2kW/m² and Smoke Development Rate of less than 750% - minutes.

SOURCE: Regulatory Information Report, Assessment of the Critical Radiant Flux (CRF) when tested in accordance with AS/ISO 9239.1-2003 AUTHOR: Exova Warringtonfire RELEASED: September 2018.

EWFA Report No. RIR 21419-05, Table 5.4.

COMPLIANCE

STRUCTAply™ Flooring is manufactured under a third party audited quality control programme and is product certified by the Engineered Wood Products Association of Australasia (EWPA) as compliant with AS/NZS 2269 Plywood – Structural. The EWPA is a NATA and JAS-ANZ certified body.

STRUCTAply™ Flooring has a F11 stress grade and is suitable for use as a flooring substrate subject to loading and span conditions detailed in AS 1684.2:2021, Table 5.3 – Structural Flooring – Maximum spacing of joists and the requirements of Section 5.5.3 Structural Plywood flooring – Laying and fixing.

When installed in accordance with Section 5 AS 1684.2

STRUCTAply™ Flooring will meet the performance requirements of National Construction Code 2025 (Building Code of Australia – Volume Two) as a deemed to satisfy provision, Clause H1D6 Framing (4)(c).

Plywood that is not certified or manufactured in accordance with AS/NZS 2269 is not referenced in the National Construction Code (NCC) 2025.

Important Notice

Product performance depends on correct design, installation and site conditions. Professional engineering or building advice should be obtained where required. Improper installation may lead to reduced performance or site safety risks.

References: EWPA Structural Plywood & LVL Design Guide v5 FINAL.



STRUCTAply™ Flooring

Porta is more than just a timber and panel supplier. We're a trusted partner, delivering purpose-driven products, reliable service, and local expertise. Proudly Australian, we're committed to lasting quality and progress.

The STRUCTA™ range is part of the Porta family. Built on generations of know-how, every product is engineered to perform under pressure and deliver the durability builders trust.

We've long been the backbone of the Australian building industry, driven by a genuine commitment to local manufacturing and getting the job done right. Strengthened by our STRUCTA™ range, we are continuing that legacy and setting the standard for structural building solutions.

Performance you can count on, powered by local knowledge and made to keep your projects moving with confidence.

porta

© Porta Products Pty. Ltd.

Every effort has been made to ensure the information in this brochure is correct. Porta Products reserves the right to modify or delete products at any time as a part of the product development process. Printed colours are indicative only. Any information, claims or pricing needs to be confirmed at the time and point of purchase.

1300 500 250 | porta.com.au

