

BIG RIVER

InfillPlus®

Big River InfillPlus® is an engineered timber plywood panel, which is commonly cut to size and used for fitting into the top of concrete girders to allow cast-in-situ decking to be installed, preventing concrete from entering the girder tub.

Big River InfillPlus® now features an additional 4.5mm thick fibre cement sheet bonded to the underside of the panel, protecting against fibre breakdown of the timber over time and preventing it from entering the tub of the girder. This eliminates the risk of blocking internal drainage ports and reduces the potential for tannin staining of the concrete.

Big Rivers InfillPlus® is available in four different thicknesses to provide for a range of slab thicknesses, Big Rivers InfillPlus® 21, InfillPlus® 25, InfillPlus® 30 & InfillPlus® 33 provide for slab thicknesses 200mm through to 800mm and uses high density pinus or hardwood veneers to provide a lighter weight F17 structural engineered Infill panel.



FORMWORK

InfillPlus®

Big River InfillPlus® Engineered Timber Plywood panels are manufactured in strict accordance to ASNZS 2269, and designs for its use in special applications are third party verified by Advanced Bridge Engineering Systems.

Big Rivers InfillPlus is a lighter option for ease of handling compared to alternative products. It provides a safe platform for workers to walk on (see Product Design Properties table). InfillPlus® is designed to be used with the face grain of the timber running with the span (see FIG. 1).

KEY BENEFITS

of InfillPlus® include:

- Greener solution with low embodied energy.
- Lightweight being half the weight of total fibre cements and steel.
- Factory cut-to-size service reduces on-site cutting needs.
- Can be re-engineered to suit any application or meet a specific requirement upon request.
- Choice of 4 product thicknesses covering a broader range of slab thicknesses - 200mm to 800mm.
- Third-party verified.

TABLE 1 PRODUCT CHARACTERISTIC VALUES FOR DESIGN (AS 1720.1)

	InfillPlus® 21	InfillPlus® 25	InfillPlus® 30	InfillPlus® 33
Plywood Thickness	21mm	25mm	30mm	33mm
Timber Type	Hardwood	Pinus with minimum two layers Hardwood	Pinus with minimum two layers Hardwood	Pinus with minimum two layers Hardwood
FC sheet Thickness	4.5mm	4.5mm	4.5mm	4.5mm
Total Thickness	25.5mm	29.5mm	34.5mm	37.5mm
Product Weight/m2	18.86 kg	22.42 kg	24.78 kg	27.22 kg
Characteristic Values for Design (AS 1720.1)				
Bending Strength	45 MPa	45 MPa	45 MPa	45 MPa
Shear Strength	6 MPa	6 MPa	6 MPa	6 MPa
MOE	14,000 MPa	14,000 MPa	14,000 MPa	14,000 MPa
Bearing Strength	20 MPa	20 MPa	20 MPa	20 MPa
Moisture Content	6% - 10%	6% - 10%	6% - 10%	6% - 10%
Allowable Load *	5.4 KPa	7.7 KPa	13.0 KPa	17.5 KPa
Min. Bearing area	20mm	20mm	20mm	20mm
Product Standard	AS/NZS 2269	AS/NZS 2269	AS/NZS 2269	AS/NZS 2269
Composite Bond Standard	AS/NZS 2754.1	AS/NZS 2754.1	AS/NZS 2754.1	AS/NZS 2754.1
Maximum Slab Thickness	300mm (See Table 2)	450mm (See Table 2)	600mm (See Table 2)	800mm (See Table 2)

Note: * Simply Supported spans as per Table 2

TABLE 2 PRODUCT DEPTH AND BEARING (AS 1720.1)

Note: Maximum Allowable Slab depth determined using AS1720.1, assumed Concrete Density of 2450kg/m³, Deflection Limit of L/180 and with a superimposed Live load of 1.0 kPa.

Product	Allowable Slab Thickness	Allowable Clear Span	Minimum Infill Bearing Length
InfillPlus® 21	200	850	20
	250	800	20
	300	750	20
InfillPlus® 25	200	975	20
	250	900	20
	300	850	20
	350	800	20
	400	775	20
	450	750	20
InfillPlus® 30	300	1050	20
	350	1000	20
	400	950	20
	450	900	20
	500	875	20
	600	825	20
InfillPlus® 33	400	1025	20
	500	950	20
	600	900	20
	700	850	20
	800	825	20

Note: The minimum bearing length for this design is 20mm each side. Bearing Length refers to the minimum sheet edge support see **Fig 2** for detail. Minimum length of panels should 300mm or one third of the span whichever is greater.

Important Note: If full size sheets are ordered for onsite cutting please refer to **Fig 1** and **Fig 2** for cutting and sheet direction.

FIGURE 1.

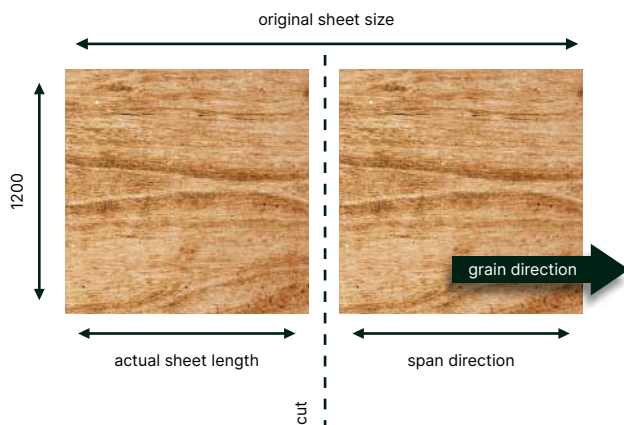
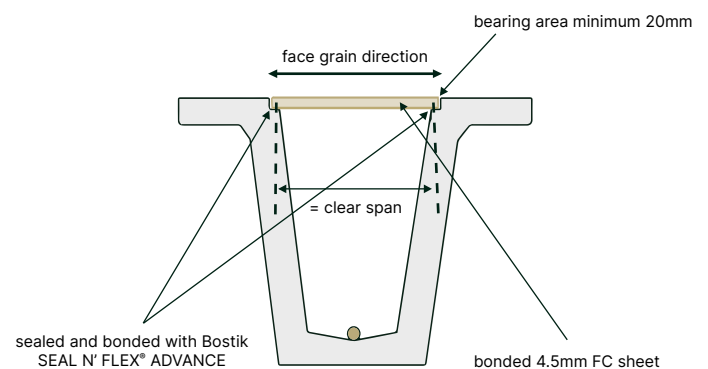


FIGURE 2.



TECHNICAL INFORMATION

- > Big River engineered timber panels are manufactured with a moisture content between 6-10%; however, a moisture content of 15% is used for specific design calculations and verification as per AS 1720.
- > Engineered timber panels produce the same capacities and performance with moisture contents of between 1% to 15%, for design and calculations reductions in capacity factors are only required if a panel is subject to maintaining a moisture content above 15% for a period of 1 year.
- > The minimum length of panel to be used is 300mm or one-third of the span, whichever is greater.
- > Allowance for expansion should be allowed for at 2mm per 1200mm length panel. Panels ideally should be installed with a 2mm gap in joints and sealed on the top surface only.
- > The average moisture absorption rate into Big River engineered timber panels is 6g/m²/Hr over 24 hours, tested as per test method outlined in AS:6669 for Plywood Formwork, this relates to both rain and moisture penetration conditions created from wet concrete.
- > When concrete is poured against the surface of the engineered panel, the face veneer is where the moisture absorption takes place, the absorption into the remainder of the panel is slowed by the barrier of resistance created by each glueline in the construction. Generally, the moisture will only be high in this outer layer after rain or during the setting time of the concrete, hence its ability to return quickly to equilibrium moisture content.
- > If extended periods are required between installation and pouring, the product should be sealed with a recommended timber sealer product (see general information).
- > Glue line bonds within the timber component of the InfillPlus® panel are of Type A as per AS:2269 for exterior structural plywood.
- > Bonding of Plywood Panels to fibre cement sheeting is with a Phenol - Resorcinol marine adhesive and manufactured in accordance with AS2269 - this product provides an extreme bond connection between the timber and fibre cement components – is a fully waterproof adhesive with extensive design life as well as repelling unwanted moisture uptake into the panel.
- > The process of application to bonding the fibre cement to the Plywood panels is done by applying a metered application of adhesive to the engineered timber panel and fibre cement cured through a time – temperature set automated hot pressing process.

GENERAL INFORMATION

- > The design tables and details in this guide are optimised using the strongest direction of the composite veneer. InfillPlus® panels must only be installed in the direction as detailed.
- > The tables provided assume a distributed total 4kPa load (400kg/m²) for combinations of concrete, workers and stored or stacked materials.
- > The tables in this guide are provided using only the properties and strength of the engineered timber, any added consideration has been taken into account for the fibre cement sheeting on the bottom side.
- > Big River InfillPlus® can be installed and not poured on for periods up to 3 months if sealed with Cutek CD-50 or Avista extended wear concrete sealer, please check with Big River for further assistance and information on extended periods.
- > All Big River InfillPlus® panels now come standard with a minimum of two layers of hardwood in the construction to create higher stability and strength.
- > If being left for extended periods, inspection by the contractor should be carried out before pouring.

- > Big River Group recommends bonding and sealing of sheets to bearing areas with Bostik Ultraset SF or comparable.
- > The dynamic loading of the InfillPlus® has demonstrated resistance to a factored impact load from a 127 kg worker from a height of 700 mm.

STORAGE & HANDLING

- > Big Rivers InfillPlus® should always be stacked with the FC sheeting on the bottom side of the panel.
- > Sheets should always be kept stacked neatly and supported evenly by bearers when stored as not to encourage twisting or bowing of the sheet.
- > Efforts should be made to cover packs of product whilst stored externally or in uncovered areas where possible.
- > When handling sheets, care should be taken not to drop or chip the fibre cement panel bonded to the underside, even though being bonded to plywood does give added shock absorption.