

I BUILTTM PLY

STRUCTURAL PLYWOOD GUIDE

August 2023

- Manufactured to AS/ NZS2269:2012 Structural Plywood Standard.
- Grades, CD and DD.
- Untreated and treated.
- Square edge and tongue & groove.
- FSC or PEFC Chain of Custody certified.
- Stress grades F8, F11 and F14.



Certification for New Zealand

All I Built structural plywood is manufactured to AS/NZS 2269.0:2012 Plywood Structural standard to meet the New Zealand market. All plywood is 3rd party certified by the following organisations.

Manufacturer	Certifier
PNGFP	EWPA
JNL	EWPA
CMPC	BSI (Benchmark)
Arauco	SAI Global

Chain of custody

I Built's range of structural plywood hold chain of custody certification. This can either be FSC (Forest Stewardship Council) or PEFC (Programme for the Endorsement of Forest Certification).

Both FSC and PEFC promote a chain of custody system that tracks the wood from source to the final product, ensuring that the wood fibre contained in the finished product originates from sustainably managed forests.

For a product to qualify for FSC or PEFC Chain of Custody accreditation, all entities along the supply chain must possess Chain of Custody certification for each program and undergo regular audits.

F8-F14 Characteristic properties

F8, F11, F14 plywood characteristic properties						
Stress Grade	Characteristic Strength, Mpa				Short Duration average Modulus of Elasticity, Mpa (E)	Short Duration average Modulus of Rigidity, Mpa (R)
	Bending (f'b)	Tension (f't)	Panel Shear (f's)	Compression (f'c)		
F8	25	15	4.2	20	9100	455
F11	31	18	4.5	22	10500	525
F14	36	22	4.8	27	12000	625

Characteristic properties for F-Grades as per AS/NZS2269.0:2012, Table 4.1.

Structural plywood identification

Structural plywood is identified by checking the rear of the sheet for the following markings:

- Manufacturers name or brand and mill reference.
- The word 'Structural'
- Reference to AS/NZS 2269.0:2012
- Stamp identifying 3rd party certifier
- Face grade for the front and rear veneer. (i.e. CD/DD)
- Sheet Glue bond. (i.e. A Bond)
- Sheet Stress grade. (i.e. F8/F11/F14)
- Panel construction code (i.e. 17-22-5) 17mm thick - 2.2mm Face Veneer - 5 Veneers
- Formaldehyde emission class. (i.e. EO)
- If treated, treatment plant and chemical type stamped on the sheet as a separate stamp.

Each plywood sheet is also stamped with the mill code that identifies when the sheet was made, batch and the time of manufacture. This code is critical when product identification is required with the mill.

Face grades

I Built plywood is available in the following face grades, which are defined in AS/NZS2269.0:2012 Structural Plywood standard. Plywood face grades are defined by the amount of splitting and/or knots that are visible on the outer veneers. Split length, imperfections and knot size/spacing all contribute towards the grading classification. Refer to AS/NZS 2269 for further detailed information regarding classifying veneer grades.



CD - C quality front/D rear face. Sound knots less than 50mm and open defects on the face are filled and sanded. Applications could include substrates for membrane systems, formwork, flooring, roofing and bracing.



DD - D quality to both faces. Non-appearance grade that contains knots less than 70mm and other unfilled defects. This is the most basic structural panel suited to non-visual structural applications.

Range

IBuilt stock a full range of CD and DD grade plywood in 2.4m, 2.7m and 3.0m long lengths. Included in the ply range is F14 structural ply which is New Zealand's strongest rated plywood and 3.0m long 12mm F8 – both exclusive to IBuilt.

CD Structural Plywood Range							DD Structural Plywood Range			
Ply Thickness	F8			F11		F14	Ply Thickness	F8		F14
	2.4m	2.7m	3.0m	2.4m	2.7m	2.4m		2.4m	2.7m	2.4m
7mm	SE						7mm	SE	SE	
9mm	SE						9mm	SE		
12mm	SE	SE	SE				12mm	SE		
15mm					TG		15mm	SE		
17mm							17mm	SE		SE
19mm						TG	19mm			TG
21mm	SE									
25mm										

SE - Square edged, TG - Tongue and grooved

Treatment

IBuilt's plywood range is available in the following options:

H3.2 CCA

Treated plywood is impregnated to H3.2 CCA (Copper Chrome Arsenic) hazard class treatment to AS/NZS 1604.1:2021 (Specification for preservative treatment). H3.2 CCA treatment leaves a green appearance to the ply sheet. CCA treated plywood is available in all thicknesses.

H3.2 MCA

Micronised Copper Azole treated timber is a non-arsenic based treatment that is considered a more environmentally friendly option over CCA. MCA treated plywood is available in 7mm, 9mm and 12mm.

H3.1 LOSP

Light Organic Solvent Preservative - Is a green or clear solvent based treatment. Solvent based preservatives can emit a strong odour, ensure the area is well ventilated while the solvent levels reduce during construction.

LOSP based treatment (or H3.1) is available on request only and is subject to terms and conditions.

Note: When using treated plywood it is good practise to re-treat cut ends with a brush on preservative such as Metalex. Do not use untreated plywood in weather exposed locations.

Glue bond

Structural plywood utilises a Phenolic Formaldehyde Type A exterior grade adhesive that provides a permanent bond between each veneer once cured. All IBuilt plywood achieves an 'EO' emission rating (less than 0.3mg/l) which is the lowest emission class rating that can be achieved.

Weather checking

When smooth faced plywood is used externally, weather cycling causes the face to shrink and swell – over time this causes splits in the face veneer called weather checking. While initially an aesthetic issue only, it can eventually cause the face to breakdown and affect durability.

IBuilt recommends CoreClad plywood for cladding applications. CoreClad has a textured face, which when painted protects the sheets from weather checking. Refer to the CoreClad cladding section on the IBuilt website.

Substrate use

Structural ply can be used as a substrate for permanent weather barrier systems such as roofing shingles, tiles, and under membrane systems. A minimum C grade face is recommended for roof and deck membrane systems. Membrane adhesives are generally not compatible with LOSP based treatments. Refer to the membrane system treatment requirements.

Construction exposure

Plywood can withstand normal weather exposure for up to 3 months during construction. If plywood is intended to be left exposed, it is recommended that it is protected during construction to minimise any staining or weathering. Where excessive wetting has occurred, all timber should be allowed to return to normal moisture content levels (18%) before being closed in.

Limitations of use

Untreated plywood must not be used externally or in high moisture areas. H3 treated plywood must not be in contact with the ground. It is not recommended to use smooth face plywood as a cladding – refer to IBuilt CoreClad which is manufactured with a textured face veneer specifically for exterior use. Ensure only compatible materials/fixings are in direct contact with CCA treated plywood.

Plywood general installation

On floor Joists:

When installing plywood on a floor joist system it must be installed perpendicular to the run of joists. Sheets must be fully screwed and glued using a suitable construction adhesive. Construction glue must be used to the full perimeter of the sheet and to all intermediate joists. Fixings generally at 150mm crs to the perimeter of the sheet and at 300mm crs to intermediate supports. Where flooring plywood has been specified as a diaphragm system, install as per the engineer's details.

On wall framing:

Wall framing is to be constructed in accordance with NZS3604:2011 and the New Zealand Building Code. Fixings generally at 150mm crs to the perimeter of the sheet and at 300mm crs to intermediate supports. Where plywood has been specified as a wall bracing system then the fixings shall be installed as per the engineer's details or bracing specification. Refer to IBuilt's Ply Bracing guide.

General installation to walls and floors:

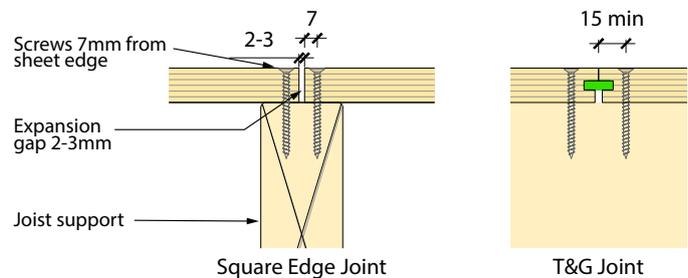
Fixings should be 7mm min from sheet edges for square edge panels and 15mm minimum from tongue and grooved edges. Corrosion resistant fasteners (hot dip galvanised fasteners or stainless steel) must be used when using H3 CCA treated plywood. Where stainless steel nails are used ensure they are annular grooved.

Recommended plywood fixing

Ply Thickness	Timber Framing		Steel Framing	
	Flat Head	Screws	Thick <1.5mm	Thick <2mm
12	50 x 2.8	8 x 40	10-24-40	10-16-40
15	50 x 2.8	8 x 40	10-24-40	10-16-40
17	60 x 2.8	8 x 50	10-16-45	10-16-45
19	60 x 2.8	8 x 50	10-16-45	10-16-45
21	60 x 2.8	10 x 50	10-16-45	10-16-45
25	75 x 3.15	10 x 50	10-16-45	10-16-45

Expansion gaps

2-3mm expansion gaps must be left to the square ends of the sheets to allow for expansion when installed as flooring and roofing. The tongued edge can be installed with no gap as there is a relief rebate on the back face of the sheet which allows for expansion and contraction. Tongue and groove joints do not require additional support under the sheet edges.



Handling and storage

IBuilt ply should be delivered dry and undamaged from freight and handling. All panels should be inspected upon the delivery. Ply should be lifted off the truck by hoist or hand.

Stack panels horizontally, dry and 100mm clear off the ground and supported on dry, clean timber bearers at maximum of 900 mm centres and at both ends of the panels.

Keep ply panels dry at all times, either by storing within an enclosed building or use an additional weatherproof cover as a secondary to packaging wrap if stored outside. Ensure that there is sufficient air flow to avoid condensation. Avoid storing over standing water or vegetation.