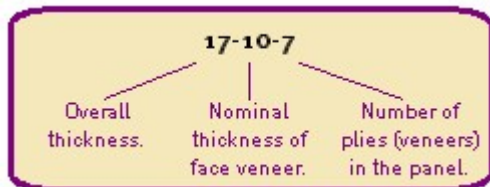


Identification & Codes

Table 1: Identification					
Identification code	FORMrite thickness	Parallel to face grain		Perpendicular to face grain	
		Moment of Inertia 1 (mm ⁴ /mm)	Section Modulus z (mm ³ /mm)	Moment of Inertia 1 (mm ⁴ /mm)	Section Modulus z (mm ³ /mm)
12-10-5	12	76.6	11.8	91.1	16.9
12-16-5	12	96.3	15.2	67.4	13.9
17-10-7	17	193.3	23	228.4	29.7
17-16-7	17	223.8	27.6	160.3	22.7

Design is usually deflection-controlled using standard engineering techniques according to the Australian and New Zealand codes and the section properties above.

Understanding Codes



For example, 17-10-7 is a 17mm thick panel with a 1.0mm face veneer and 7 plies. Note how different the properties of the two 17mm panels in Table 2 are when laid in different directions to the supports. Make sure you identify and use the correct one for a given design.

Framing and plywood thickness

Framing centres depend on the identification code and the direction of the face grain for a given pressure of wet concrete, and the design limit decided by the designer.

Table 2: Pressures

These are the allowable concrete pressures for FORMrite, continuously supported over three spans.

Thickness	12mm	17mm
Identification	12-10-5	17-10-7
Frames centres (mm)	Concrete pressure (kPa) for deflection limited to lesser of span/270 or 3mm. Suited to finish Class 2 (Australia) and F5 (New Zealand)	

Face grain across supports		
Thickness	12mm	17mm
225	32.8	60.8
300	18.4	34.2
400	8.6	19.3

Face grain parallel to supports		
Thickness	12mm	17mm
225	46.9	81.6
300	24.3	46.3
400	10.2	25.7

450	6.0	15.2
480	4.9	12.5
600	2.6	6.4

Allowable concrete pressures for different frame centres and a deflection limit of plywood span/270 or 3mm max are in Table 2 based on the use of F11 stress grade. Allowable pressures for F14, F17 and F22 stress grade FORMrite can be obtained by multiplying Table 2 values by 1.14, 1.33 and 1.5 respectively. In New Zealand, only F11 is regularly available.

Sheet layout

Lay sheets with the face grain (long edge) across the framing. Allow a 2 to 3mm expansion gap on all sheet edges. Use polystyrene filler or joint sealer in the expansion gaps if required.

Tips:

1. Used with proper release agents, edge and face tapes and solid perimeter fixing, Hardwood faced formply can achieve a Class 2 finish. Class 2 finish can only be achieved on one pour per face as the condition of the face after the first pour is out of our control.
2. It is a mandatory requirement of AS3610 to provide test panels if a Class 2 finish has been specified.
3. Allow for expansion and contraction of the panels to avoid possible buckling. Moisture uptake can increase the dimensions of the panel and an expansion gap of approximately 2mm is recommended.
4. Recommended fixing is with 50x2.8 or 60x2.8 nails for 17mm thick FORMrite. See Table 3 for fasteners. The practice of 4 nails in each corner does prevent uplift and sliding, however cannot be totally relied on for all classes of finish.
5. Hardwood faced formply provides a tighter colour and surface consistency and the number of re-uses is generally increased.
6. If the above recommendations are not adopted, a maximum of Class 3 can only be achieved.

Fasteners

Table 3: Fasteners

Here are the minimum recommended fastener sizes for use in timber or steel frames.

	Plywood thickness (mm)	
Nails in timber	12 40x2.5mm	17-10-7
Screws in timber	No. 8 x40 mm	No. 10 x50 mm
Screws in 1.15 mm steel	10-16-45	10-16-45
Screws in 2.8 mm steel	10-16-45	14-16-45
Self-drilling self-tapping countersunk screw: guage-thread pitch-length in mm		

For load information, consult the Carter Holt Harvey Plyfloor brochure and NZS 3603 or AS 1720.1 for further information. Use flathead nails or countersunk screws. Other specialty formwork fasteners may be used subject to performance.

- In timber framing, helical thread or longer nails can provide additional withdrawal resistance.
- In steel, shorter screws can be used provided the thread penetrates the steel fully (after fixing). Screwed joints between plywood and thicker steel are very stiff and small differential movement caused by construction moisture can generate excessive screw loads if the screws are too small.

- Fasten at 150 mm centres on edges and 300 mm centres on intermediate framing, or use proprietary formwork seating and fastening systems.
- To avoid staining of concrete if forms are used often, use hot dip galvanised, stainless steel or alloy nails or screws as required.

Release agents

Apply sparingly. Heavy application may cause runs and colour variation in the concrete.

Compliance

FORMrite is reliable, PAA (Plywood Association of Australia) quality tested plywood carrying the PAA quality stamp - your guarantee of performance. FORMrite can be used in compliance with the Building Code of Australia and the New Zealand Building Code as follows:

Structure

FORMrite is structural plywood manufactured to AS/NZS 2269 which is included in the timber engineering codes in Australia and New Zealand. FORMrite can be designed using AS 1720 Timber Structures Code or NZS 3603 Timber Structures Standard. Other components such as studs, walings, props, bearers etc should be designed using the relevant codes for timber or steel as appropriate.

Specifications

Surface overlay:

45/130 gsm phenolic impregnated paper.

Edge sealant:

Specially formulated to retard water penetration.

Glue bond:

Type A bond. Phenol formaldehyde.

Dimensions:

Sheet size (mm) 2400 x 1200 and (mm) 1800 x 1200. Tolerance +/- 4%.

Sheet weight (mm) 2400 x 1200		Sheet weight (mm) 2800 x 1200	
Thickness* (mm)	Weight** (kg)	Thickness* (mm)	Weight** (kg)
12	19.6	12	14.7
17	27.5	17	20.6

*Tolerance: As per AS/NZS 2269

**Tolerance: +/- 2%

Storage, handling and maintenance

- For best durability and longest re-use potential:
- Store under ventilated cover.
- Handle and stack with care to avoid damage.
- Stack flat clear of ground on at least three evenly spaced bearers.
- Re-seal cut edges with acrylic paint.

Formaldehyde Emissions

All FORMrite is manufactured using an 'A' Bond with less than 0.3mg/l Formaldehyde (equivalent to Super E0) emissions from the final product. [Click here](#) for formaldehyde certificate.

Limitations

All statements in this manual shall be read subject to the plywood being properly stored, handled, installed, used and maintained as appropriate to each application in accordance with this brochure, and subject to the governing codes of practice.