

IN ACCORDANCE WITH NCC VOLUME 2 (SECTION P3.10.1), THIS PRODUCT SATISFIES PERFORMANCE REQUIREMENT P2.1.1 FOR CONSTRUCTION IN A HIGH WIND AREA

SPECIFICATION

This data sheet covers the use of the range of 7.5mm thick HardiePlank® weatherboards in residential façade applications over a light-gauge steel frame or a timber wall frame and must be read in conjunction with the James Hardie product literature (currently "External Cladding Technical Specification").

All weatherboards, stock length 4200mm, are pre-primed, however, the final surface finish (coating, painting etc) must be in accordance with James Hardie product literature.

HARDIEPLANK® Weatherboard Descriptions:

"Old Style": Matt-smooth surface texture; available in 205mm width only; fixed with a maximum overlap of 25mm, effective cover per board is approx 180mm.

"Rusticated": Weathered rough-sawn timber surface texture; available in 205mm width only; fixed with a maximum overlap of 25mm, effective cover per board is approximately 180mm.

"Smooth": Matt-smooth surface texture; available in 230mm and 300mm widths; fixed with overlap of 25mm, effective cover per board is approx 205mm and 275mm respectively.

"Woodgrain": Timber-grained surface texture; available in 230mm and 300mm widths; fixed with overlap of 25mm, effective cover per board approx 205mm and 275mm respectively.

FRAMING & SHEET INSTALLATION

Install weatherboards to steel or timber stud-frames as shown in Figure 1 and/or Figure 2 with the stud spacing taken from **Table 1** or **Table 2**, noting that there are limitations with respect to the width of the weatherboard that may be used in the particular wind classification.

All intermediate support studs must be at least 64mm wide x 35mm deep for metal framing and 70 x 35mm for timber.

Framing – Steel

The steel wall frame (minimum 64 x 35mm studs) must be in accordance with NCC 2019 Clause 3.4.2.0. Studs to be rolled steel sections not exceeding 2mm in thickness.

Framing – Timber:

Use of timber framing must be in accordance with AS 1684: 2010 "Residential timber-framed construction" and framing manufacturer's specifications. Use seasoned timber or else unseasoned hardwood minimum F14 grade. LVL timber may be used.

Jointing:

In non-coastal areas, the ends of HardiePlank weatherboards may be jointed off-stud by means of metal soakers (see Figure 26 of product literature). In coastal areas (ie within 1km of the shoreline or a large body of salt water) the boards must be jointed on-stud.

FIXING / FASTENERS

Fixings All fixings and fastener may be minimum Class 3 finish if concealed and/or sealed, but must be Class 4 if exposed to the elements. Fasten through both thicknesses of plank, two fasteners per plank per stud. The minimum edge distance at the ends of the boards is 25mm.

TABLE 1: Max Plank Width & Stud Spacing for Wind Pressure

AS 4055 Wind Load Class	Max Width of Plank Allowed (mm)	General Areas Of Building		Within 1200mm of Building Edges	
		ULS Pressure (kPa)	Stud Spacing (mm)	ULS Pressure (kPa)	Stud Spacing (mm)
C1	300	-0.98 +1.05	600	-1.95	steel: 600 timber: 450
C2	300	-1.45 +1.56	600	-2.90	steel: 450 timber: 300
C3	230	-2.14 +2.30	450	-4.27	steel: 450 timber: 300
C4	205	-2.88 +3.11	450	-5.77	300

TABLE 2: Test-Proven ULS Design Pressure Capacity

Stud Spacing (mm)	STEEL	TIMBER
600	2.6	1.7
450	4.4 (3.0 with stud clips)	2.6 (2.0 with stud clips)
300	5.1 (300 wide) 7.0 (205 wide)	3.3 (300 wide) 5.8 (205 wide)

Steel-Framed Construction:

For steel framing, use 30mm ITW Buildex 'Fibre Tek's' screw or 8g – 32mm or 40mm HardieDrive™ self-embedding head screw. Use longer Buildex CSK ribbed head wing-tip screws, if needed, with thermal break.

Timber-Framed Construction:

The same stud spacing designs may be applied equally using 40mm long Ø 2.8mm fibre-cement (FC) nails. The racking capacities quoted below may be claimed provided that cyclone rods are used.

STRUCTURAL BRACING

When fasteners pass through both planks as in Figure 1 (as opposed to concealed fixing in Figure 2), bracing capacity may be claimed. For wall heights of both 2400mm and 2700mm, the ULS racking capacity for 1.6mm gauge welded steel framing is 2.0kN/m for 600mm stud spacing, 2.4kN/m for 450mm stud spacing and 3.6kN/m for 300mm stud spacing.

For timber framing the capacity is 2.4kN/m for stud spacing up to 600mm provided that M12 cyclone rods are used with a spacing to be determined from AS 1684.3: 2010, but never more than 2.4m apart if bracing capacity is claimed.

These capacities are provided regardless of whether the required internal lining has been installed. If a 6mm JHFC internal lining is added (refer to the James Hardie DTC sheet for structural bracing), the capacity rises to 6.6kN/m for timber and steel framing.

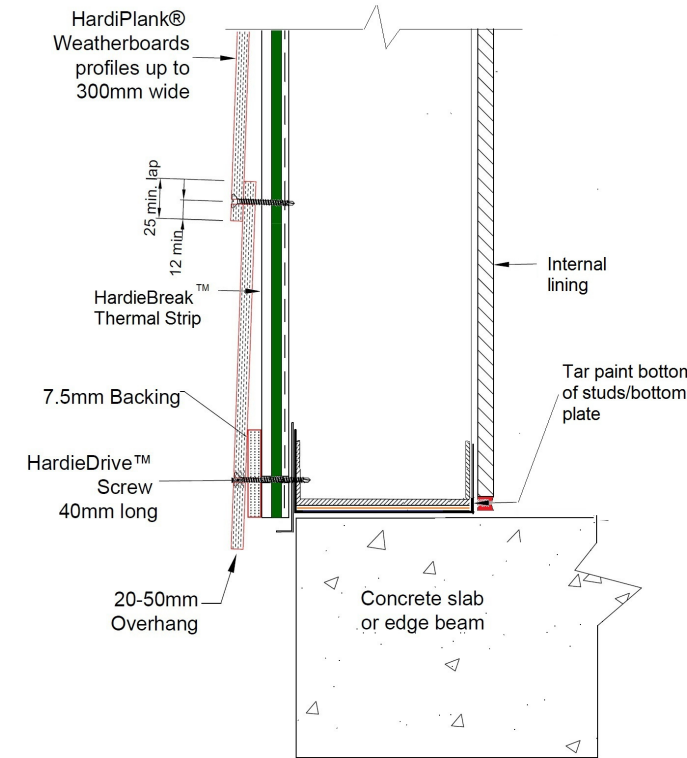


Figure 1: Exposed Fixing Detail
(when bracing capacity is required)

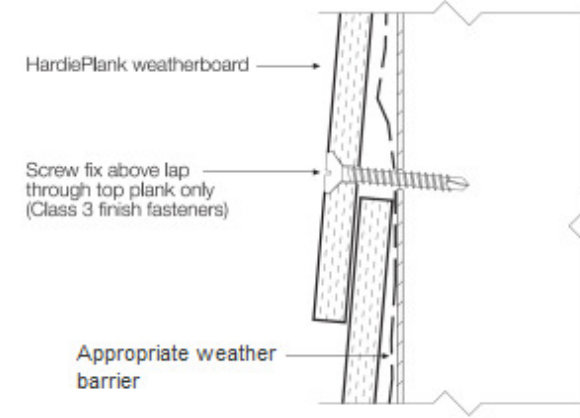


Figure 2: Concealed Fixing Detail
(when no bracing capacity is required)

DETAILS & OTHER MATTERS

More extensive construction details and jointing details are provided in current James Hardie literature for HardiePlank® weatherboard cladding. Refer also to the system Warranty in that literature.

For further details on matters such as an appropriate weather barrier (eg vapour permeable sarking), flashing, system accessories and finishing, refer to current James Hardie technical literature for HardiePlank® weatherboards, the NCC or relevant Australian Standards.

Product Name:
HARDIEPLANK® WEATHERBOARDS

Product Description:
7.5mm Pre-Primed External Wall Cladding

Manufacturer's Name:
James Hardie Australia Pty Ltd
10 Colquhoun Street, Rosehill NSW 2142



Design Criteria:

[1] General
All design and construction must comply with the appropriate requirements of the current National Construction Code (NCC) and other applicable regulations and standards.

[2] Wind Loading
The weatherboards must be fastened to the timber or steel frame in accordance with **Table 1** for the different wind classifications, which are taken from AS 4055: 2012 "Wind Loads for Housing". The effective design wind speeds are given in Table 2.1 of AS 4055.

For design to AS/NZS 1170: 2011 Part 2 "Wind Actions", the test-proven Ultimate Limit State (ULS) design capacity of the system is given in **Table 2**, noting that an ULS material capacity reduction factor ('phi') is implicitly included and no further factoring of the design capacity is needed.

Limitations:

[1] HardiePlank® weatherboard is an external wall cladding for residential use only. This cladding has been designed for external pressure and suction loadings only. The designer must ensure that the framing is capable of resisting simultaneously the internal and external design pressures (ie **an internal lining is required**).

[2] To use **Table 1**, the design must comply with geometric limits given at Clause 1.2 of AS 4055: 2012 (eg max eaves height = 6m and max building width = 16m), except as varied by the design engineer.

[3] Stud clips may be used only in wind classifications up to C2 for steel framing and C1 for timber framing. Fasten stud clips with short 5mm diameter hex head Tek's screws or equivalent. One stud clip per plank per stud.

[4] Fastening: Drive screw head flush with plank surface. Locate fastener as shown in the diagrams, but never less than 12mm from top or bottom edges of the weatherboard.

Accepted for Inclusion

DTCM ref: M/728

Notes covering basis of DTC (relevant test reports etc):

The nominated structural capacity of the system is based on the following documentation:

- [1] James Hardie Advice Note dated 31 July 2010 "Addendum to the June 1995 Submission on the Derivation of Design Tables for External Cladding Systems in the Northern Territory".
- [2] James Hardie Submission dated 30 June 1995 "Derivation of Proposed Design Tables for Eaves & Soffit Linings & External Cladding Systems for Use in the Darwin Deemed-to-Comply Manual", which includes uniform load testing reports by Karl Danenbergsons dated 13 April 1995 and Clayton Frick dated 30 June 1995.
- [3] James Hardie letters dated 7 August 1996 to the NT Building Advisory Services Branch and Colless & O'Neill Pty Ltd regarding the outcome of testing cyclic versus static loading.
- [4] Cyclone Structural Testing Station Report No.TS 471 dated 23 July 1996 "Static and Cyclic Uniform Loading of Hardiflex Cladding".

***Design Engineers Certification**

Name: PRAVEEL PRASAD
Cardno (NSW/ACT) Pty Ltd
Rego Number: IEAUST 923657
Date: 14 October 2020
Signature: *Prasad.*
*registered as a structural engineer in Australia

****Certifying Engineers Certification**

Name: DAVID BENEKE
NT Rego Number: 58478 ES
Date: 15 October 2020
Signature: *DB*
**registered as a structural engineer in Northern Territory

Chairman's Signature:

Chairman's Name: Paul Nowland

Date of Approval: 18/12/2020
Expiry Date: 18/12/2025