

**NORTHERN TERRITORY DEEMED TO COMPLY MANUAL – National Construction Code Volume 2 (Section 3.0.4 Structural resistance of materials in high wind areas)**

This product has been determined to satisfy NCC Performance Requirement P2.1.1 for structural stability and resistance

**SPECIFICATION**

This data sheet covers the use of 9mm thick Axon™ cladding in residential façade applications over a light-gauge steel frame and must be read in conjunction with current James Hardie literature for the product, namely "Axon Cladding: Installation Instructions" (currently dated Jun 2020).

**FRAMING & SHEET INSTALLATION**

Install sheets vertically to steel or timber stud-frames as shown in **Figure 1** and in accordance with the stud and fastener spacing given in **Table 1** and **Table 2** depending on the wind load classification or design pressure.

Framing width at sheet joints must be a minimum of 38mm for steel. Where the studs at sheet joints are less than this, provide double 35mm wide studs at sheet joints. Ensure that double studs are fastened together and flush at the outside face.

All intermediate support studs for steel framing must be a minimum of 64 x 35mm.

All sheet edges and joints must be fully supported by framing.

**Framing – Steel**

The steel frame must be in accordance with Clause 3.4.2.0 of the NCC. Studs shall be rolled steel sections not exceeding 2mm in thickness.

**Jointing:**

Sheet joints must coincide with the centre line of the framing member (see **Figure 2**).

**FIXING / FASTENERS**

Fixings and fastener may be minimum Class 3 finish if concealed and/or sealed, but must be Class 4 if exposed to the elements. Use the following fasteners or approved equivalent fasteners:

**Fasteners - Steel Framing:**

Use 35mm or 40mm Buildex Wing Tek® screws or 32mm or 40mm HardieDrive® screws or 32mm or 42mm Quickdrive (CBSDG series) screws.

In wind classification C1 or design pressure up to 2.0kPa, 25mm DA stainless steel brad nails may be used when fixing to cavity battens placed over the steel framing. Fix cavity battens to framing using 40mm Hardidrive® screws spaced at 300mm for pressure up to 2.4kPa and at 200mm for pressure between 2.5kPa and 6.6kPa.

**DETAILS & OTHER MATTERS**

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

For further details on matters such as a thermal break, an appropriate weather membrane (eg "sarking"), flashing, system accessories and finishing, refer to current James Hardie technical literature for Axon, the NCC or relevant Australian Standards.

**Table 1: Maximum Stud & Fastener Spacing for AXON Cladding in AS 4055 Wind Classifications**

AS 4055 Wind Classification	General Areas of Walls				Within 1200mm of Building Edges			
	Max Design Pressure (kPa)	Stud Spacing (mm)	Sheet Fastener Spacing (mm)	25mm DA Brads (mm)	Max Design Pressure (kPa)	Stud Spacing (mm)	Sheet Fastener Spacing (mm)	25mm DA Brads (mm)
C1	-0.98	600	200	150	-1.95	600	200	150
C2	-1.45	600	200		-2.90	600	200	
C3	-2.14	600	200		-4.27	450	150	
C4	-2.88	600	200		-5.77	400	125	

**Table 2: Test-Proven ULS Design Pressure Capacity of Axon Cladding**

Stud Spacing (mm)	Fastener Spacing (mm)	ULS Design Pressure Capacity (kPa)
600	150 Brad nails	2.0
	200	3.0
450	150	4.3
400	125	5.8
300	125	6.6

\*Note to Tables 1 & 2: For fixing sheet to cavity battens placed over the steel frame, 25mm DA SS brad nail may be used in wind classification C1 or up to design pressure of 2.0kPa only, but must be spaced at a maximum of 150mm. The allowable edge distance, however, may be reduced to 12mm.

**STRUCTURAL BRACING**

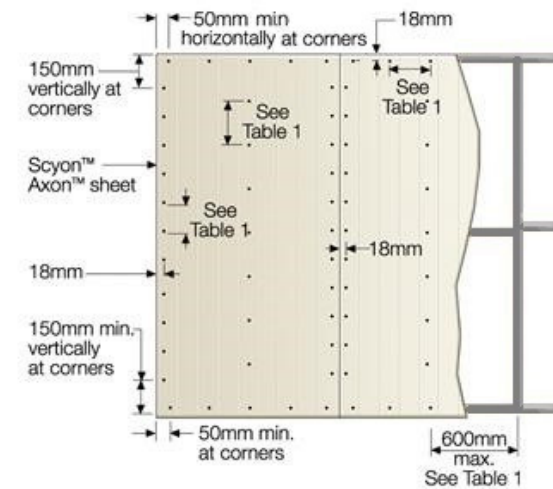
**Table 3** provides the ULS design bracing capacity of Axon cladding when fixed in accordance with Table 1 and 2 stud and fastener spacing for wall heights of both 2400mm and 2700mm.

Note: Bracing capacity is currently not applicable when fixing to cavity battens or over thermal break – please contact James Hardie to check status of this matter.

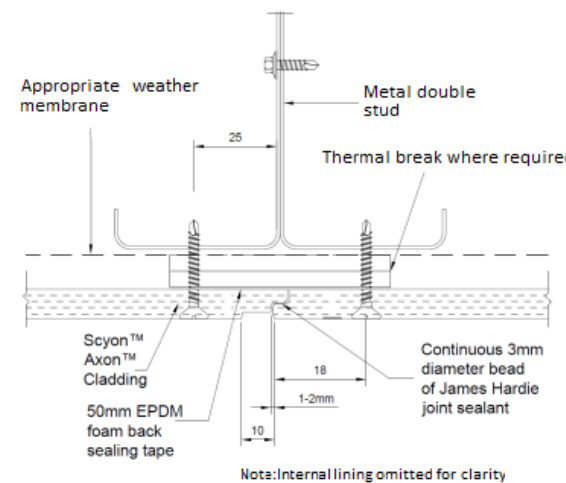
**Table 3: ULS Design Bracing Capacity of Scyon Axon Cladding**

Framing Details		Max Stud Spacing (mm)	Bracing Capacity (kN/m)
Welded steel framing 1.2mm gauge	Single-sided	450	5.8
	Double-sided	450	6.0
Welded steel framing 1.6mm gauge	Single-sided	450	6.0
	Double-sided	450	7.8
	Single-sided	300	7.5
	Double-sided	300	11.0

Note: Double-sided means that there is an internal lining of James Hardie fibre-cement sheet of thickness at least 6mm with fasteners spaced at 200mm maximum throughout the sheets. Refer also the James Hardie NT DTC data sheet for structural bracing.



**Figure 1: Sheet Fastening Spacing**



**Figure 2: Sheet Joint on Steel Framing**

Product Name

**AXON™CLADDING**

Product Description

**9mm External Vertical Cladding for Walls  
STEEL FRAMING**

Manufacturer's Details

**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 cladding sheet must be fastened to the frame in accordance with **Table 1** for the different wind classifications, which are taken from AS 4055:2021 "Wind Loads for Housing". The effective design wind speeds are given in Table 2.1 of AS 4055: 2021.

For design to AS/NZS 1170: 2021 Part 2 "Wind Actions", the test-proven 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] Axon 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. An internal lining is required.

[2] To use **Table 1**, the design must comply with the geometric limits given at Clause 1.2 of AS 4055: 2021 (eg max eaves height = 6m and max building width = 16m), except as varied by the design engineer.

[3] All fasteners specified must be driven flush. Do not fix fasteners closer than 18mm from edges or closer than 50mm horizontally and 150mm vertically from sheet corners (refer to dimensions shown in **Figure 1**).

Accepted for Inclusion in Deemed to Comply Manual

DTCM drawing number: **M/345/01**

Chairperson's Signature:

Chairperson's Name:

**Paul Nowland**

Date of Approval:

**03/02/2022**

Expiry Date:

**03/02/2027**

**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 "Revised Design Pressure Capacity for Axon Cladding" dated 23 September 2021.
- [2] James Hardie Test Report TS028-06 "Uniformly Distributed Load Test on External Vertical Cladding (Axon) Fibre Cement Sheeting, Investigating the Use of Brad Nails versus Gal FC Nails" dated 19 June 2006.
- [3] James Hardie Advice Note "Australian Design Bracing Capacities for Axon Cladding on Timber Framing, Timber Framing with Tie Rods and Steel Framing" dated 12 September 2006.
- [4] James Hardie Advice Note "Design Bracing Capacities for Axon External Vertical Cladding in the Australian Market" dated 22 August 2006.
- [5] BRANZ Test Report ST0632/1 "Indicative Tests for James Hardie" dated 22 June 2006.

**Checking Engineer**

Name: **PRAVEEL PRASAD**  
Cardno (NSW/ACT) Pty Ltd

Registration Number: **IEAUST 923657**

Date: **25 October 2021**

Signature:

Must be an Australian-registered structural engineer

**Certifying Engineer**

Name: **DAVID BENEKE**

NT Registration Number: **58478 ES**

Date: **27 October 2021**

Signature:

Must be a registered structural engineer in the Northern Territory