

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: SCYON™ MATRIX™ CLADDING

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

FRAMING & INSTALLATION

Install cavity trim and Matrix sheets as follows:

On-Stud Fixing: Vertical panel joints must be located centrally over the cavity trim. Refer to **Figure 2**.

Off-Stud Fixing: Noggings must be installed at max 800mm apart. Refer to Figure 5 of product literature. This method is not suitable for high wind loads (see **Table 1** and **Table 2**).

Framing – Steel:

The steel wall frame (minimum 64 x 35mm studs) must be in accordance with NCC Clause 3.4.2.0. Studs to be rolled steel sections not exceeding 1.6mm in thickness.

Fixing Cavity Trim:

The cavity trim is installed vertically over the appropriate weather barrier to the stud wall frames (either on-stud or off-stud) using the fasteners specified below:

Steel Framing: for 0.8 – 2.0mm BMT, use 40mm Hardidrive® screw.

Fixings and fastener may be minimum Class 3 finish if concealed and/or sealed, but must be Class 4 if exposed to the elements.

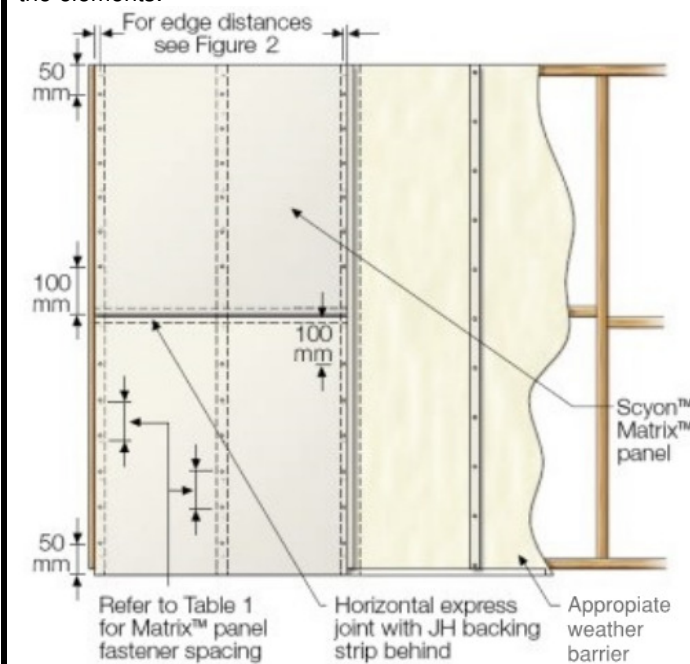


Figure 1: Sheet Fastening Spacing

TABLE 1: Maximum Stud, Batten & Fastener Spacing for Wind Pressure Design to AS 4055: 2021

Wind Load	General Areas of Building					Within 1200mm of Building Edges				
	AS 4055 Classification (Cyclonic)	Max Design Pressure (kPa)	Can Battens Be Fixed Off-Stud?	Stud / Batten Spacing (mm)	Batten Fastener Spacing (mm)	Sheet Fastener Spacing (mm)	Max Design Pressure (kPa)	Can Battens Be Fixed Off-Stud?	Stud / Batten Spacing (mm)	Batten Fastener Spacing (mm)
C1*	-0.98	YES	600	300	200*	-1.95	YES	600	300	200*
C2	-1.45	YES	600	300	200	-2.90	NO	600	200	200
C3	-2.14	NO	600	200	200	-4.27	NO	400	200	200
C4	-2.88	NO	600	200	200	-5.77	NO	400	200	150

* ND 50mm SS brad nails may be used in C1 only (for fixing the Matrix sheets to the cavity trim battens).

TABLE 2: Fixing Configurations for Wind Pressure Design to AS/NZS 1170.2: 2021

ULS Design Wind Pressure or Suction (kPa)	Can Battens Be Fixed Off-Stud?	Stud / Batten Spacing (mm)	Batten Fastener Spacing (mm)	Sheet Fastener Spacing (mm)
Up to 2.0*	YES	600	300	200
2.0 to 2.4	NO	600	300	200
2.5 to 3.0	NO	600	200	200
3.0 to 4.8	NO	400	200	200
4.8 to 5.8	NO	400	200	150

* ND 50mm SS brad nails may be used up to 2.0kPa only (for fixing the Matrix sheets to the cavity trim battens).

FIXING MATRIX PANELS

Matrix panels must be fixed to the cavity trim and installed with a 10mm expressed joint between adjacent panels, vertically and horizontally as shown in **Figure 1**. For max sheet fastener spacing, see **Tables 1 & 2**. A continuous bead of James Hardie joint sealant is applied to the Scyon cavity trim to fix the back of the Matrix panel to the trim.

Fasteners:

For screw fastening, a clearance hole must first be made using a 6mm masonry drill bit.

Countersunk head fastening: use No.8-10 x 25mm Class 3 galvanised countersunk needlepoin chipboard screws. Refer to **Figure 2** for details and sheet edge clearance of 18mm.

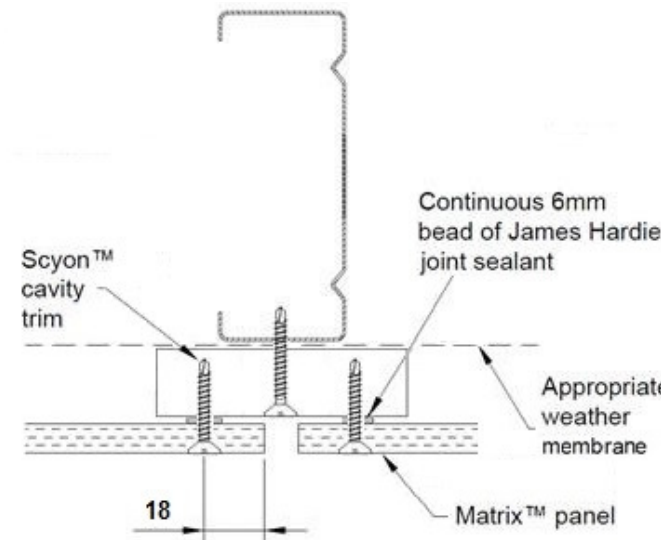
Exposed head fastening: use No.8-15 x 25mm wafer or hex-head screws, Class 3 minimum coating. Same edge clearance as **Figure 2**.

2.8 x 30mm galvanised fibre cement nails (edge clearance 12mm) may also be used for fixing the Matrix sheets to the cavity trim battens.

DETAILS & OTHER MATTERS

More extensive construction details and jointing details are provided in current James Hardie literature for Scyon Matrix 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 Scyon Matrix, the NCC or relevant Australian Standards.



Internal lining omitted for clarity

Figure 2: Countersunk Screw Fixing

Product Name

SCYON™ MATRIX™ CLADDING

Product Description

8mm Cladding for Residential Façades

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] Scyon Matrix 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 screws closer than 18mm from edges (12mm if nails used with cavity battens) or closer than 50mm vertically from sheet corners (refer to dimensions shown in **Figure 1**).

Accepted for Inclusion in Deemed to Comply Manual

DTCM drawing number: **M/344/01**

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 "Design of Matrix Residential Façade System to Cater for AS 4055 Wind Pressure Classifications" dated 6 July 2006.
- [2] James Hardie Advice Note "Design Tables for Matrix Residential Façade System" dated 7 July 2006.
- [3] James Hardie Test Report TS015-05 "Uniformly Distributed Load Test on FC Sheeting, Investigating Potential Use of FC Battens in Place of Timber Battens in accordance with ASTM E72-98" dated 7 April 2005.
- [4] James Hardie Test Report TS046-05 "Uniformly Distributed Load Test on Residential Façade Using FC Battens in accordance with ASTM E72-98" dated 6 December 2005.
- [5] Test Report TS003-09-B: Product Evaluated: HardiTex VJ Boards; Evaluation Property: Uniformly Distributed (Wind) Load & Comparison Between Timber & Steel Framing, dated 23 February 2009.
- [6] Cardno Letter "Certification of James Hardie Matrix Residential Façade System" dated 18 July 2006.

Checking Engineer

Name: PRAVEEL PRASAD
Cardno (NSW/ACT) Pty Ltd
Registration Number: IEAUST 923657
Date: 25 October 2021
Signature: *Prasad.*

Must be an Australian-registered structural engineer

Certifying Engineer

Name: DAVID BENEKE
NT Registration Number: 58478 ES
Date: 27 October 2021
Signature: *DB*

Must be a registered structural engineer in the Northern Territory

Chairperson's Signature:

[Signature]

Chairperson's Name:

Paul Nowland

Date of Approval:

Expiry Date:

03/02/2022

03/02/2027