

**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 use of 4.5mm HardieFlex™ sheet, HardieFlex Eaves Lining and/or Versilux® sheet in residential “box-framed” eaves and soffit lining applications over light-gauge steel or timber framing and must be read in conjunction with current James Hardie product literature, namely the “Eaves & Soffits Technical Specification”.

Sheets must be coated in accordance with the product literature.

**Box-framed eaves** are where trimmers are provided, spanning from the fascia to the external wall of the building as shown in **Figure 1**, with longitudinal battens at positions ‘A’ and ‘B’ such that the lining sheets are supported on all four sides in square or rectangular panels (‘boxes’), allowing the sheet to span in both directions.

**FRAMING & SHEET INSTALLATION**

Install sheets to steel or timber trimmers as shown in **Figure 1** and in accordance with the trimmer and fastener spacing given in **Table 1** depending on the wind load classification.

Most commonly, the required trimmer spacing given in **Table 1** is neither modular with the roof truss spacing (likely to be 900mm) nor with the wall stud spacing (likely to be 450mm). And, since box-framed eaves are designed as flat structures needing to be supported and fixed to framing on all four edges, a “wall batten” needs to be fixed at position ‘A’ and similarly a “truss batten” needs to be fixed at position ‘B’ inside the fascia, either supported by hangers from the rafter or else bird-noued into the underside of the rafter. The trimmers are then appropriately fixed between these battens.

Framing width at sheet joints must be a minimum of 42mm for timber and 38mm for steel. Where the trimmers at sheet joints are less than this, provide double 35mm wide trimmers at sheet joints.

Battens ‘A’ and ‘B’ and intermediate support trimmers must be a minimum of 64 x 35mm deep for metal framing and 70 x 35mm for timber and fixed in accordance with the details in the Technical Specification.

**Framing – Steel**

The steel framing (minimum 64 x 35mm sections) must be in accordance with NCC 2019 Clause 3.4.2.3. Studs, trimmers and battens shall be rolled steel sections not exceeding 2.0mm 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.

**Support at Fascia & Walls:**

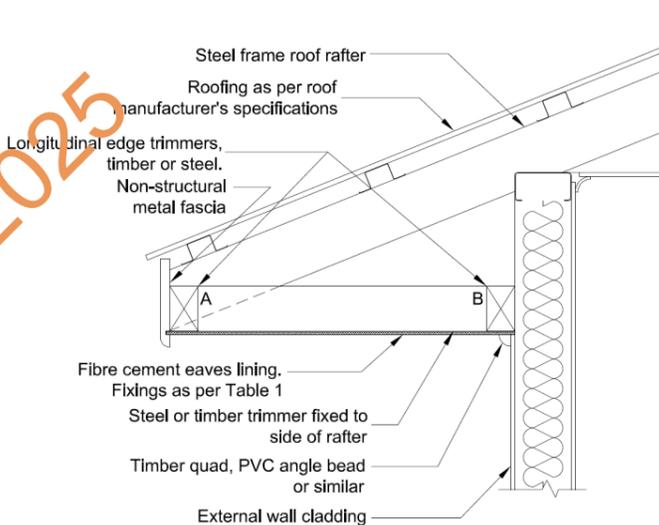
ALL SHEET EDGES AND JOINTS MUST BE SUPPORTED BY THE FRAMING. Cantilever edges are not permitted. The fascia board groove, if used, must therefore provide secure support along the outer edge, otherwise a batten must be provided in this position ‘B’ to support the trimmers.

**Jointing:**

HardieFlex and Versilux soffit sheets are normally jointed with a PVC straight jointing mould as shown in **Figure 3**, although butt joints may also be used as shown in **Figure 2**. Sheet joints must coincide with centre line of the trimmer or framing member (see Figures 2 and 3).

**TABLE 1: Maximum Trimmer & Fastener Spacing for Wind Pressure to AS 4055 or Equivalent Pressure**

Soffit Width (mm)	AS 4055 Wind Classification (Cyclonic)	Within 1200mm of External Building Corners			Elsewhere in Building		
		ULS Design Suction (kPa)	Trimmer Spacing (mm)	Fastener Spacing (mm)	ULS Design Suction (kPa)	Trimmer Spacing (mm)	Fastener Spacing (mm)
Up to 600	C1	1.95	450	250	0.98	600	300
	C2	2.90	375	200	1.45	500	300
	C3	4.27	300	175	2.14	450	225
	C4	5.77	275	150	2.88	375	200
600 to 1200	C1	1.95	450	250	0.98	600	300
	C2	2.90	375	200	1.45	500	300
	C3	4.27	300	175	2.14	400	250
	C4	5.77	275	150	2.88	375	200



**Figure 1: Box-Framed Eaves Detail**

**FIXING / FASTENERS**

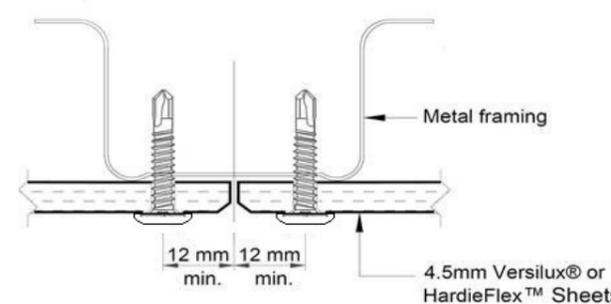
Fixings and fastener may be minimum Class 3 finish if concealed and/or sealed, but must be Class 4 if exposed to the elements. The outer (edge) fasteners to trimmers must be positioned 50mm away from the fascia and external wall. Thereafter spacing must be as per **Table 1**.

**Fasteners - Steel Framing:**

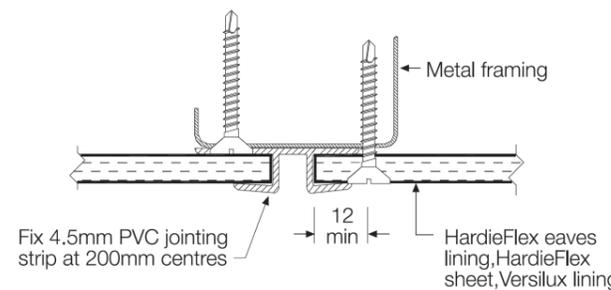
For 4.5mm thick JHFC sheets, use non-embedding, wafer-head (“express”) screws with a head diameter of minimum 10mm. Embedding screws may be used when the joining strip is used as shown in Figure 3.

**Fasteners - Timber Framing:**

2.0mm diameter x 30mm long galvanised fibre cement nails.



**Figure 2: Butt Joint Fixing**



**Figure 3: Fixing using PVC Jointing Strip**

**DETAILS & OTHER MATTERS**

More extensive construction details and jointing details are provided in current James Hardie literature for HardieFlex and Versilux eaves linings. Refer also to the Warranty in that literature.

For further details on matters such as an appropriate weather barrier, flashing, system accessories and finishing, refer to current James Hardie technical literature for HardieFlex and Versilux eaves linings, the NCC or relevant Australian Standards.

Product Name:

**BOX-FRAMED EAVES LINING WITH 4.5mm HARDIEFLEX™ & VERSILUX® SHEET**

Product Description:

**4.5mm External Cladding for Eaves**

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 box-framed eaves lining sheet must be fastened to the appropriate framing 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 Ultimate Limit State (ULS) design capacity of the system may be deduced from **Table 1**, noting that an ULS material capacity reduction factor (‘phi’) is implicitly included and no further factoring of the design capacity is needed.

**Limitations:**

[1] HardieFlex and Versilux box-framed eaves lining sheets are designed as external cladding for residential use only. This cladding has been designed for external pressure and suction loadings only. The designer must ensure that no internal pressure or suction arises from within the enclosed roof spaces otherwise 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: 2012 (eg max eaves height = 6m and maximum building width = 16m), except as varied by the design engineer.

[3] Fastening: Do not fix fasteners closer than 12mm from panel edges, or closer than 50mm from sheet corners.

**Accepted for Inclusion**

DTCM ref: M/727

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

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

- [1] Cardno MBK Letter of Certification dated 1 July 2004 for James Hardie 4.5mm thick Eclipsa™ eaves, which covers the current James Hardie eaves and soffits literature.
- [2] James Hardie Submission to Cardno MBK Engineers dated 21 May 2004 “Proposed Certification of Designs for James Hardie Eclipsa™ Fibre-Cement Eaves Lining”, updated 29 January 2020, noting that design calculation using a Roark plate model allows for the use of the PVC jointer mould.
- [3] Cyclone Structural Testing Station Report No.TS 471 dated 23 July 1996 “Static and Cyclic Uniform Loading of Hardiflex Cladding”.

**\*Design Engineers Certification**

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Date: 14 December 2020  
Signature: *Prasad.*  
\*registered as a structural engineer in Australia

**\*\*Certifying Engineers Certification**

Name: DAVID BENEKE  
NT Rego Number: 58478 ES  
Date: 14 December 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