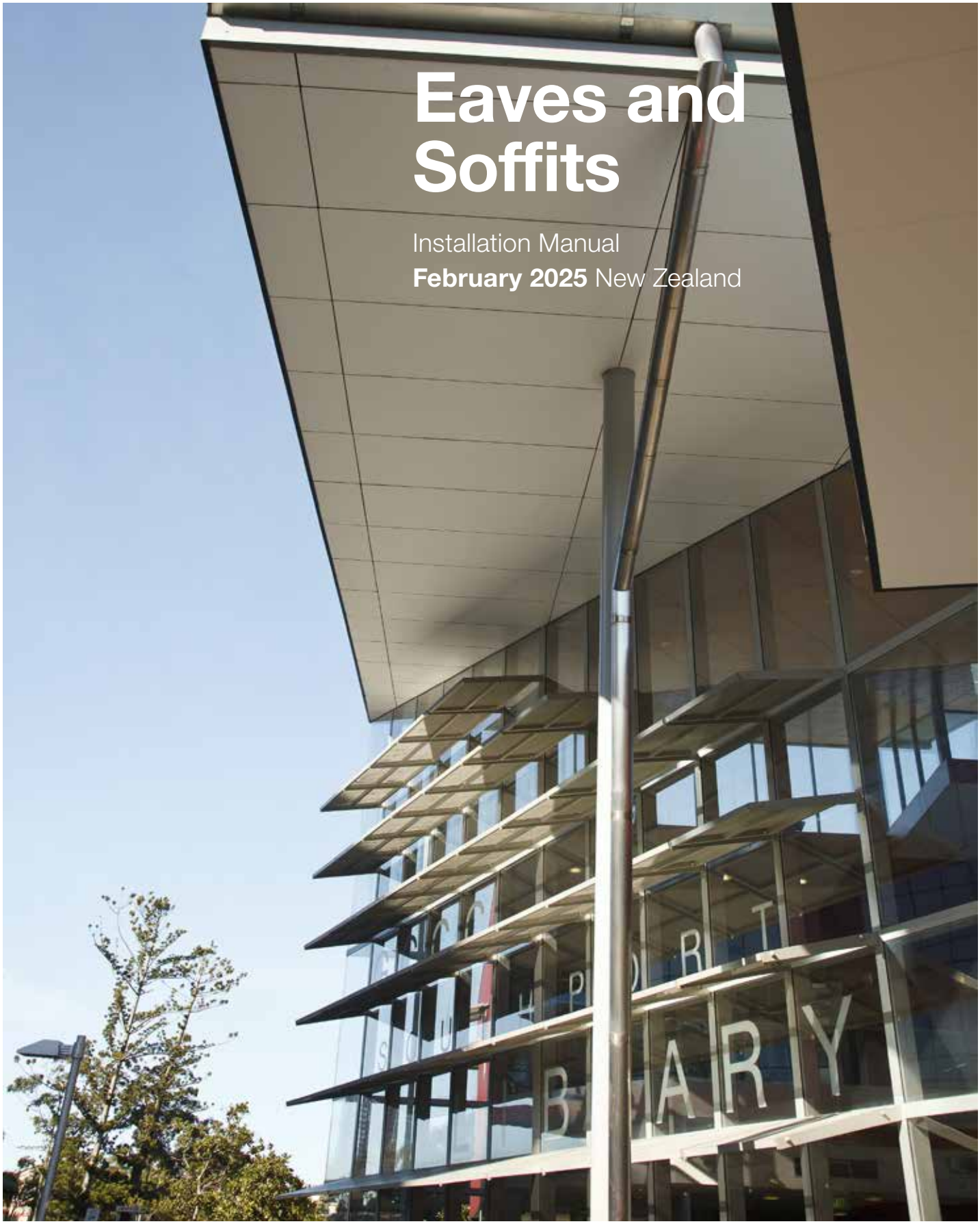
JamesHardie™

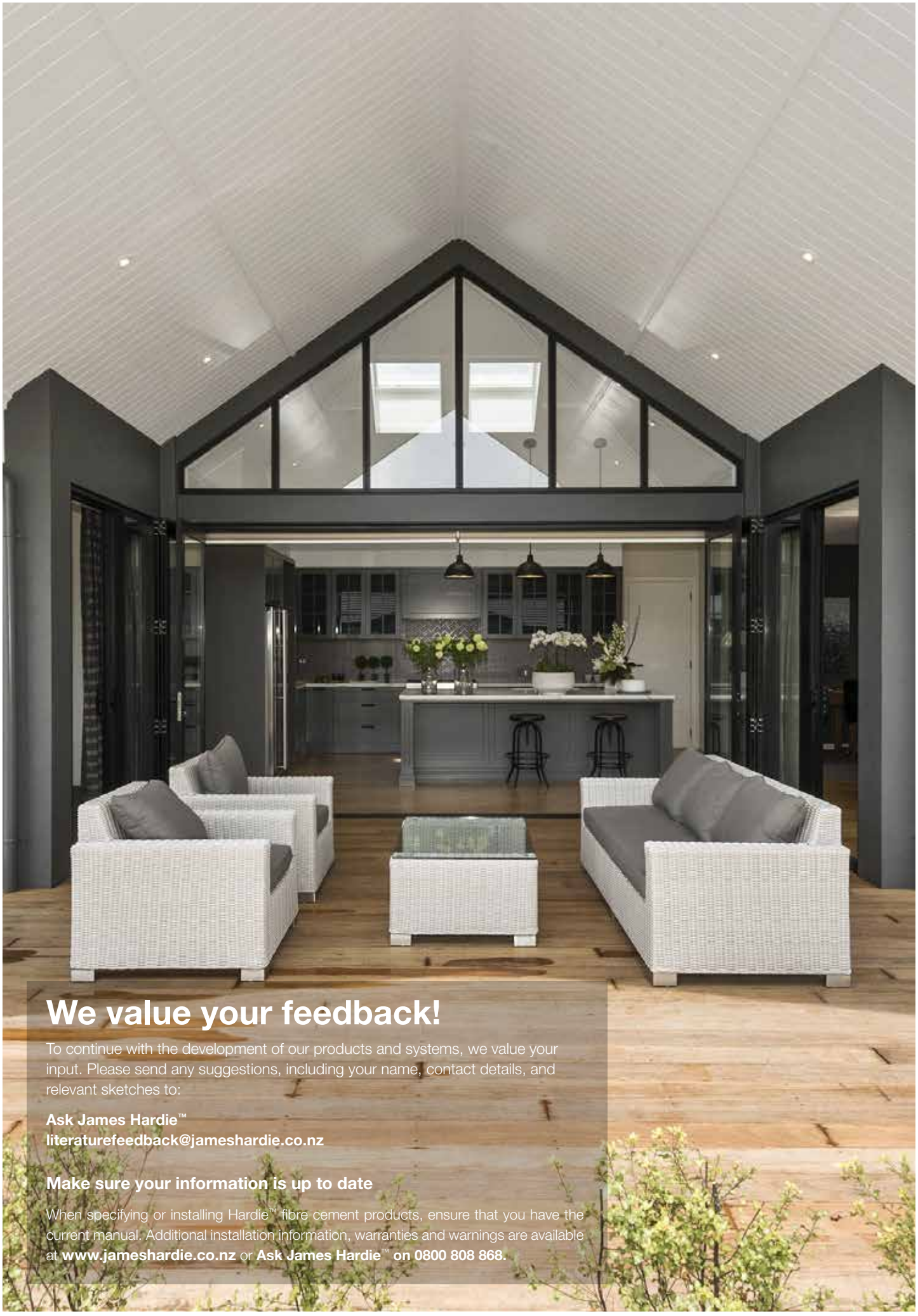
jameshardie.co.nz

Eaves and Soffits

Installation Manual

February 2025 New Zealand





We value your feedback!

To continue with the development of our products and systems, we value your input. Please send any suggestions, including your name, contact details, and relevant sketches to:

Ask James Hardie™
literaturefeedback@jameshardie.co.nz

Make sure your information is up to date

When specifying or installing Hardie™ fibre cement products, ensure that you have the current manual. Additional installation information, warranties and warnings are available at **www.jameshardie.co.nz** or **Ask James Hardie™ on 0800 808 868.**

Contents

1 Introduction 4

1.1 Hardie™ Flex Eaves Lining 4
1.2 Eclipsa™ Eaves Lining 5
1.3 Hardie™ Groove Lining 5
1.4 Villaboard™ Lining 5
1.5 Product Description 6
1.6 Accessories 7

2 Safe Working Practices 11

2.1 Storage and Delivery 14
2.2 Tips for safe and easy handling of Hardie™ fibre cement sheet products 14

3 Compliance 14

4 Framing 15

4.1 Timber Frame 15
4.2 Steel Frame 15
4.3 Framing Set-Out 15

5 Installation 16

5.1 General 16
5.2 Simple Spanning Soffit 17
5.3 Boxed Frame Soffit 20
5.4 Large Soffits (up to 1200mm) 23
5.5 Large Soffit/Ceiling Area 27
5.6 Villaboard™ Lining Ceiling (Large Areas) 28
5.7 Fastener Durability 33
5.8 Internal Swimming Pool Application 34
5.9 Special Framing/Fixing Requirements 34
5.10 Special Details 35

6 Jointing options 40

6.1 Hardie™ Flex Eaves Lining 40
6.2 Eclipsa™ Eaves Lining 40
6.3 Hardie™ Groove Lining 40
6.4 Villaboard™ Lining 40

7 Villaboard™ Lining Joint Stopping 43

7.1 General 43
7.2 Glancing Light 43
7.3 Level of Finishes 43
7.4 Villaboard™ Lining Jointing and Stopping 45
7.5 Set Joints 47

8 Finishing 50

8.1 Painting 50
8.2 Flexible Sealant 50
8.3 Masking Tape 50

9 Product information 51

9.1 General 51
9.2 Durability 51
9.3 Group Number Classification 51

10 Maintenance 52

Product Warranty 55

1 Introduction

Eaves and soffit linings and pre-finished eaves and soffit linings by James Hardie enable you to create the look you want.

Cool, wide soffits and verandahs have, over the years, been a feature which specifiers have used to provide shade from the hot summer sun and to give UV protection to exterior paintwork and interior fabrics.

Today's high energy costs demand that all avenues be explored to develop cost-efficient ways for keeping our homes cool. One of these methods — tried and proven — is the use of wide soffits, verandahs and covered outdoor living areas. Hardie™ fibre cement products are resistant to fire, rot resistant and resistant to moisture damage when installed and maintained as directed.

This manual covers the use of Hardie™ Flex Eaves Lining, Eclipsa™ Eaves Lining, Hardie™ Groove Lining, and Villaboard™ Lining in external eave and soffit applications. Further technical literature relating to these products and internal linings are available from James Hardie in the following manuals:

- Hardie™ Flex Sheet Technical Specification.
- Villaboard™ Lining Installation Manual.
- Hardie™ Groove Lining Installation Manual.
- Fire and Acoustic Design Manual.

The specifier or other responsible party for the project must ensure the information and details in this manual are appropriate for the intended application and specific design and detailing is undertaken for areas which fall outside the scope of this document.

Hardie™ Flex Eaves Lining, Eclipsa™ Eaves Lining, Hardie™ Groove Lining and Villaboard™ Lining are not suitable for use as a cladding.

1.1 Hardie™ Flex Eaves Lining

Hardie™ Flex™ Eaves Lining are 4.5mm in thickness and are available for the narrow soffit around the perimeter of the house or building and in wider widths for use in wider soffits, ceilings and verandahs

- Hardie™ Flex Eaves Lining have an unsanded finish suitable for semi-gloss acrylics or lightly textured coatings. Smooth high-gloss coatings must be avoided as some surface undulations may be visible in critical light.
- Hardie™ Flex Eaves Lining can be uPVC jointed or the joints can be left expressed.
- Hardie™ Flex Sheet 6mm, can also be used in eaves application for extra rigidity on larger spanning eaves.
- When higher impact or wind resistance is required, 6mm thick Hardie™ Flex Sheet must be used.

1.2 Eclipsa™ Eaves Lining

Eclipsa™ Eaves Lining is a 4.5mm thick, pre-finished acrylic white eave providing innovative style and enduring performance.

- Easy to install, saving both time and money.
- A slipsheet minimises surface marks on paint during transportation and installation.

1.3 Hardie™ Groove Lining

Hardie™ Groove Lining has the charm of traditional tongue and groove timber panelling, but has all the qualities of a modern Hardie™ fibre cement product. It's perfect for enhancing design lines on modern buildings or renovating old villas and bungalows.

- Hardie™ Groove Lining comes with a half groove length ways along the edge of the sheet to achieve continuity of pattern.

1.4 Villaboard™ Lining

Villaboard™ Linings are 6mm and 9mm in thickness to suit both residential and commercial applications. The recessed edges are suitable for flush jointing to give a smooth flush finish. Ideal for larger sized soffits.

- The sheets are fully sanded to give a smoother surface.
- Two long sheet edges are supplied with a recessed finish and site recessed edges can be readily formed on site. Other combinations are also available. Refer Table 4, page 7.
- Square-edge sheets are also available. These sheets can be used for the alternative expressed or uPVC joint finish.

Make sure your information is up to date

When specifying or installing Hardie™ fibre cement products, ensure you have the current manual. If you're not sure you do, or you need more information, visit www.jameshardie.co.nz or Ask James Hardie™ on 0800 808 868.

James Hardie conducts stringent quality checks to ensure that any product manufactured falls within our quality spectrum. It is the responsibility of the builder to ensure that the product meets their aesthetic expectations before installation. James Hardie will not be responsible for rectifying obvious aesthetic surface variations following installation. James Hardie will only offer a replacement product if Hardie™ Flex Eaves Lining, Eclipsa™ Eaves Lining, Hardie™ Groove Lining or Villaboard™ Lining supplied are found to be out of its manufacturing specification.

1.5 Product Description

Table 1

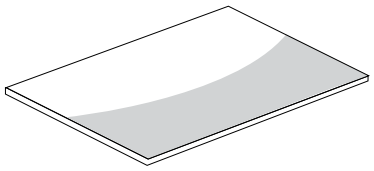
Hardie™ Flex Eaves Lining Sheet Sizes					
Square-cut edge for use with jointers 	**Width (mm)**	**Mass (kg/m²)**	**Length (mm)**		
			2400	**2700**	**3000**
	4.5mm thickness	6.5			
	450		**401948**		
	600		**401947**		
	750		**401946**		
	1200		**400187**	**400185**	**400183**

Table 2

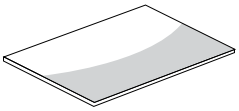
Eclipsa™ Eaves Lining Sheet Sizes				
Pre-finished square-cut edge sheet for use with jointers 	**Length (mm)**	**Mass (kg/m²)**	**Width (mm)**	
			600	**1200**
	4.5mm thickness	6.6		
	2400		**404807**	**404808**

Table 3

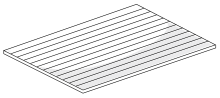
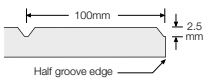
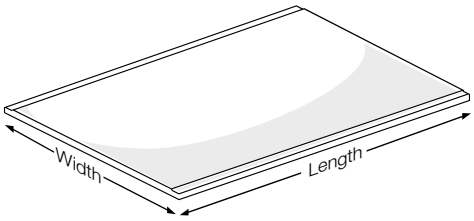
Hardie™ Groove Lining Sheet Sizes			
Half groove length ways to achieve concealed joints  	**Length (mm)**	**Mass (kg/m²)**	**Width (mm)**
			1200
	7.5mm thickness	10.4	
	2400		**400246**
	2700		**400245**
	3000		**404917**

Table 4

Villaboard™ Lining Sheet Sizes				
Smooth recessed edge for flush jointing. Square-cut edge also available for use with jointers. Villaboard™ Lining has no chamfer on square edge sheet. 	**Length (mm)**	**Mass (kg/m²)**	**Width 1200mm**	
			Edge Finish	
			2 rec/ edges (long)	**Square edges**
	6mm thickness	8.6		
	2400		**400429**	**400444**
	3000		**400427**	**400442**
	9mm thickness	12.4		
	2400		**400436**	**400445**
	2700		**400435**	
	3000		**400434**	**400059**

1.6 Accessories

Table 5

Hardie™ Flex Eaves Lining — Accessories/Tools Supplied by James Hardie					
Accessories	**Description**	**Product Code**	**Accessories**	**Description**	**Product Code**
	**Soffit 4.5mm PVC 2-way Jointer** 2400mm long, uPVC/White	**300915**		**Hardie™ Jointer 5mm** uPVC/White 2400mm long 450mm long 600mm long 750mm long	**300729** **300919** **300920** **300921**
	**6mm Hardie™ Jointer** uPVC/Bone colour 2400mm long 3000mm long	**300730** **300734**		**Hardie™ Flex 5mm Capping Mould** 2400mm long, uPVC/ White	**300538**
	**6mm Capping Mould** uPVC/Bone colour 2400mm long 3000mm long	**300539** **300540**		**Soffit Scotia Mould (base and cap)** 2400mm long, uPVC/ White	**300916**
	**Fastfix Fasteners** 38 x 12mm, Nylon/ White	**300632**		**Inseal® 3259** 1.5mm thick 48mm wide x 50m long, Black compressible foam	**300767**
	**Hardie™ Knife** Scoring tool for easy cutting.	**305926**		**Hardie™ Blade Saw Blade** 184mm poly crystalline diamond blade, for fast, clean cutting of Hardie™ fibre cement.	**300660**

Table 6

Eclipsa™ Eaves Lining — Accessories/Tools Supplied by James Hardie					
Accessories	**Description**	**Product Code**	**Accessories**	**Description**	**Product Code**
	**Hardie™ Jointer 5mm uPVC** 450mm long 600mm long 750mm long 2400mm long	 **300919** **300920** **300921** **300729**		**Soffit 4.5mm PVC 2-way Jointer** 2400mm long, uPVC/White	**300915**
	**Soffit Scotia Mould (base and cap)** 2400mm long, uPVC/White	**300916**		**Hardie™ Flex Capping Mould 5mm** 2400mm long, uPVC/White	**300538**
	**Fastfix Fasteners** 38 x 12mm, Nylon/ White	**300632**		**Inseal® 3259** 1.5mm thick 48mm wide x 50m long, Black compressible foam	**300767**
	**Hardie™ Knife** Scoring tool for easy cutting.	**305926**			

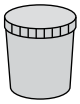
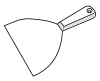
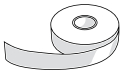
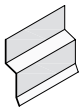
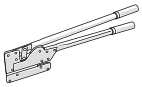
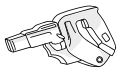
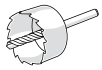
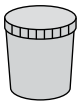
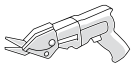
Table 7

Hardie™ Groove Lining — Accessories/Tools Supplied by James Hardie					
Accessories	**Description**	**Product Code**	**Accessories**	**Description**	**Product Code**
	**Soffit Scotia Mould (base and cap)** 2400mm long, uPVC/white	**300916**		**Inseal® 3259** 1.5mm thick 48mm wide x 50m long, black compressible foam	**300767**
	**Hardie™ Drive Screw s/s 316** 30mm x 7g. 100 per jar For fastening to timber frames.	**300928**		**Hardie™ Top Coat** Base compound for filling over screws. 3kg Pail 15kg Pail	 **304492** **304493**
	**Hardie™ Knife** Scoring tool for easy cutting.	**305926**		**Villadrive™ Screw 7g x 30mm** For fastening to timber frames. 100/jar 5kg Box Collated/1000	 **300992** **300993** **300994**
	**Hardie™ Blade Saw Blade** 184mm poly crystalline diamond blade, for fast, clean cutting of Hardie™ fibre cement.	**300660**		**Hardie™ Steel Frame Screw** For fastening to steel frames. 8g x 30mm 5kg box (1000)	 **306300**

Table 8

Villaboard™ Lining — Accessories/Tools Supplied by James Hardie					
Accessories	**Description**	**Product Code**	**Accessories**	**Description**	**Product Code**
	**Soffit Scotia Mould (base and cap)** 2400mm long, uPVC/White	**300916**		**Inseal® 3259** 1.5mm thick 48mm wide x 50m long, Black compressible foam	**300767**
	**Hardie™ Jointer 6mm** uPVC/Bone colour 2400mm long 3000mm long	**300730** **300734**		**Hardie™ Jointer 9mm** uPVC/Bone colour 3000mm long	**300736**
	**Hardie™ Flex Capping Mould 6mm** uPVC/Bone colour 2400mm long 3000mm long	**300539** **300540**		**Control Joint** 2700mm long, uPVC/White	**300978**
	**Corner Angle** uPVC 3000mm long	**300669**		**Hardie™ Top Coat** Topping compound for flush finished jointing. 3kg Pail 15kg Pail	**304492** **304493**
	**Hardie™ Base Coat** Base compound for flush finished jointing. 4kg Pail 15kg Bag	**304490** **304491**		**Hardie™ Blade Saw Blade** 184mm poly crystalline diamond blade, for fast, clean cutting of Hardie™ fibre cement.	**300660**
	**Hardie™ Drive Screw s/s 316** 30mm x 7g 100 per jar For fastening to timber frames.	**300928**		**Villadrive™ Screw 7g x 30mm** For fastening to timber frames. 100/jar 5kg Box Collated/1000	**300992** **300993** **300994**
	**Hardie™ Knife** Scoring tool for easy cutting.	**305926**		**Hardie™ Steel Frame Screw** For fastening to steel frames. 8g x 30mm 5kg Box Collated/1000	**306300** **306301**

Table 9

Components Not Supplied by James Hardie			
James Hardie recommends the following products for use in conjunction with its eaves and soffit linings. James Hardie does not supply these products. Please contact component manufacturer for information on their warranties and further information on their products.			
Accessories	**Description**	**Accessories**	**Description**
	**Hardie™ Flex Nail** 40 x 2.8mm galvanised or stainless steel nails.		**Acrylic paint** Dulux® X10 or similar brand
	Rondo P35 Control joint used in movement joints.		**Broadknife 150mm** For setting of joints on Villaboard™ Lining.
	**Perforated paper tape** Joint reinforcing tape.		**Flashing to Table 20 'E2/AS1'** Flashing fabricator
	**Level/straight edge** For checking straightness of frame.		**Flexible joint sealant** Tube Sikaflex® MS or similar
	**Hand guillotine** Guillotine for cutting fibre cement.		**Paperback corners** 'Goldline' corner moulds
	**Collated screw gun**		**Adhesive sealant** Sikaflex®-11FC by Sika® Seal N Flex®-1 by Bostik®
	**Hole saw**		**Waterproofing admixture** Cemix Cemkey® Concentrate, ARDEX® Multiprime or similar. Used in diluted form over Villaboard™ Lining sheet edges to control moisture suction before flush stopping.
	**Electric shear/fibreshear** For cutting Villaboard™ Lining, Hardie™ Groove Lining, Hardie™ Flex Eaves Lining.		**Masking tape** 3M® Scotch® Blue 2090 - I8E 70006576972 or Sellotape® Premium+™ Washi® DELICATE
	**Flashing tape** Proprietary tape to adhere to flexible underlay. Tyvek®, Protecto® wrap or similar		**Polypropylene tape** Tape spec premium joining tape or similar for butt joint
	**Rondo battens**		

2 Safe Working Practices

WARNING - DO NOT BREATHE DUST AND CUT ONLY IN WELL VENTILATED AREA

Hardie™ fibre cement products products contain sand, a source of respirable crystalline silica

May cause cancer if dust from product is inhaled. Causes damage to lungs and respiratory system through prolonged or repeated inhalation of dust from product.

Intact fibre cement products are not expected to result in any adverse toxic effects. The hazard associated with fibre cement arises from the respirable crystalline silica present in dust generated by activities such as cutting, rebating, drilling, routing, sawing, crushing, or otherwise abrading fibre cement, and when cleaning up, disposing of or moving dust.

When doing any of these activities in a manner that generates dust, follow James Hardie's instructions and best practices to reduce or limit the release of dust.

If using a dust mask or respirator, use an AS/NZS1716 P1 filter and refer to Australian/New Zealand Standard 1715:2009 Selection, Use and Maintenance of Respiratory Protective Equipment for more extensive guidance and more options for selecting respirators for workplaces. For further information, refer to our installation instructions and Safety Data Sheets available at www.jameshardie.co.nz.

FAILURE TO ADHERE TO OUR WARNINGS, SAFETY DATA SHEETS, AND INSTALLATION INSTRUCTIONS MAY LEAD TO SERIOUS PERSONAL INJURY OR DEATH.

Crystalline Silica is

- Commonly known as sand or quartz
- Found in many building products e.g. concrete, bricks, grout, wallboard, ceramic tiles, and all fibre cement materials

Why is Crystalline Silica a health hazard

- Silica can be breathed deep into the lungs when present in the air as a very fine (respirable) dust
- Exposure to silica dust without taking the appropriate safety measures to minimise the amount being breathed in, can lead to a potentially fatal lung disease – silicosis – and has also been linked with other diseases including cancer. Some studies suggest that smoking may increase these risks
- The most hazardous dust is the dust you cannot see!

When is Crystalline Silica a health hazard?

- It's dangerous to health if safety protocols to control dust are not followed when cutting, drilling or rebating a product containing crystalline silica
- Products containing silica are harmless if intact (e.g. an un-cut sheet of wall board)

Avoid breathing in crystalline silica dust

Safe working practices

- ✕ NEVER use a power saw indoors or in a poorly ventilated area
- ✕ NEVER dry sweep
- ✓ ALWAYS use M Class or higher vacuum or damp down dust before sweeping up
- ✕ NEVER use grinders
- ✓ ALWAYS use a dust reducing circular saw equipped with a sawblade specifically designed to minimise dust creation when cutting fibre cement – preferably a sawblade that carries the Hardie™ Blade name or one with at least equivalent performance – connected to an M Class or higher vacuum
- ✓ Before cutting warn others in the area to avoid dust
- ✓ ALWAYS follow tool manufacturers' safety recommendations
- ✓ ALWAYS expose only the minimum required depth of blade for the thickness of fibre cement to be cut
- ✓ ALWAYS wear a properly-fitted, approved dust mask or respirator P1 or higher in accordance with applicable government regulations and manufacturer instructions
- ✓ Consider rotating personnel across cutting tasks to further limit respirable silica exposures.

Use one of the following methods for cutting Eclipsa™ Eaves Lining, Hardie™ Flex Eaves Lining, Hardie™ Groove Lining and Villaboard™ Lining:

Best

- Hardie™ Knife
- Hand guillotine
- Fibreshear

Better

Dust reducing circular saw equipped with Hardie™ Blade Saw Blade and connected to a M Class or higher vacuum.

When cutting outdoors

- ✓ Make sure you work in a well ventilated area
- ✓ Position cutting station so wind will blow dust away from yourself and others in the working area
- ✓ Rotate employees across cutting task over duration of shift
- ✓ Cut products with a Hardie™ Blade Saw Blade (or equivalent) and a dust reducing circular saw connected to a M Class or higher vacuum
- ✓ When sawing, sanding, rebating, drilling or machining fibre cement products, always:
  - Wear your P1 or higher (correctly fitted in accordance with manufacturers' instructions), ask others to do the same.
  - Keep persons on site at least 2 metres and as far as practicable away from the cutting station while the saw is in operation
  - If you are not clean shaven, then use a powered air respirator with a loose fitting head top
  - Wear safety glasses
  - Wear hearing protection
- ✓ Make sure you clean up BUT never dry sweep. Always hose down with water/wet wipe or use an M Class or higher vacuum

When cutting indoors

✗ Never cut using a circular saw indoors

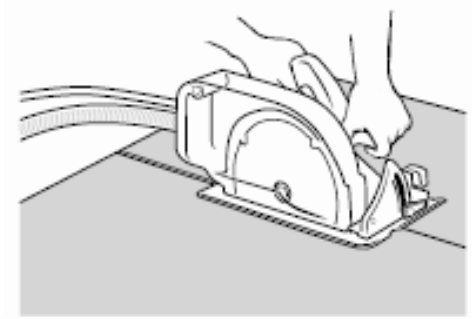
✓ Position cutting station in a well ventilated area

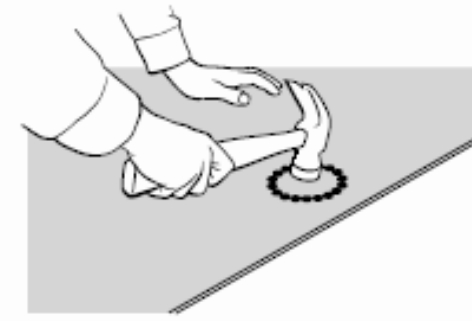
✓ Cut ONLY using a Hardie™ Knife, hand guillotine or fibreshears (manual, electric or pneumatic)

✓ Make sure you clean up BUT never dry sweep. Always hose down with water/wet wipe or use an M Class or higher vacuum

If concern still exists about exposure levels or you do not comply with the above practices, you should always consult a qualified industrial hygienist or contact James Hardie for further information.

Working instructions





Hardie™ Blade Saw Blade

The Hardie™ Blade Saw Blade used with a dust-reducing saw is ideal for fast, clean cutting of Hardie™ fibre cement products. A dust-reducing saw uses a dust collector connected to a M Class or higher vacuum. When sawing, clamp a straight edge to the sheet as a guide and run the saw base plate along the straight edge when making the cut.

Hole forming

For smooth clean cut circular holes:

- Mark the centre of the hole on the sheet
- Pre-drill a ‘pilot’ hole
- Using the pilot hole as a guide, cut the hole to the appropriate diameter with a hole saw fitted to a heavy duty electric drill

For irregular holes:

- Small rectangular or circular holes can be cut by drilling a series of small holes around the perimeter of the hole then tapping out the waste piece from the sheet face
- Tap carefully to avoid damage to sheets, ensuring that the sheet edges are properly supported

2.1 Storage and Delivery

Keeping products and people safe

Off loading

- ✓ Hardie™ fibre cement products should be off-loaded carefully by hand or by forklift
- ✓ Hardie™ fibre cement products should not be rolled or dumped off a truck during the delivery to the jobsite

Storage

Hardie™ fibre cement products should be stored:

- ✓ In their original packaging
- ✓ Under cover where possible or otherwise protected with a waterproof covering to keep products dry
- ✓ Off the ground – either on a pallet or adequately supported on timber or other spacers
- ✓ Flat so as to minimise bending

Hardie™ fibre cement products must not be stored:

- ✕ Directly on the ground
- ✕ In the open air exposed to the elements

James Hardie is not responsible for damage due to improper storage and handling.

2.2 Tips for safe and easy handling of Hardie™ fibre cement sheet products

- ✓ Carry with two people
- ✓ Hold near each end and on edge
- ✓ Exercise care when handling sheet products to avoid damaging the edges/corners

3 Compliance

James Hardie products used in the eaves and soffit applications installed as per the information in this manual have been tested and verified to meet the performance requirements of clause B1, B2 and E2 of the New Zealand Building Code (NZBC).

4 Framing

4.1 Timber Frame

Timber framing must be in accordance with the NZS 3604 (Timber-framed buildings) or specific engineering design to the NZS 3603 and the AS/NZS 1170 providing that:

- the framing centres do not exceed those given in this specification
- the framing member width conforms to this specification.

Also refer to the Approved Document for the NZBC Clause B2 'Durability' and the NZS 3602 (Timber and Wood-Based Products for use in Buildings) regarding timber treatment requirements and allowable moisture contents in timber frame. Also refer to the framing manufacturer's literature for further guidance on the use of treated timber.

4.2 Steel Frame

The figures in this brochure are drawn for timber framing. However, steel framing and furring channels can also be used.

All metal framing centres are to be same as specified for timber frame in this manual.

Steel framing members must be fabricated from light-gauge sheet steel 0.55mm thick minimum to 1.6mm maximum. Refer to specific details for the minimum flange width requirements.

For fixing 4.5mm thick fibre cement sheet products to steel frame, a pan head or wafer head screws must be used.

For fixing 6mm or thicker fibre cement sheet products to steel frame, a counter sunk screw may be used.

Screw fixings can be finished flush or sunk a maximum of 0.5mm below the sheet surface ready for filling.

NOTE: The fasteners must not be over driven as will reduce the holding capaciity of the sheet.

4.3 Framing Set-Out

Soffit framing must be provided as per Tables 10 to 16. For the soffits of up to 600mm-wide refer to **Figures 1 to 4**.

For the soffits between 601mm to 1200mm wide refer to **Figure 5 and 6.**

NOTE: For Eclipsa™ Eaves Lining refer to Section 5.1.4.

5 Installation

This installation manual covers the use of James Hardie's Eaves and Soffits for buildings within the scope of the NZS 3604 and the buildings covered under specific engineering design (SED).

5.1 General

Refer to Tables 10 to 16 and Figures 1 to 6 regarding framing set out and nail fixing centres, for framing and types of fasteners.

The eaves/soffits must be sealed against claddings to minimise moisture ingress behind the claddings. The roof must have been installed before installing the soffits linings. Where the soffits are sloping upwards away from the wall, a mechanical flashing must be provided in the soffit to wall junction. The flashing is fixed under soffit lining and laps over the face of cladding by 35mm minimum. Refer to Figures 18 and 19.

Note: Do not fix to the bottom chord of roof trusses. Instead fix to battens or furring channels.

5.1.1 Hardie™ Flex Eaves Lining

All sheet edges are to be supported by framing or a fascia board. Refer Figures 1 to 6.

NOTES:
1. Sheets can be jointed as per Section 6.
2. Do not screw fix 4.5mm thick sheets.

5.1.2 Villaboard™ Lining

Villaboard™ Lining recessed edge sheet is suitable for:

- Flush-jointed narrow strip soffits around a building
- Flush-jointed ceilings over verandahs, porches and entryways to residential and small-scale commercial buildings
- All edges to be supported by the framing or back blocking when flush jointed.

Villaboard™ Lining square edge sheet is suitable for:

- Expressed jointed or uPVC jointed eaves and soffits/ceilings where a smooth panelised surface finish is required

Villaboard™ Lining can either be fixed with nails or screws.

5.1.3 Hardie™ Groove Lining

Hardie™ Groove Lining offers a concealed joint look when the long sheet edges are butt jointed together. Refer to Figures 15 and 16.

5.1.4 Eclipsa™ Eaves Lining

- Eclipsa™ Eaves Lining is suitable for fixing up to VH wind zone only as per 'Simple Spanning Soffit' Table 10 or 'Boxed Frame Soffits' Table 11. Refer to Figures 1 to 6 and 17, 24 and 25 for installation information.
- For simple spanning soffit application, fix the Eclipsa™ Eaves Lining into the fascia board groove and nail into the ribbon board at 300mm centres with 40 x 2.8mm Hardie™ Flex nails. Ensure the nails will be hidden by the scotia mould or timber scotia (refer Figures 1 and 2).
- For larger soffit/ceiling or veranda applications provide a full perimeter frame to support all sheet edges as well as the intermediate frame. Fix the eaves lining sheets using Fastfix Fasteners. Use a 6mm diameter masonry bit to drill holes and fix Fastfix Fasteners (refer to Figures 24 and 25)
- Ensure sheets are all from the same batch to ensure no colour variation.

Note: Eclipsa™ Eaves Lining is only suitable for wind zone up to VH.

5.2 Simple Spanning Soffit

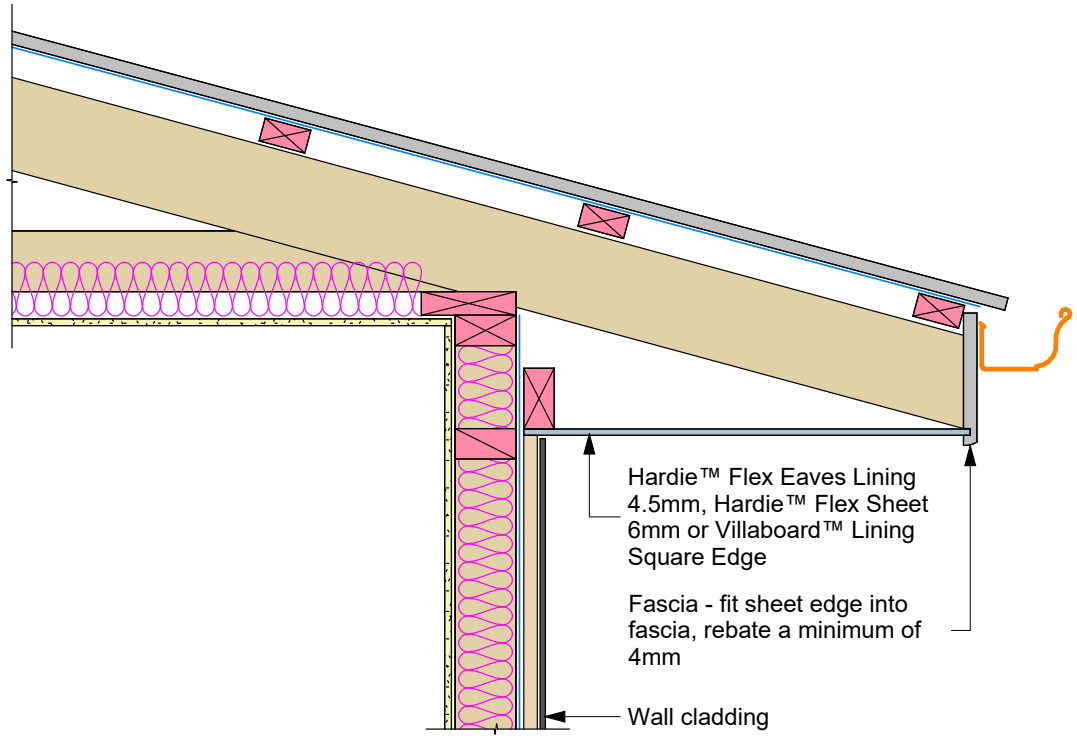
The soffit sheet spans between the ribbon board and fascia board. No soffit bearers are used in this case. Refer to Figures 1 and 2. Soffits are fixed to ribbon board as per Table 10.

Table 10

Simple Spanning Soffit				
Product	**Soffit Width Max.**	**Wind Zone Max.**	**Fixing to Ribbon Board Max.**	**Refer Figure**
Hardie™ Flex Eaves Lining 4.5mm	300mm	Up to EH	300mm	1 and 2
	400mm	Up to M	300mm	1 and 2
Hardie™ Flex Sheet 6mm	600mm	Up to H	200mm	1 and 2
Villaboard™ Lining Square Edge	600mm	Up to H	200mm	1 and 2

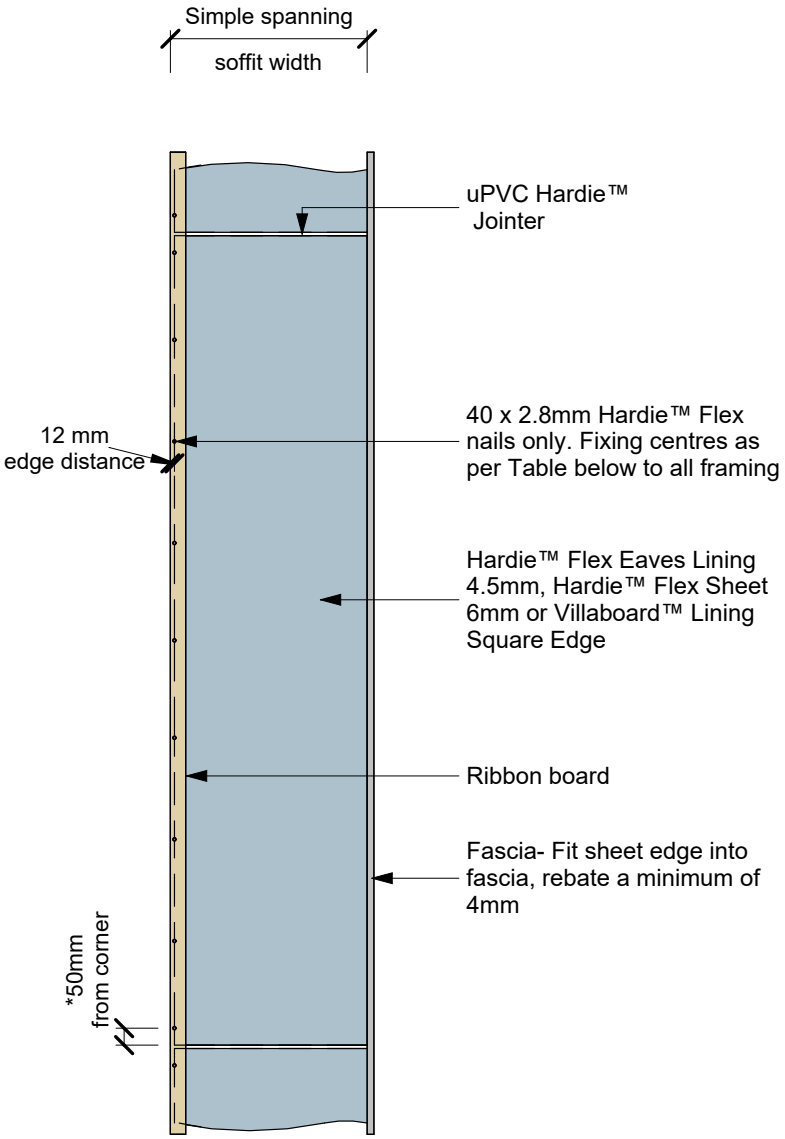
Note: Eclipsa™ Eaves Lining is only suitable for use upto VH wind zone.

Figure 1: Simple spanning eaves and soffits



Simple spanning Eaves and Soffits			
Product	**Maximum soffit width**	**Maximum wind zone**	**Fixing centres to ribbon board**
Hardie™ Flex Eaves Lining 4.5mm	300mm	Up to EH	300mm
	400mm	Up to M	300mm
Hardie™ Flex Sheet 6mm	600mm	Up to H	200mm
Villaboard™ Lining Square Edge	600mm	Up to H	200mm

Figure 2: Simple spanning eaves and soffits



Simple spanning Eaves and Soffits			
Product	**Maximum soffit width**	**Maximum wind zone**	**Fixing centres to ribbon board**
Hardie™ Flex Eaves Lining 4.5mm	300mm	Up to EH	300mm
	400mm	Up to M	300mm
Hardie™ Flex Sheet 6mm	600mm	Up to H	200mm
Villaboard™ Lining Square Edge	600mm	Up to H	200mm

5.3 Boxed Frame Soffit

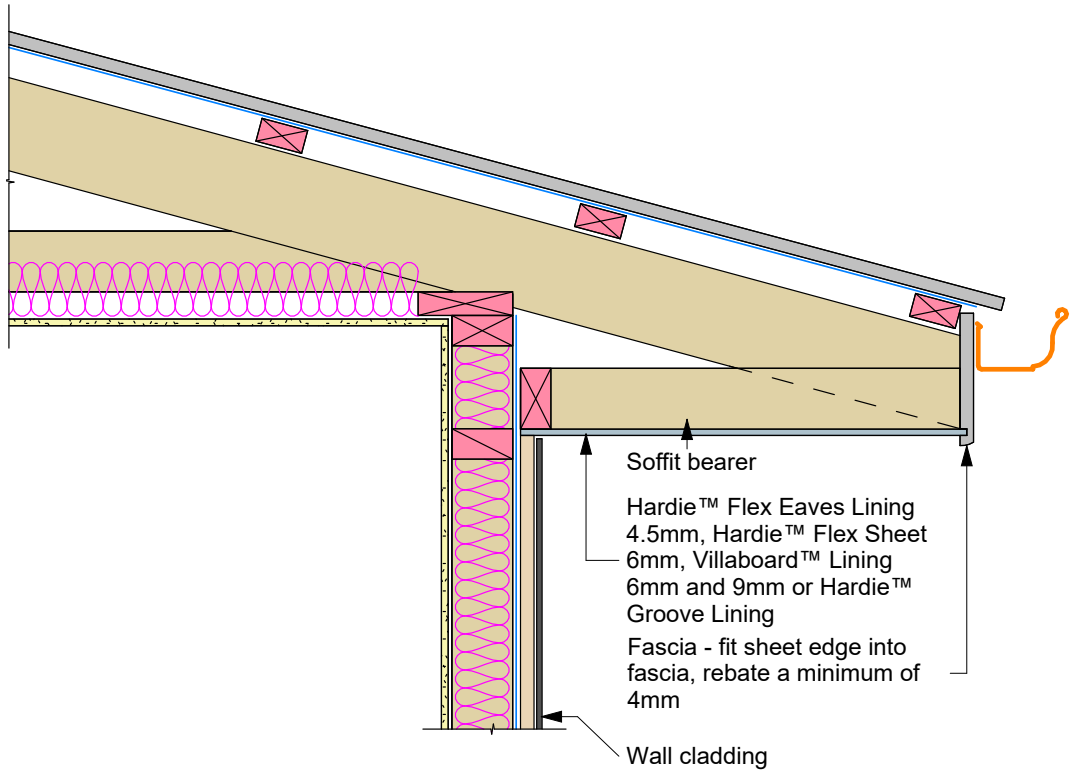
The soffit sheet is fixed to the ribbon board and soffit bearers as per Table 11. Refer to Figures 3 to 4.

Table 11

Boxed Frame Soffit					
Product	**Soffit Width Max.**	**Wind Zone Max.**	**Soffit Bearers**	**Fixing Centres**	**Refer to Figure**
Hardie™ Flex Eaves Lining 4.5mm	Up to 450mm	Up to VH	900mm	200mm	3 and 4
	451 to 600mm	Up to VH	600mm	150mm	5 and 6 *
	601 to 750mm	Up to H	600mm	200mm	5 and 6 *
Hardie™ Flex Sheet 6mm Villaboard™ Lining 6 and 9mm	451 to 600mm	Up to EH	900mm	200mm	3 and 4
	601 to 900mm	Up to VH	900mm	150mm	3 and 4
	901 to 1200mm	Up to EH	600mm	150mm	5 and 6 *
Hardie™ Groove Lining	Up to 600mm	Up to H	900mm	200mm	3 and 4
	1200mm	Up to VH	600mm	200mm	5 and 6 *
	1200mm	Up to EH	400mm	150mm	5 and 6 *

* Solid blocking is required behind the fascia board to facilitate soffit bearer and sheet fixing.

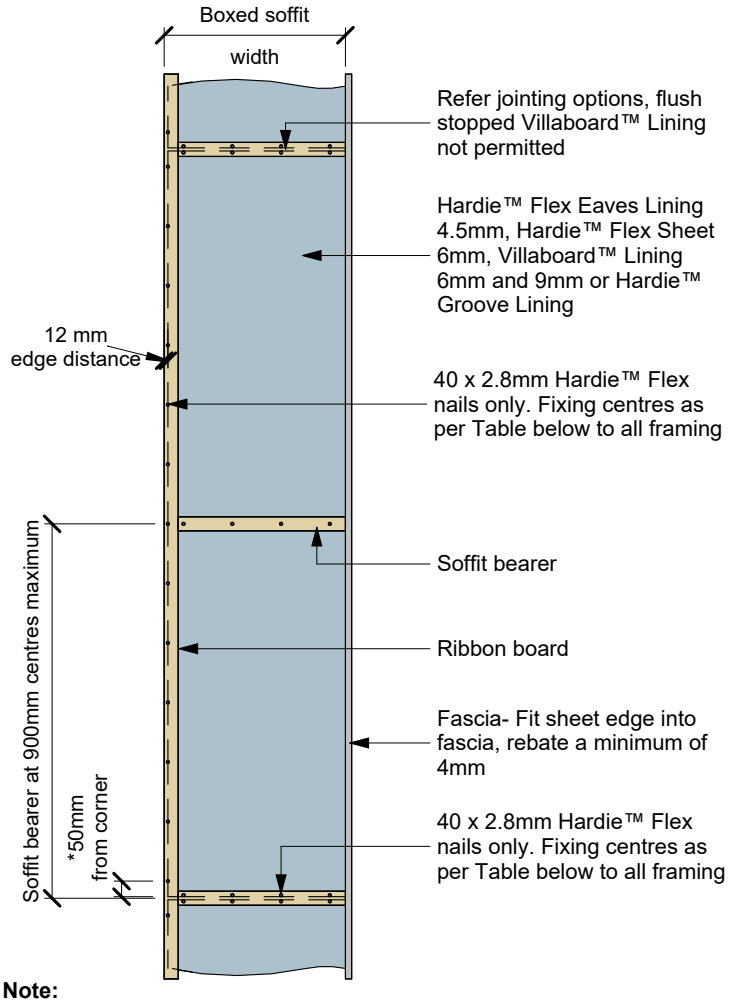
Figure 3: Boxed frame eaves and soffits



Note:
- Villaboard™ Lining and Hardie™ Groove Lining can be fixed with nails or screws

Boxed frame Eaves and Soffits				
Product	**Maximum soffit width**	**Maximum wind zone**	**Maximum soffit bearer centres**	**Fixing centres**
Hardie™ Flex Eaves Lining 4.5mm	450mm	Up to VH	900mm	200mm
Hardie™ Flex Sheet 6mm Villaboard™ Lining 6mm and 9mm	600mm	Up to EH	900mm	200mm
	900mm	Up to VH	900mm	150mm
Hardie™ Groove Lining	600mm	Up to H	900mm	200mm

Figure 4: Boxed frame eaves and soffits



Note:
- Villaboard™ Lining and Hardie™ Groove Lining can be fixed with nails or screws

Boxed frame Eaves and Soffits

Product	Maximum soffit width	Maximum wind zone	Maximum soffit bearer centres	Fixing centres
Hardie™ Flex Eaves Lining 4.5mm	450mm	Up to VH	900mm	200mm
Hardie™ Flex Sheet 6mm Villaboard™ Lining 6mm and 9mm	600mm	Up to EH	900mm	200mm
	900mm	Up to VH	900mm	150mm
Hardie™ Groove Lining	600mm	Up to H	900mm	200mm

5.4 Large Soffits (up to 1200mm)

For the installation of large span soffits (up to 1200mm) a solid blocking is required behind the fascia board for the installation of soffit lining.

Villaboard™ Lining is used when a smooth sanded sheet is required to achieve a painted flush finish.

Refer to the framing fixing schedule Section 4 Tables 10 to 16, Figures 1 to 6, and finishing schedules on Section 7.

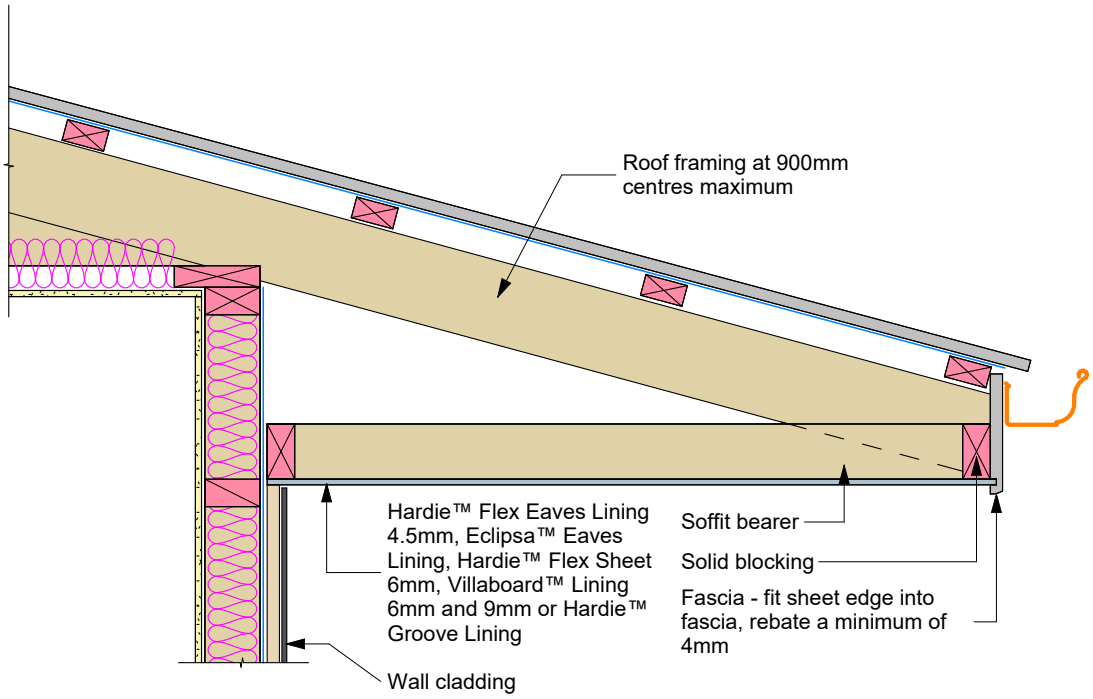
Refer to the flush jointing procedures, Section 7.

Fix with either Hardie™ Flex nails 40 x 2.8mm (galvanised or 316 stainless steel), Villadrive™ wood screws or Hardie™ Drive stainless steel 30mm x 7g wood screws.

Screws finished 0.5mm below surface.

Nails finished flush with surface.

Figure 5: Boxed frame large soffit up to 1200mm

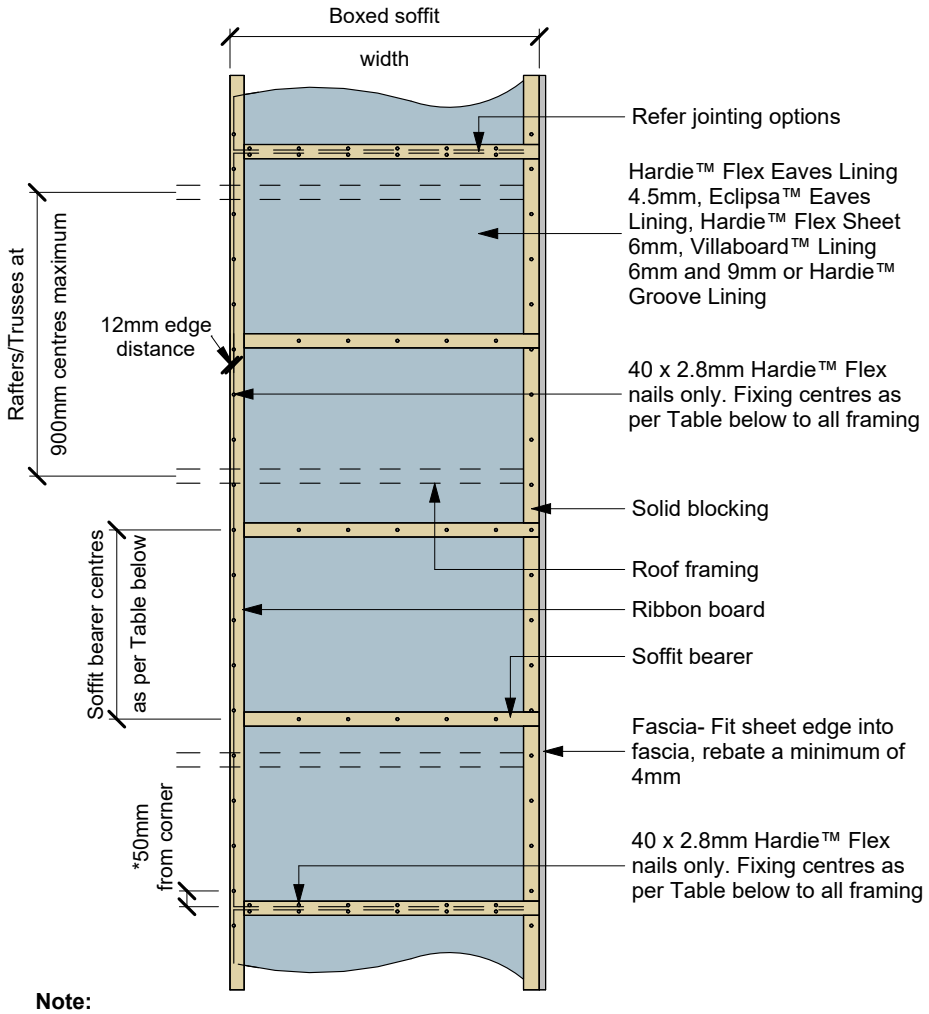


Note:
- Eclipsa™ Eaves Lining fixed to soffit bearers/fascia nogs with Fastfix Fasteners
- Villaboard™ Lining and Hardie™ Groove Lining can be fixed with nails or screws

Large Soffits

Product	Maximum soffit width	Maximum wind zone	Maximum soffit bearer centres	Fixing centres
Hardie™ Flex Eaves Lining 4.5mm Eclipsa™ Eaves Lining	1200mm	Up to VH	600mm	200mm
Hardie™ Flex Sheet 6mm Villaboard™ Lining 6mm	1200mm	Up to EH	600mm	150mm
Hardie™ Groove Lining	1200mm	Up to VH	600mm	200mm
	1200mm	Up to EH	400mm	150mm

Figure 6: Boxed frame large soffit up to 1200mm



Note:
- Eclipsa™ Eaves Lining fixed to soffit bearers/fascia nogs with Fastfix Fasteners
- Villaboard™ Lining and Hardie™ Groove Lining can be fixed with nails or screws

Boxed frame large Soffits

Product	Maximum soffit width	Maximum wind zone	Maximum soffit bearer centres	Fixing centres
Hardie™ Flex Eaves Lining 4.5mm Eclipsa™ Eaves Lining	1200mm	Up to VH	600mm	200mm
Hardie™ Flex Sheet 6mm Villaboard™ Lining 6mm	1200mm	Up to EH	600mm	150mm
Hardie™ Groove Lining	1200mm	Up to VH	600mm	200mm
	1200mm	Up to EH	400mm	150mm

5.4.1 Villaboard™ Lining Flush Jointed Soffit - Control Joint

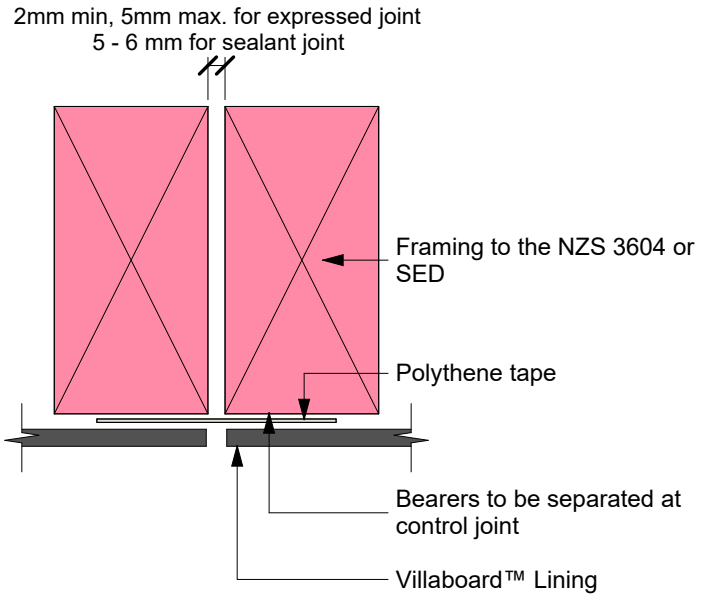
In these applications Villaboard™ Lining recessed edge sheets must be jointed on the framing as shown in Figure 6. Control joints, as shown in Figures 7, 9 and 10, must be located at a distance as specified in Table 12. Sheets must not be fixed to the bottom cord of roof trusses.

For skillion roof structures, refer to section 5.10.1 of this manual for control joint spacing.

Table 12

Maximum spacing for control joints (m)		
	Steel Framing	**Timber Framing**
General	4.8	7.2

Figure 7: Control joint



Note: The joint can be expressed or flexible silicone sealant filled

5.4.2 Drip Edge

All soffit linings must either be installed with a grooved fascia, refer Figures 1, 3 and 5, or with exterior cladding which forms a drip edge below the soffit lining by 15mm minimum. Soffit linings are generally fitted into the recess formed in fascia board to form the drip edge.

5.4.3 Curved Applications

Hardie™ Flex Eaves Lining and Villaboard™ Lining can be used for curved applications.

The minimum bending radii are shown below.

Table 13

Curved Soffit/Ceiling Minimum Bending Radii	
Product	**Along length (mm)**
Villaboard™ Lining 9mm	3000
Villaboard™ Lining 6mm	1800
Hardie™ Flex Sheet 6mm	1800

NOTE: The bending radii given above require no pre-wetting of the sheet. Mechanical fix at 200mm centres maximum to entire framing. To maintain the smoothness of the curve, ceiling battens are generally required at spacings as shown below.

Table 14

Curved Lining — Soffit Batten Spacing	
Range of Radii (mm)	**Soffit batten spacing (mm)**
1800 to 3000	300
Above 3001	400

5.4.4 Fire rated soffits

For the use of 6mm or thicker products by James Hardie in fire rated soffit applications, refer to the Fire and Acoustic Design Manual by James Hardie or Ask James Hardie™ on 0800 808 868.

5.4.5 Pre-finished Steel Fascia/gutters

When pre-finished steel fascia/gutters are used the soffit edge must be supported 4mm minimum into the fascia recess.

Ribbon board to be continuous for product fixing.

5.5 Large Soffit/Ceiling Area

Table 15

Large Soffit/Ceiling - Villaboard™ Lining 9mm			
Longitudinal batten Spacing	**Transverse Batten Spacing**	**Wind Pressures**	**Fixing Centres**
600mm	1200mm	2kPa	200mm
400mm	1200mm 1200mm	3kPa 4kPa	200mm 150mm

Table 16

Large Soffit/Ceiling - Hardie™ Groove Lining			
Longitudinal batten Spacing	**Transverse Batten Spacing**	**Wind Pressures**	**Fixing Centres**
600mm	1200mm	1.5kPa	200mm
400mm	1200mm	3kPa	200mm

5.5.1 Structural Ceiling Diaphragms

Hardie™ Flex Eaves Lining, Hardie™ Flex Sheet, Villaboard™ Lining and Hardie™ Groove Lining are suitable for use in structural ceiling diaphragms as per the NZS 3604. Refer to the Bracing Design Manual by James Hardie.

5.6 Villaboard™ Lining Ceiling (Large Areas)

For commercial soffits and ceilings, framing must be at 600mm maximum centres and 6mm thick Villaboard™ Lining can be used. For high-wind areas in commercial buildings with framing at 600mm maximum centres, 9mm thick Villaboard™ Lining must be used. Sheets must not be fixed to the bottom cord of roof trusses. Timber or steel ceiling battens must be fixed to the underside of the roof truss. Sheets must be laid in an offset pattern so that adjacent end joints do not coincide. Timber ceiling battens must comply with the requirements of the NZS 3604 or the specific engineering design. Steel ceiling battens must be a minimum of 37mm wide x 23mm deep x 0.55mm thick and have a bearing surface of 37mm minimum. Battens must be galvanised steel (275 g/m^2 zinc coating), have a suitable coating to meet the durability requirements and be fixed to the manufacturer's specifications. Refer to the flush-jointing and finishing procedures on Section 7.

For specific engineering design projects consideration must be given to framing deflections expected due to loadings and appropriate selection of sheet jointing method must be made.

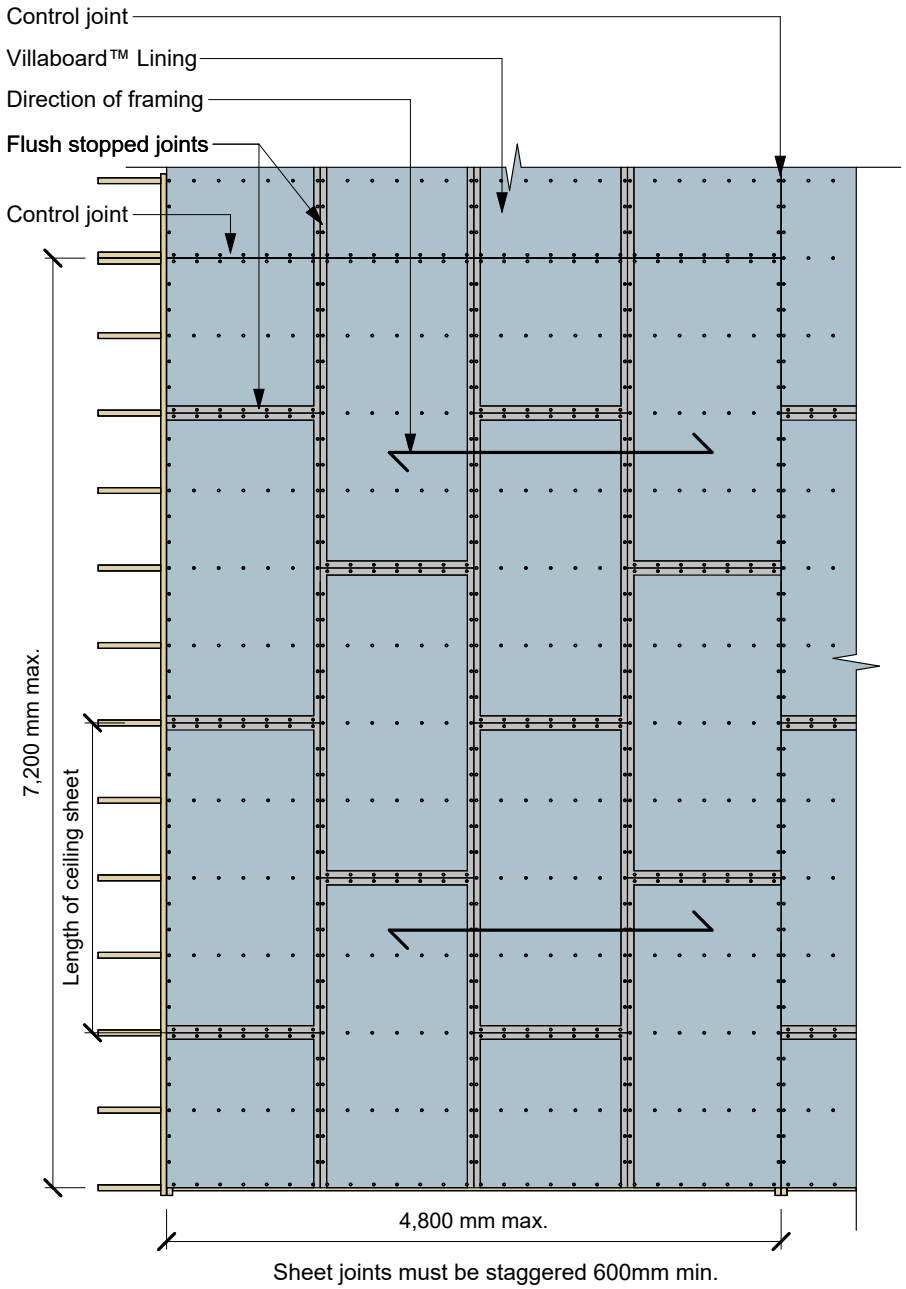
NOTE: It is recommended that flush stopping of joints only is suitable when using recessed edge Villaboard™ Lining.

5.6.1 Control Joints for Flush Stopped Ceilings

Control joints must also be provided where the soffits change in direction, change in level, where there is a construction joint in framing or where the soffits continue into passage ways etc. See Table 12 for maximum control joint spacing and Figures 7, 9 and 10 for a typical control joint detail.

The flush stopped ceiling area must be divided into bays not exceeding 7.2 x 4.8m. To permit movement, control joints must be formed at the perimeter of each bay (refer Figures 8 to 10) and at the junction of large ceilings with narrow passage strips or where there is a change in direction. The ceiling framing for each bay must be independent of adjacent bays and the surrounding building structure. Framing members (to which the sheet is fixed) must not continue across this control joint. Sheets shall be fixed across or along the ceiling joists or ceiling battens (refer Figures 12 and 13). Figures 7 and 10 show control joints with the battens running in the same direction as the sheet joint. When these ceilings are wider than one sheet width the sheets can be fixed to the framing provided the control joints are placed to limit the bay size to 7.2m x 4.8m maximum.

Figure 8: Villaboard™ Lining ceiling flush stopped



Villaboard™ Lining 9mm			
Longitudinal batten spacing	**Transverse batten spacing**	**Wind pressures**	**Fixing centres**
600mm	1200mm	2 kPa (ULS)	200mm
400mm	1200mm	3 kPa (ULS)	200mm
		4 kPa (ULS)	150mm

Figure 9: Steel ceiling batten control joint detail

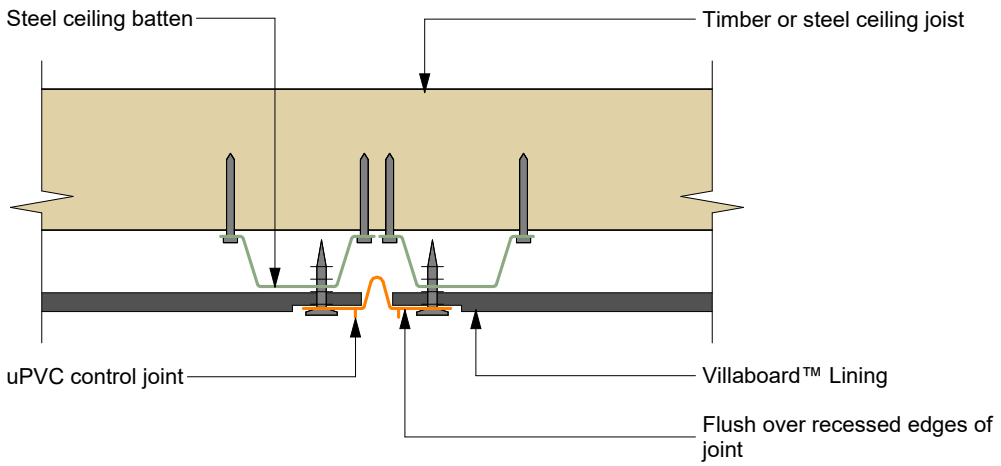


Figure 10: Timber control joint detai

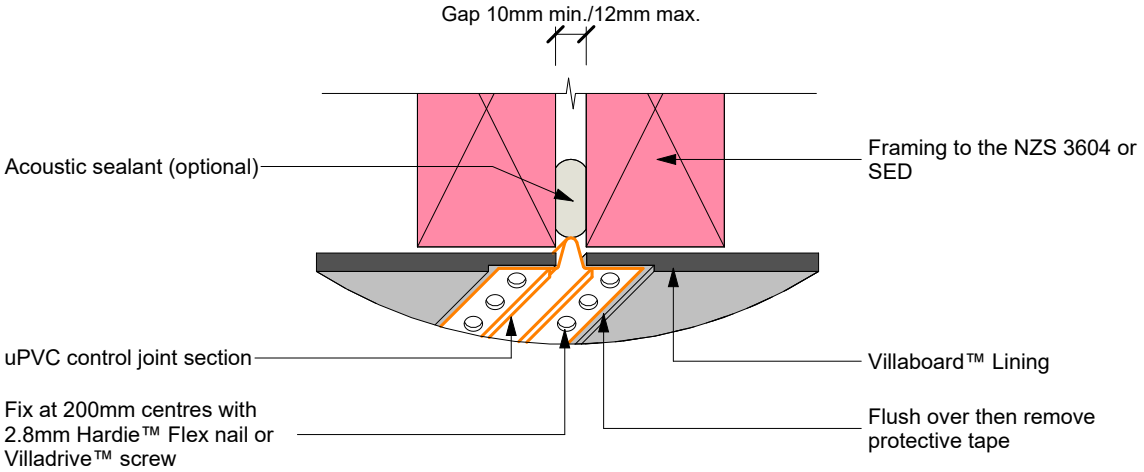
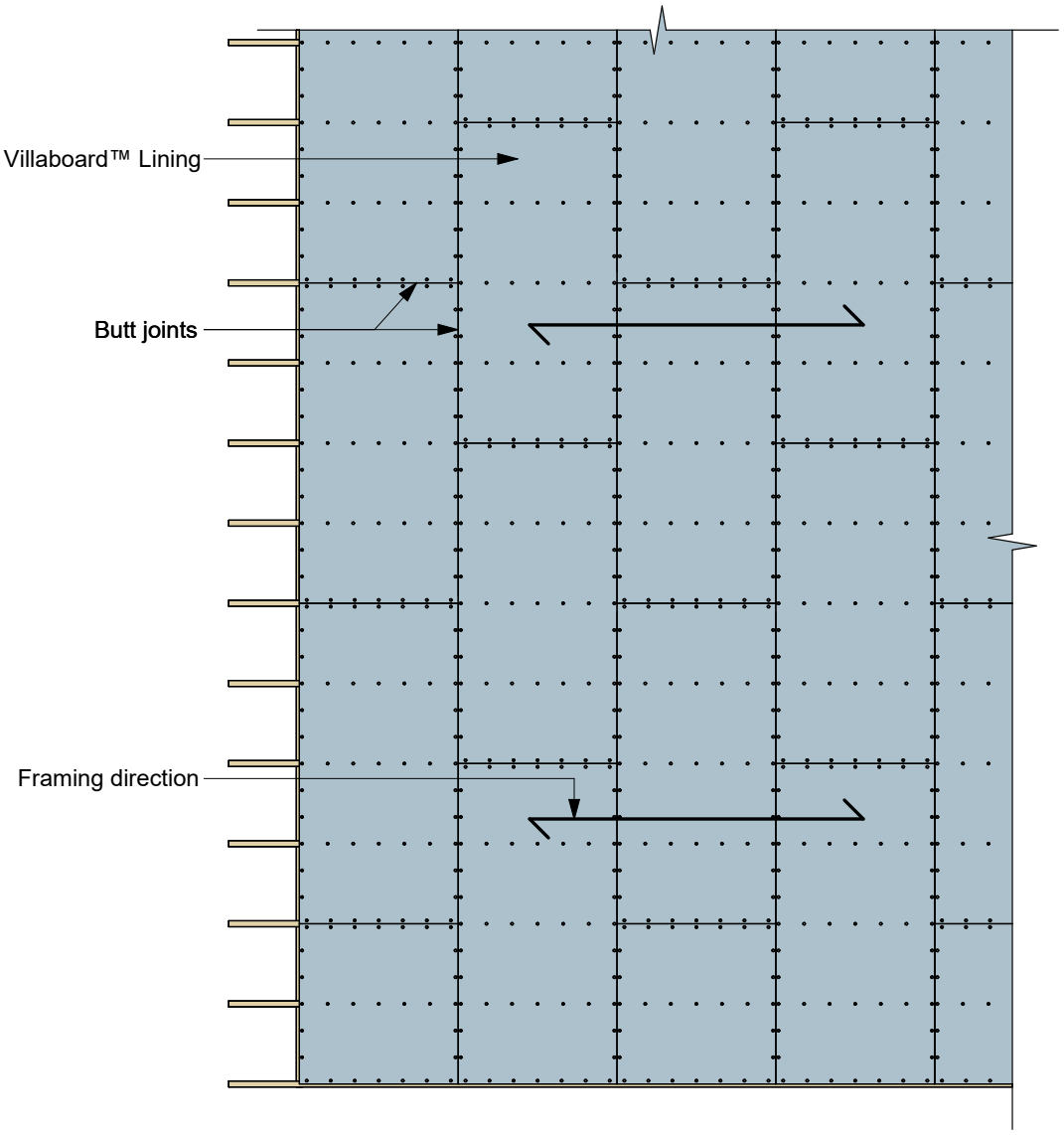


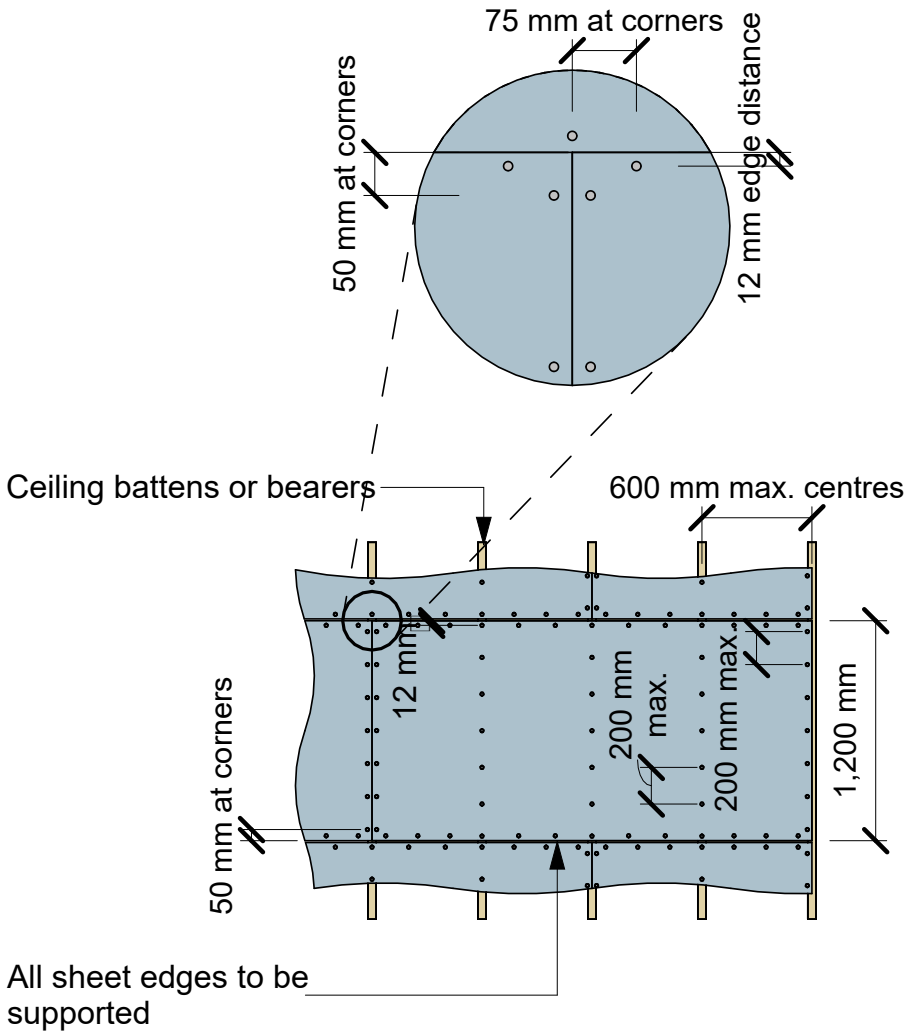
Figure 11: Villaboard™ Lining square edge ceiling butt joints



Note: Sheet joints can be staggered or aligned

Villaboard™ Lining 9mm			
Longitudinal batten spacing	**Transverse batten spacing**	**Wind pressures**	**Fixing centres**
600mm	1200mm	2 kPa (ULS)	200mm
400mm	1200mm	3 kPa (ULS)	200mm
		4 kPa (ULS)	150mm

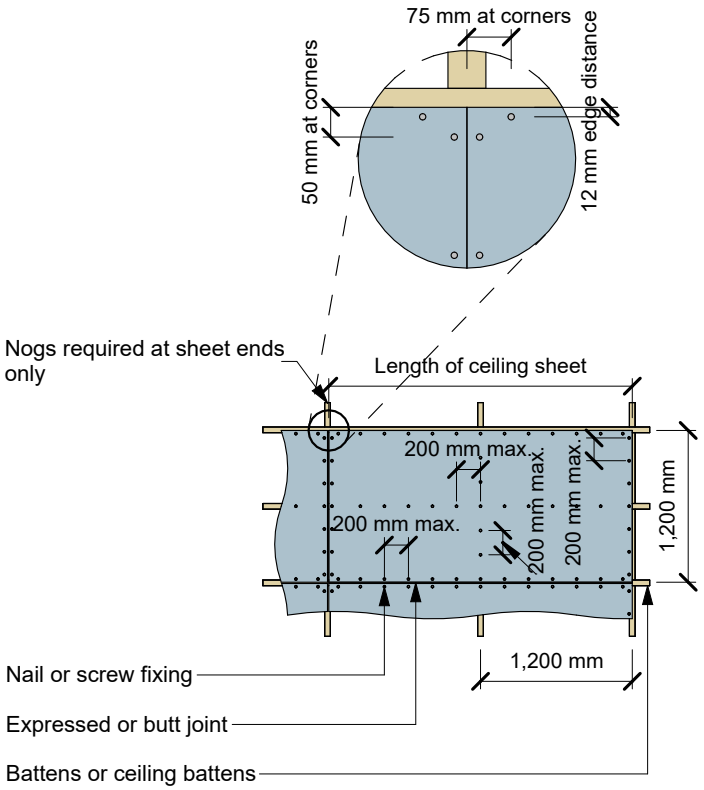
Figure 12: Villaboard™ Lining - across ceiling battens



5.6.2 Column or Wall Abutments

Soffit sheeting must be free to move independently from the building element it abuts with. This is critical for flush-jointed sheeting, otherwise cracking at the joint may occur.

Figure 13: Villaboard™ Lining - along ceiling battens



Note: Refer to Table 15 and 16 for maximum framing spacing

5.7 Fastener Durability

Fasteners used in external applications must meet the minimum durability requirements of the NZBC. The NZS 3604 specifies the requirements for fixing's material to be used in relation to the exposure conditions and are summarised below in Table 17.

Table 17

Exposure conditions and nail selection prescribed by the NZS 3604	
Zone	**Nail/material**
Zone D	Stainless steel 304/316
Zone C* - outside sea spray zone and Zone B and geothermal hot spots	Hot-dipped galvanised ** or Stainless steel 304/316
All zones - Bracing	Stainless steel 304/316

*Zone C areas where local knowledge dictates that increased durability is required, appropriate selection shall be made.

** Hot dip galvanised must comply with AS/NZS 4680

When using screws to fix into steel framing a minimum class-3 coated screw must be used.

5.8 Internal Swimming Pool Application

For fixing Villaboard™ Lining and Hardie™ Groove Lining in internal swimming pool areas;

- The sheets must be back and edge sealed before installation.
- When fixing Villaboard™ Lining to the ceiling under a skillion roof, roof ventilation must be considered to minimise thermal movement and sheet joint cracking.
- All Villaboard™ Lining recessed sheet joints must be stopped.
- Alternatively, when using square edge Villaboard™ Lining, the sheet joint must be butted over an Inseal® 3259 tape with an appropriate flexible sealant in the 1mm joint.
- All Hardie™ Groove Lining joints must have continuous bead of sealant applied to edge of sheet before butting together.

Only stainless steel fasteners must be used.

- Full perimeter fixing required.
- In addition, it is recommended that H3.1 treated timber ceiling battens are used to resist decay due to higher condensation levels present in this area.

5.9 Special Framing/Fixing Requirements

Battens are required when sheets are fixed over:

- Gypsum board
- Concrete

Timber battening is to be a minimum of 35mm deep x 45mm wide minimum

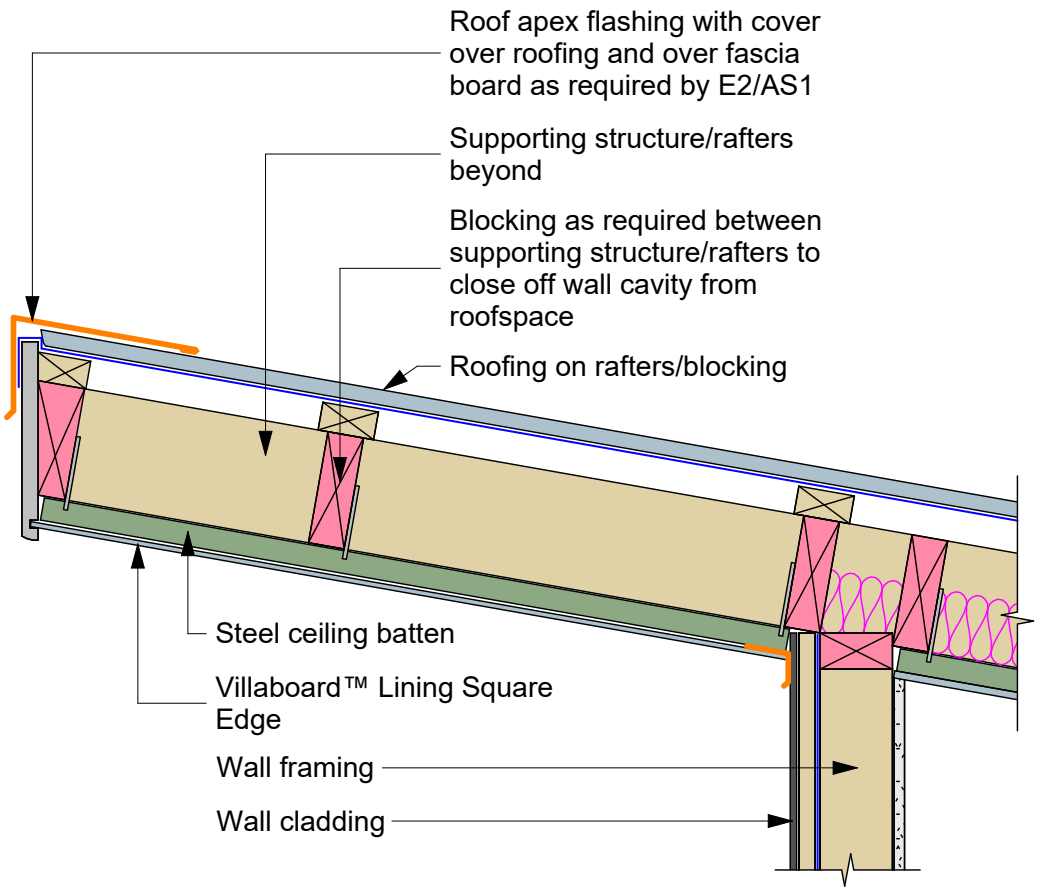
5.10 Special Details

5.10.1 Skillion Roof

When installing soffit linings direct to skillion roof framing ensure that sufficient ventilation has been provided within the roof space. The temperatures within these smaller roof spaces can reach very high levels in certain conditions and this can cause cracking in flush stopped joints due to excessive movement in framing. Therefore it is recommended to use square edge Villaboard™ Lining sheets in this application to avoid the problem of joint cracking. The negative joint detail is formed using Villaboard™ Lining square edge sheets as per Figure 22.

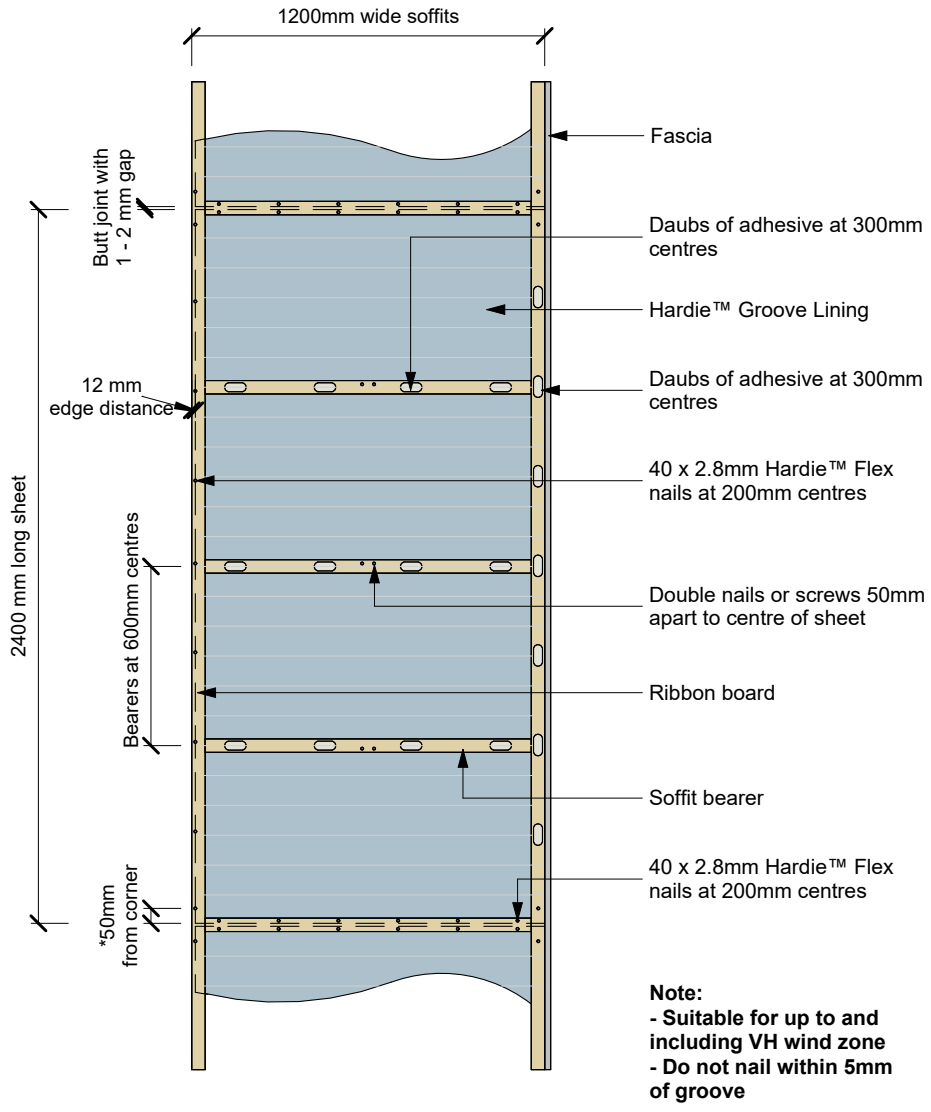
All sheet edges are to be fully supported by framing to facilitate sheet fixing to meet wind pressure exposure requirements.

Figure 14: Villaboard™ Lining Skillion Roof/Ceiling



5.10.2 Hardie™ Groove Lining

Figure 15: Hardie™ Groove Lining nail or screw and adhesive fixing



NOTES

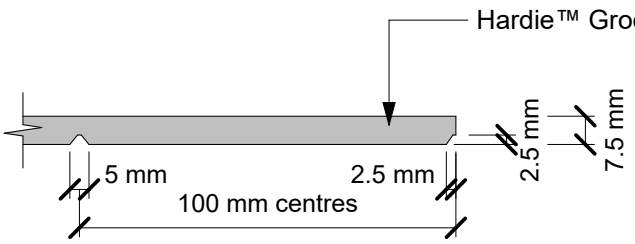
1. Do not place nails or screws within 100mm of the adhesive daubs.
2. Fix with either Hardie™ Flex nails 40 x 2.8mm (galvanised or 316 stainless steel), Villadrive™ wood screws or Hardie™ Drive stainless steel 30mm x 7g wood screws.
3. Use only stainless steel fixings in sea spray zones.
4. When butt jointing short ends of Hardie™ Groove Lining in ceiling/soffit applications, the short edges must be cut square and have chamfer formed.
5. Screw and adhesive fixing option is suitable only up to VH wind zone.

Once the Hardie™ Groove Lining sheets are fixed in place, fill over all driven fixings with Hardie™ Top Coat to the required level of finish and paint.

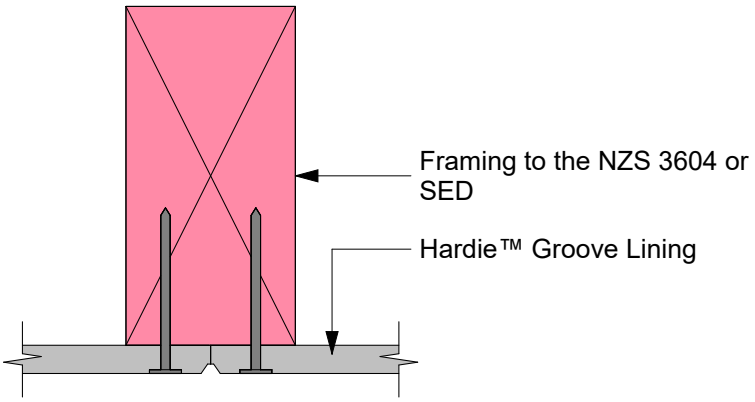
Nails must be finished flush with the sheet surface. Screw heads can be finished 0.5mm below the sheet surface and stopped.

In steel framing the fasteners should be driven as close as possible to the stud corners to avoid deflection of the stud flange.

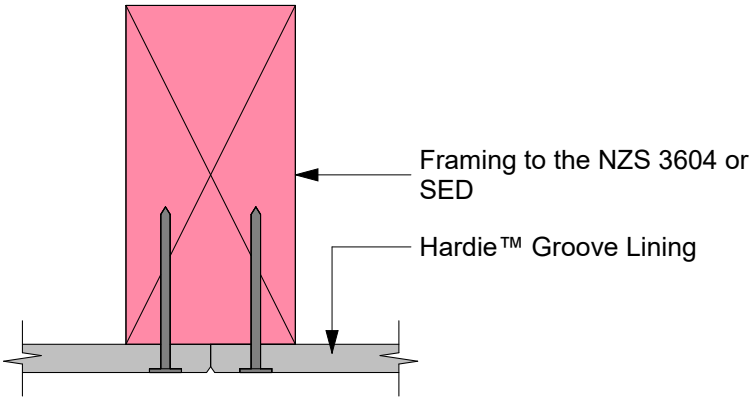
Figure 16: Hardie™ Groove Lining sheet edge and groove detail



Note: Sheets are grooved along the length of the sheet



Note: Typical long edge joint



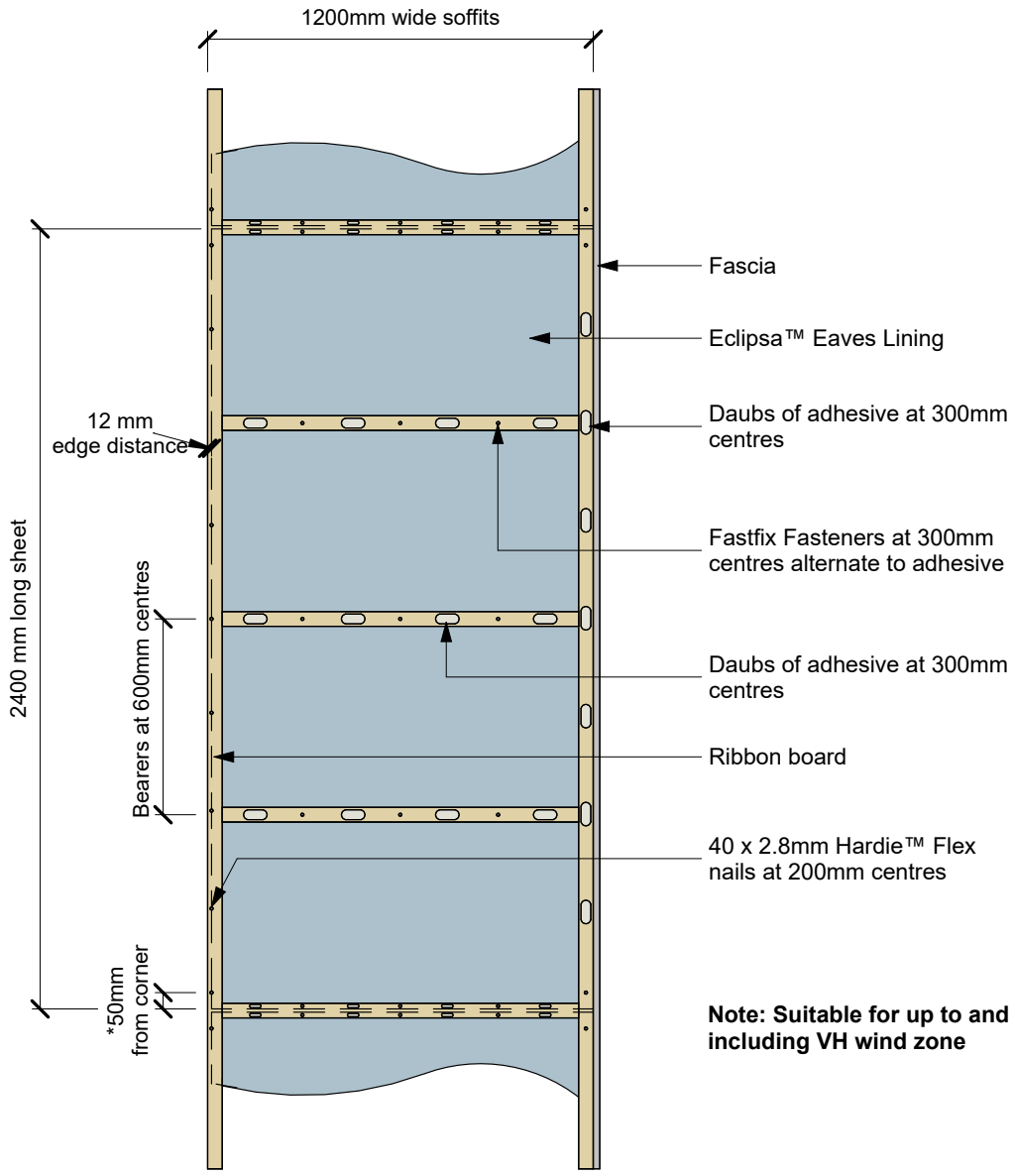
Note: Typical short edge site cut and chamfer

5.10.3 Eclipsa™ Eaves Lining

Fastfix Fasteners (38mm long) can be used as an alternative fixing for prefinished soffit and ceiling systems in conjunction with adhesives. Drill a 6mm-diameter hole through the sheet and framing to insert the Fastfix fastener. In timber the hole must be 40mm deep.

For boxed frame soffit or large ceiling area applications, Eclipsa™ Eaves Lining is fixed using Fastfix Fasteners and the adhesives as per Figures 17, 24 and 25.

Figure 17: Fastfix Fastener and adhesive fixing



5.10.4 Sloping soffit

Figure 18: Sloping soffit and cavity fixed flat sheet cladding

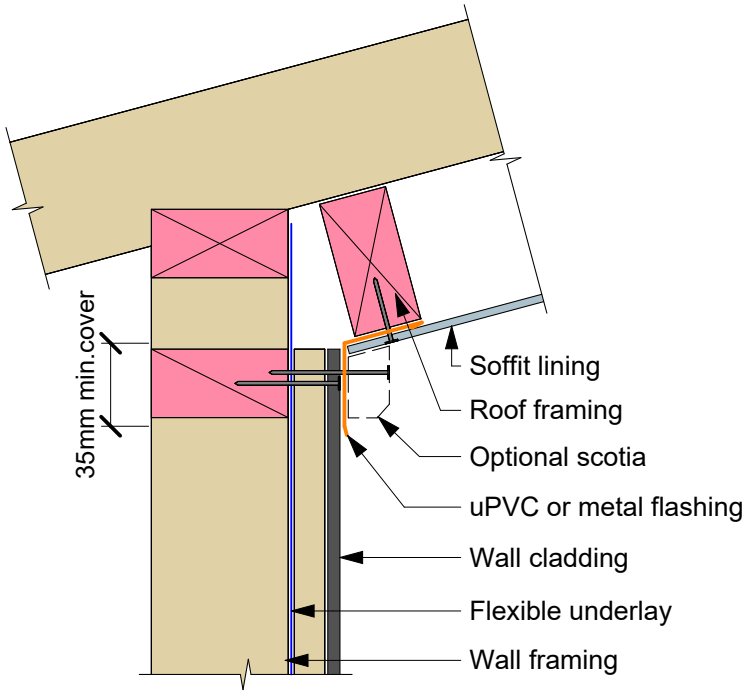
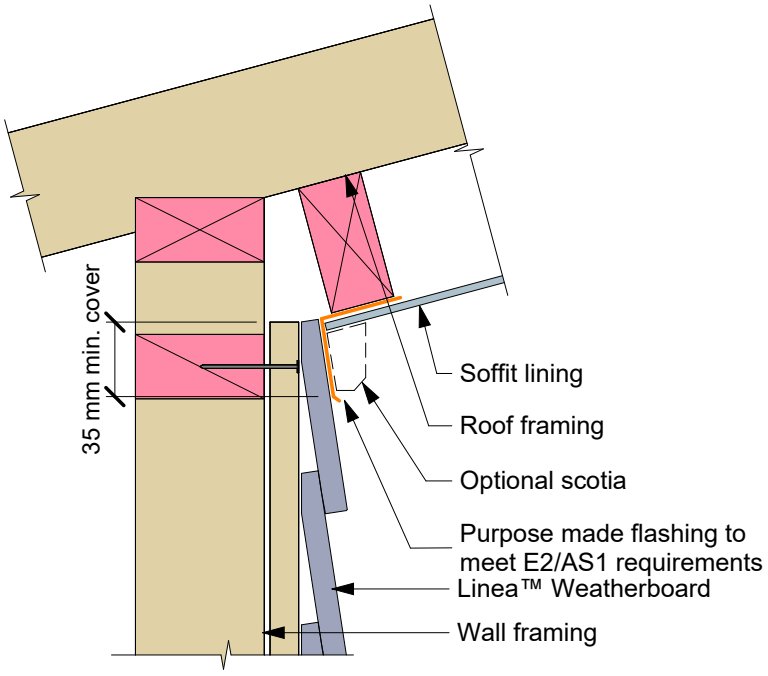


Figure 19: Sloping soffit and cavity fixed weatherboard cladding



6 Jointing options

All soffit lining sheet edges must be supported by framing and/or a fascia board.

6.1 Hardie™ Flex Eaves Lining

- Refer to Figure 20 for uPVC Hardie™ Jointer detail
- Refer to Figure 21 for square butt joint detail
- Refer to Figure 22 for express joint detail
- Refer to Figure 25 for two-way uPVC jointer

6.2 Eclipsa™ Eaves Lining

- Refer to Figure 20 for uPVC Hardie™ Jointer detail
- Refer to Figure 24 for Fastfix Fasteners fixing detail. Use a 6mm diameter masonry drill bit to drill a hole and fix fasteners
- Refer to Figure 25 for two-way uPVC Jointer

6.3 Hardie™ Groove Lining

- Refer to Figure 16 for sheets have half groove along the long edges for butt jointing
- Refer to Figure 16 for sheets to be cut square and have chamfer formed on site along the short edge for butt jointing

6.4 Villaboard™ Lining

Villaboard™ Lining recessed edge

- Refer to Figure 23 for flush joint details. Refer to Section 7 for flush jointing

Villaboard™ Lining square edge

- Refer to Figure 20 for uPVC Hardie™ Jointer detail
- Refer to Figure 21 or square butt joint detail
- Refer to Figure 22 for express joint detail

Figure 20: uPVC Hardie™ Jointer detail

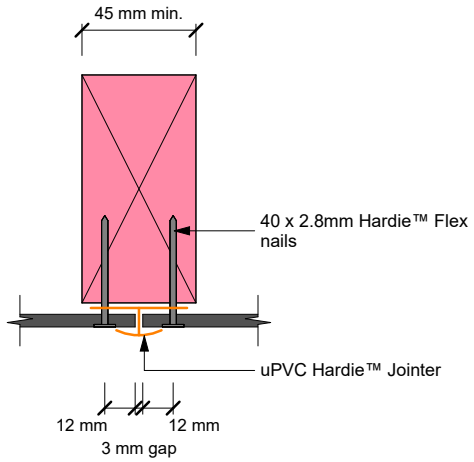


Figure 21: Square Butt joint detail

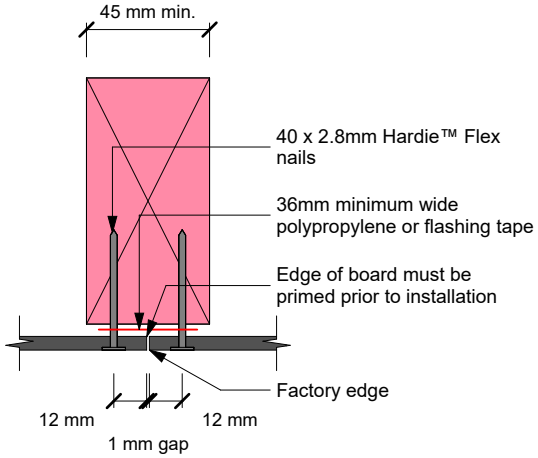
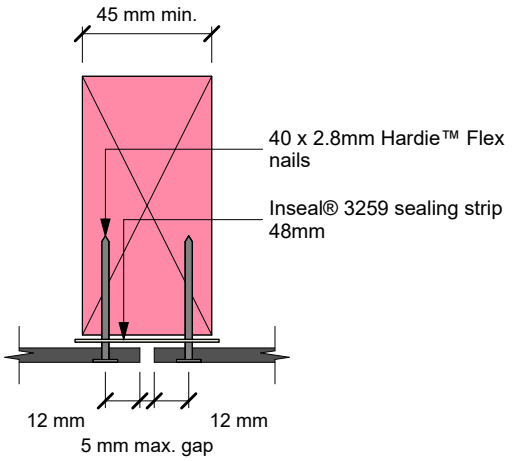


Figure 22: Expressed joint detail



Note:
- For wider joint gaps up to 10mm, framing must be 70mm wide minimum
- The joints can be filled with paintable flexible sealant

Figure 23: Vertical flush joint setout

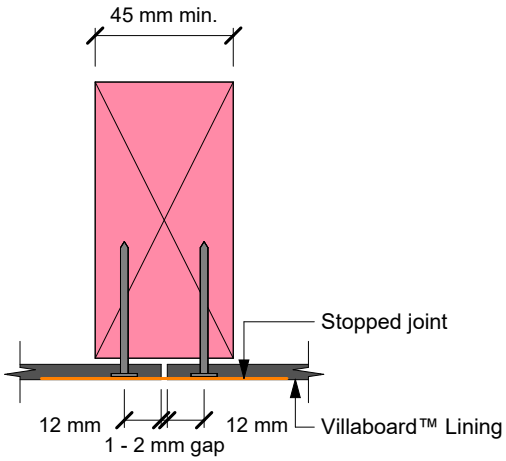
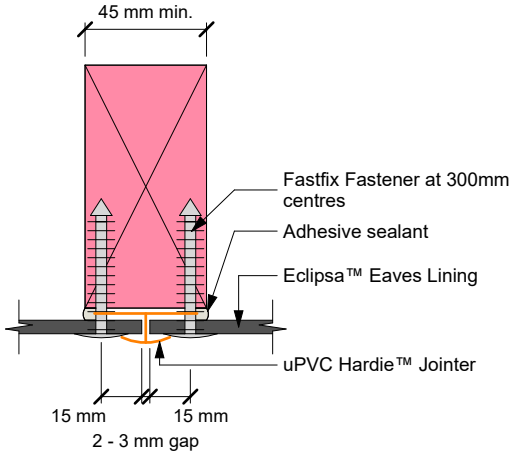
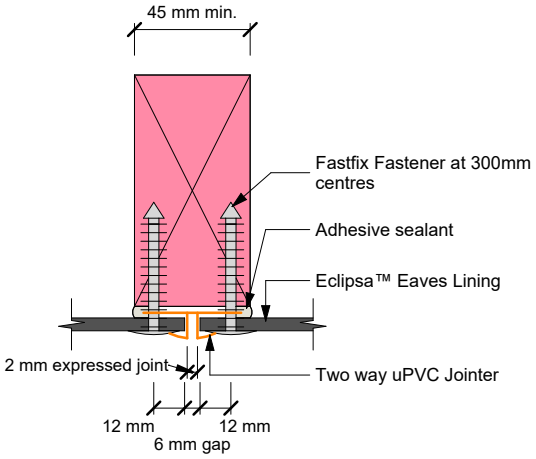


Figure 24: Fastfix Fastener fixing detail



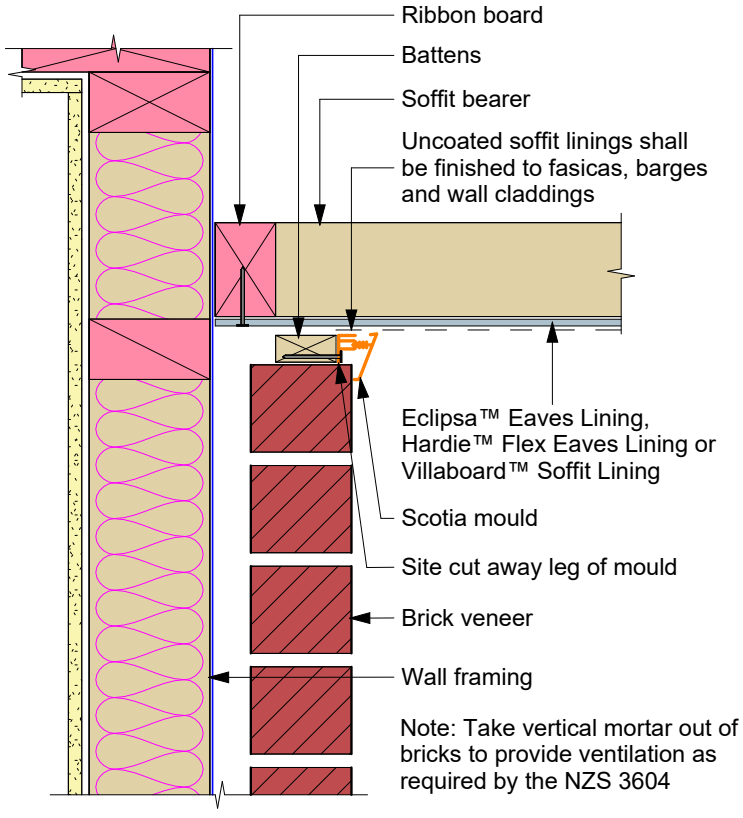
Note: Use a 6mm drill bit for drilling holes in sheet for fixing Fastfix fasteners

Figure 25: Two-way uPVC jointer



Note:
- Eclipsa™ Eaves Lining, use a 6mm drill bit for drilling holes in sheet for fixing Fastfix fasteners
- Hardie™ Flex Eaves Lining, is fixed with Hardie™ Flex Nails

Figure 26: Brick veneer with soffit scotia mould



7 Villaboard™ Lining Joint Stopping

For Villaboard™ Lining

7.1 General

Villaboard™ Lining is finished with paint complying with parts 7, 8, 9 and 10 of AS 3730. The application and maintenance must be in accordance with the manufacturer's specifications.

NOTE: Before flush stopping sheet edges must be sealed with Cemix Cemkey® Concentrate, ARDEX® Multiprime or other similar products.

7.2 Glancing Light

In some instances, due to glancing light, set joints may be noticeable in Villaboard™ Lining walls, especially where paint finishes have a high gloss level. Work closely with your builder or designer to minimise this.

Artificial lighting needs to be considered in relation to soffits.

Where glancing light is an issue its effect can be lessened by:

- Artificial light shading devices.
- The use of light coloured, matt finish paints.

7.3 Level of Finishes

Different levels of finishes are typically specified for different applications. Higher levels of finishes are used to address the glancing light issues with painted Villaboard™ Lining referred to above. A description of the various levels of finishes and the jointing/coating requirements can be found in Table 18.

Table 18

Levels of Finishes			
Level of finish	**Definition***	**Typical jointing/setting**	**Finish**
0	This level of finish may be useful in temporary construction.	No stopping, taping, finishing or accessories are required. The work is confined to gluing or screwing/ nailing sheets in place.	For use in areas where finishing and stopping is not considered necessary.
1	For use in plenum areas above ceilings, in areas where the work would generally be concealed, or in building service corridors and other areas not normally open to public view.	Joints and corner joints will be set with Hardie™ Base Coat reinforced with perforated paper tape.	Surface free from excess jointing compound. Tool marks and ridges are generally acceptable.
2	For use in warehouse, storage or other areas where surface appearance is not of primary concern.	Joints and corner joints will be set with Hardie™ Base Coat reinforced with perforated paper tape and Hardie™ Top Coat.	Minor tool marks and ridges are generally acceptable.
3	For use in areas which are to receive heavy or medium texture (spray or hand applied) finishes or where heavy wall paper coverings are to be applied as the final decoration. This level of finish is not generally suitable where smooth painted surfaces or light to medium wall coverings are specified.	Joints and corner joints will be set with Hardie™ Base Coat reinforced with perforated paper tape and Hardie™ Top Coat.	This level of finish must be sufficiently smooth to accept heavy vinyl, tiles or textured coatings without blemishes.
4	This is generally the accepted level of finish for domestic construction. It is used where light textures or wall coverings and smooth textured finishes and satin/flat/low sheen paints are illuminated by non-critical lighting.	Refer to flush jointing recommendations in Section 7.5. All joints and corner joints will have tape embedded in Hardie™ Base Coat applied over all joints, angles, fastener heads and accessories. This application is applicable to recessed edge sheets only. The use of square edge sheets will require a high build application and coating finish.	For use where light-texture coatings or wallpaper or other lightweight wall coverings are to be applied. For painted finishes in non-critical lighting areas flat and low-sheen textured paints are to be applied. Gloss and semi-gloss paints are not generally suitable over this level of finish as any minor blemish will show under critical light. The weight, texture and sheen level or wall coverings applied over this level of finish must be carefully evaluated. Joints and fasteners must be adequately concealed if the wall-covering material is lightweight, contains limited pattern, has a gloss finish, or any combination of these features is present. Unbacked vinyl wall coverings are not suitable over this level of finish.
5	This level of finish is for use where gloss or semi-gloss paints are specified or where critical lighting conditions occur on satin, flat or low sheet paints.	Refer to Section 7.5 steps 1–4 for jointing. Final Hardie™ Base Coat application should be feathered out to approximately 200mm + each side of the joint. Then a full skim coat of Hardie™ Top Coat must be applied over entire sheet surface in order to achieve a uniform finish. This application is applicable to recessed edge sheets only. The use of square edge sheets will require a high build application and coating finish.	This level of finish is for use where gloss, semigloss, low-sheen or non-textured paints are specified or where critical lighting conditions occur.

*Reference: AS/NZS 2589.1: 'Gypsum lining in residential and light commercial construction — Application and finishing. Part 1: Gypsum plasterboard'

7.4 Villaboard™ Lining Jointing and Stopping

Villaboard™ Lining joints are set with Hardie™ jointing compounds reinforced with perforated paper tape. Recessed edge sheet joints require joint setting by using the jointing products outlined. The performance of joints is the responsibility of the installer, as this is governed by the installation practices and the standard of workmanship applied. However, James Hardie considers that the recommendations provided in Tables 12, 18 and 19 describe best practice to reduce the risk of joint cracking or other problems. There are various factors that can affect the performance of jointing compounds on edge recessed fibre cement substrates. These factors include the framing, movement, installation quality, vibrations, moisture, humidity, temperature, etc. To achieve satisfactory joint performance these factors need to be carefully considered and understood by the installer and designer when positioning joints and selecting jointing compounds. Furthermore, it is important that the jointing compound used has the physical attributes required to perform considering these factors. Hardie™ compounds have been specifically developed for use with Villaboard™ Lining.

In addition, provision for movement needs to be made by the installation of control joints. Refer to clause 5.6.2.

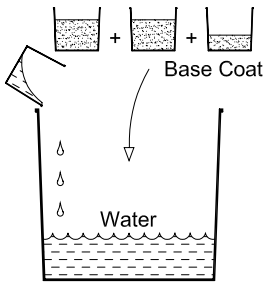
COMPOUND COVERAGE
1kg of Hardie™ Base Coat will provide approximately 5 lm of standard joints. 1kg of Hardie™ Top Coat will provide approximately 5.6 lm of standard joints.

NOTE: Follow the mixing instructions carefully when mixing Hardie™ Base Coat and Hardie™ Top Coat.

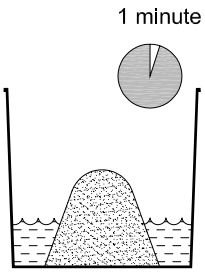
Mixing Instructions

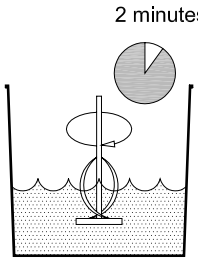
Table 19

Hardie™ Base Coat Mixing Instructions

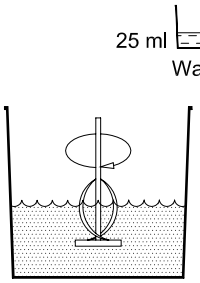


Step 1
First, add 1 part of clean water into bucket.
Then add 2½ parts Hardie™
Base Coat powder
Allow to soak for 1 minute.





Step 2
Mix for 1½ – 2 minutes using paint mixer or equivalent. (approximately 2500-3000rpm)
Hardie™ Base Coat is NOT like the plaster based compounds. Initial mixing will indicate a dry mix and further mixing WITHOUT further addition of water will deliver the ideal workable paste.
Warning: Inadequate or over mixing can lead to poor workability and can cause performance issues. Do not hand mix.



Step 3
The mix at this stage should be consistently smooth.
Based on the environmental conditions (i.e. temperature and humidity) you may add maximum of 25ml of water per 1kg of base coat powder in the mix at this stage to adjust workability. Mix it well.
(Note: Adding excess water than the recommendation may delay the drying of base coat and may cause joint cracking due to excessive shrinkage.)
Mix should be glossy and smooth. There should be no lumps in the mix.

Important Notes:

1. Do not apply Hardie™ Base Coat in temperatures above 40º C or below 5º C.
2. Allow the compounds to dry before applying the next coat. The drying time will vary between 12 to 24 hours depending upon the weather conditions.
3. Villaboard™ Lining site cut and site recessed sheet edges must be sealed with an acrylic sealer e.g. Dulux® Acraprime® 501/1, Dulux® 1 Step or similar product.
4. In corners, use Hardie™ uPVC internal/external corner mould primed with Dulux® Primerlock® or similar. A 'GIB® Goldline™ Platinum' corner mould can also be used.
5. Use only perforated paper tapes in straight joints.
6. It is recommended that one (1) base coat bag is mixed in three (3) portions.
7. Before stopping the sheet edges, Cemix Cemkey® Concentrate, ARDEX Multiprime or a similar product in diluted form must be applied over the sheet edges. Mix the resin as per the manufacturers recommendations.

Product Life:
Hardie™ Base Coat has a shelf life of 12 months in unopened bags when stored in a cool dry place.

Hardie™ Base Coat has a bag life of 1 month if opened bags are resealed and stored in a cool dry place.

7.5 Set Joints

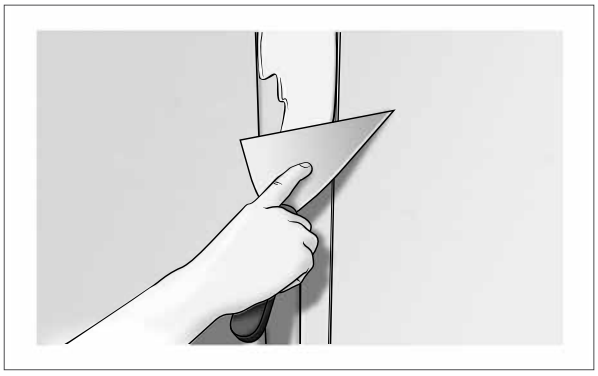
Step 1 — Preparation

Ensure that the recesses are clean and free of dust and contaminants. Sheet edges must be sealed with Cemix Cemkey® Concentrate, ARDEX® Multiprime or other similar products. If working conditions are hot and dry, dampen the area around the joint prior to working.

NOTE: The jointing method shown below provides a Level 4 finish. For more information about this and other finishes refer to **page 42.**

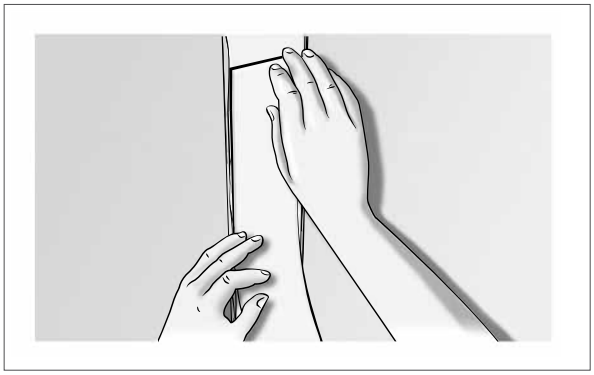
Step 2 — First Coat

Apply Hardie™ Base Coat to fill the recess with a 150mm broad knife.



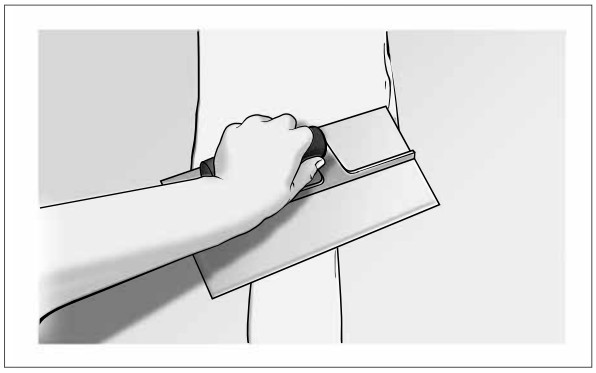
Step 3 — Embed Tape

Firmly embed the perforated paper tape centrally into the joint using a 50mm broad knife. Ensure that there are no voids under the tape and remove excess compounds.



Step 4 — Thin Layer

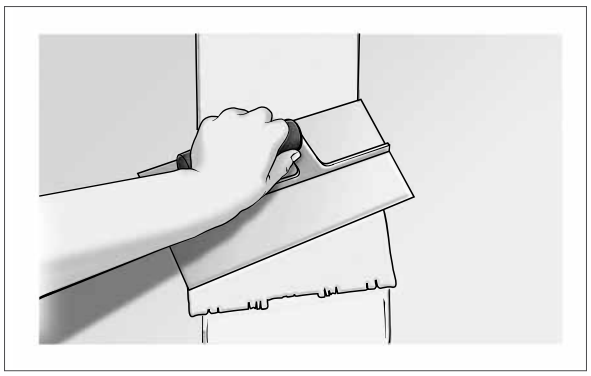
Immediately cover tape with a thin layer of Hardie™ Base Coat applied with a 150mm broadknife.



NOTE: Steps 5, 6 and 7 are only required for paint and wall paper finish.

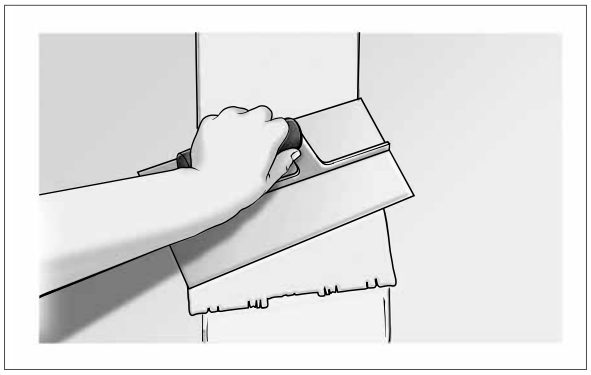
Step 5 — Second Coat

When the first coat is fully dry, use a 200mm wide second coat trowel to apply the Hardie™ Base Coat. Apply this coat approximately 180mm wide, laid down over the recess and feather the edges.



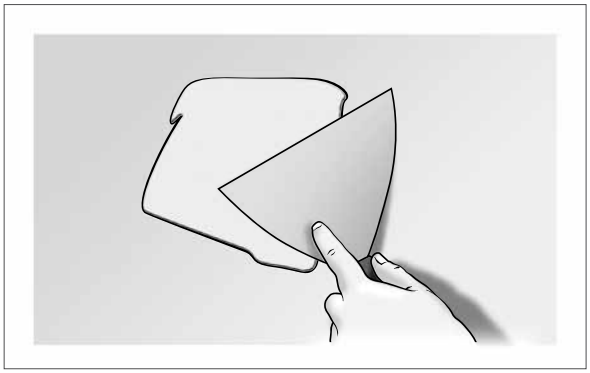
Step 6 — Finishing Coat

Ensure the second coat is fully dry. Using a finishing trowel, apply a coat of Hardie™ Top Coat 280mm wide centrally over the joint and feather out the edges. Allow to dry fully before sanding. Sand with a 180 grit sand paper to achieve a smooth finish for painting.



Step 7 — Fastener Heads

Apply a finishing coat of Hardie™ Top Coat to fastener heads, feathering out the edges. Allow to fully dry before sanding.



8 Finishing

8.1 Painting

Hardie™ Flex Eaves Lining, Villaboard™ Lining and Hardie™ Groove Lining sheets are to have a minimum of two coats of acrylic paint applied after fixing in order to meet the requirements of the NZBC. All sheets must be coated within 90 days of installation.

Use quality 100% acrylic paints. Economy paints are not recommended because generally they are less well bound, less moisture resistant and more prone to mould growth.

In all cases the manufacturer's specification for the selected paint must be followed. Note that some paints require an undercoat before applying finish coats.

Damp, shady situations, proximity to bush, agricultural paddocks or seaspray environments may induce an extra tendency to mould growth. Use mould-inhibiting and alkaline-resistant undercoats and consult the paint manufacturer for details of maximum mould-resistant paints.

Before painting, remove any surface grime or other contaminants and ensure the Hardie™ Flex Eaves Lining, Villaboard™ Lining and Hardie™ Groove Lining is dry. Paint must not be applied when the air temperature is below 10°C.

When using uPVC moulds avoid dark colours (paints must have light reflection of 40% or more) as excessive movement may cause buckling of the uPVC when exposed to direct sunlight.

Enamel-based paints can be used, utilising a three-coat system.

For full details apply to the selected paint manufacturer before commencing the work.

8.2 Flexible Sealant

Sealant used must comply with the relevant requirements of the NZBC. Their application and usage must be in accordance with the manufacturer's instructions. Check with the sealant manufacturer prior to coating over sealant. Some sealant manufacturers do not recommend coating over their product.

8.3 Masking Tape

The recommended masking tape for use with Eclipsa™ Eaves Lining is 3M® Scotch® Blue I8E 2090 or Sellotape® Premium+™ Washi® DELICATE. This tape can only be left on the Eclipsa™ Eaves Lining for maximum 7 days, otherwise tape removal may cause paint loss.

9 Product information

9.1 General

Hardie™ Flex Eaves Lining, Eclipsa™ Eaves Lining, Hardie™ Groove Lining and Villaboard™ Lining are a cellulose fibre reinforced cement building product. The basic composition is Portland cement, ground sand, cellulose fibre, water and proprietary additives.

Hardie™ Flex Eaves Lining, Eclipsa™ Eaves Lining, Hardie™ Groove Lining and Villaboard™ Lining is manufactured in Australia to the NZS 2908.2 'Cellulose-Cement Products Part 2: Flat Sheets' (ISO 8336 'Fibre Cement Flat Sheets').

James Hardie is an ISO 9001 certified manufacturer. Hardie™ Flex Eaves Lining, Eclipsa™ Eaves Lining, Hardie™ Groove Lining and Villaboard™ Lining are classified Type A, Category 3 in accordance with the AS/NZS 2908.2 'Cellulose-Cement Products'.

For Safety Data Sheets (SDS) visit www.jameshardie.co.nz or Ask James Hardie on 0800 808 868.

9.2 Durability

Resistance to Moisture/rotting

Hardie™ Flex Eaves Lining, Eclipsa™ Eaves Lining, Hardie™ Groove Lining and Villaboard™ Lining has demonstrated resistance to permanent moisture induced deterioration (rotting) and has passed the following tests in accordance with the AS/NZS 2908.2:

- Heat rain (Clause 6.5)
- Water permeability (Clause 8.2.2)
- Warm water (Clause 8.2.4)
- Soak dry (Clause 8.2.5)

9.3 Group Number Classification

Hardie™ Groove Lining and Villaboard™ Lining have a 'Group Number' classification of 1 – S as per the requirements of Clause C of the NZBC.

10 Maintenance

It is the responsibility of the specifier to determine normal maintenance requirements for eaves and soffits to comply with the NZBC Acceptable Solution B2/AS1. The extent and nature of maintenance will depend on the geographical location and exposure of the building. As a guide, it is recommended that basic normal maintenance tasks shall include but not be limited to:

- Washing down exterior surfaces every 6-12 months, using low water pressure and a brush. Do not use a water blaster to wash down the soffits.
- Pre-painted soffits, such as Eclipsa™ Eaves Lining, when used in harsh costal environments, the soffit must be washed down using a hose and soft brush minimum once every four months in addition to the other maintenance requirements.
- Re-applying exterior protective finishes. Refer to your paint manufacturer for washing down and recoating requirements related to paint performance.
- Maintaining the exterior envelope and connections including joints, penetrations, flashings and sealants.
- Cleaning out gutters, blocked pipes and overflows as required.
- Pruning back vegetation close to or touching the building.

Notes

Notes

Product Warranty

All eaves and soffit linings by James Hardie come with a 15 year product warranty. Pre-finished products such as Eclipsa™ Eaves Lining come with a 10 year coating warranty and 15 year warranty on the base sheet. All accessories supplied by James Hardie are warranted for a period of 15 years. For full warranty details visit www.jameshardie.co.nz or Ask James Hardie on 0800 808 868.

JamesHardie™

Ask James Hardie™ | Call 0800 808 868 | jameshardie.co.nz