



# Content

<b>1</b>	<b>INTRODUCTION</b>	<b>3</b>	<b>6</b>	<b>JOINTING AND FINISHING</b>	<b>23</b>
1.1	HardieSoffit™ Lining	3	6.1	General	23
1.2	HardieFlex™ Eaves Lining	3	6.2	Glancing Light	23
1.3	Eclipsa™ Eaves Lining	3	6.3	Level of Finishes	23
1.4	HardieGroove™ Soffit Lining	4	6.4	Paint Finishes	24
1.5	Villaboard™ Soffit Lining	4	6.5	Villaboard Soffit Lining Jointing and Stopping	24
1.6	Product Description	5		Mixing Instructions	24
1.7	Accessories	6	6.6	Set Joints	25
<b>2</b>	<b>SAFE WORKING PRACTICES</b>	<b>9</b>	<b>7</b>	<b>FINISHING</b>	<b>26</b>
<b>3</b>	<b>FRAMING</b>	<b>11</b>	7.1	Painting	26
3.1	Timber Frame	11	<b>8</b>	<b>PRODUCT INFORMATION</b>	<b>27</b>
3.2	Steel Frame	11	8.1	General	27
3.3	Framing Set-Out	11	8.2	Durability	27
3.4	Batten Requirements	12	8.3	Finishes	27
3.5	Skillion Roof Design	12	<b>9</b>	<b>MAINTENANCE</b>	<b>27</b>
<b>4</b>	<b>JOINTING OPTIONS</b>	<b>13</b>		<b>PRODUCT WARRANTIES</b>	<b>31</b>
	HardieSoffit Lining	13			
	HardieFlex Eaves Lining	13			
	Eclipsa Eaves Lining	13			
	HardieGroove Soffit Lining	13			
	Villaboard Soffit Lining	13			
<b>5</b>	<b>INSTALLATION</b>	<b>15</b>			
5.1	General	15			
5.2	Fastener Durability	15			
5.3	HardieSoffit Lining	15			
5.4	HardieFlex Eaves Lining	15			
5.5	HardieGroove Soffit Lining Fixing Method	16			
5.6	Eclipsa Eaves Lining	16			
5.7	Villaboard Soffit Lining (small soffits)	17			
5.8	Villaboard Soffit And Ceiling Lining (Large Areas)	18			
5.9	Titan™ Facade Panel	21			
5.10	Internal Swimming Pool Application	21			
5.11	Special Details	22			

## 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™**

Fax 0800 808 988

[literaturefeedback@jameshardie.co.nz](mailto:literaturefeedback@jameshardie.co.nz)

# 1 Introduction

**James Hardie have a wide range of soffit linings and pre-finished soffit linings that 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. James Hardie products are resistant to fire and damage from moisture and rotting when installed and maintained as directed.

James Hardie HardieSoffit Lining, HardieFlex Eaves Lining, Eclipsa Eaves Lining, HardieGroove Soffit Lining and Villaboard Soffit Lining are not suitable for use as a cladding.



## 1.1



HardieSoffit™ Linings are 4.5mm thick and are specifically manufactured for the narrow soffit around the perimeter of the house or building. Standard widths of 450mm, 600mm and 750mm are available.

- HardieSoffit Linings have an unsanded finish suitable for semi-gloss acrylics or lightly textured semi-gloss or high-gloss coatings. Smooth high-gloss coatings must be avoided as some surface undulations may be visible in critical light.
- HardieSoffit Linings can be nail-fixed to timber or mechanically fixed to a steel frame.
- HardieSoffit Linings can be uPVC jointed or the joints can be left expressed.



## 1.2



HardieFlex™ Eaves Lining are 4.5mm in thickness and are available in wider widths for use in wider soffits, ceilings and verandahs. They are complementary to the HardieSoffit Lining and are fixed and jointed in a similar way.

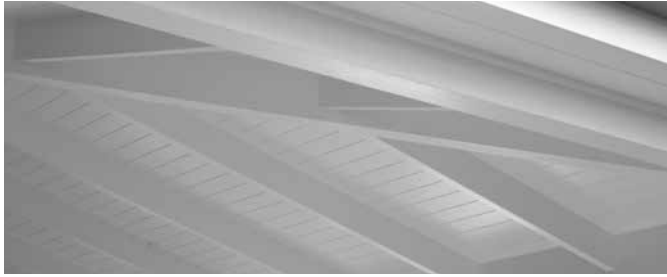
- HardieFlex Eaves Lining has an unsanded finish suitable for semi-gloss acrylics or lightly textured coatings. Smooth high-gloss coatings must be avoided as some surface undulations may be visible in critical light.
- HardieFlex Sheet 6mm, can also be used in eaves application for extra rigidity on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

## 1.3



Eclipsa™ Eaves Lining is a 4.5mm thick, pre-finished acrylic 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.



1.4

**HardieGroove™** |   
SOFFIT LINING

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

- HardieGroove Soffit Lining comes with a half groove length ways along the edge of the sheet to achieve concealed joints.



1.5

**Villaboard™** |   
SOFFIT LINING

Villaboard™ Soffit 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 face surface.
- Two long sheet edges are supplied with a recessed finish and site-cut edges can be readily ground on site. Other combinations are also available. Refer Table 2, page 5.
- Square-edge sheets are also available. These sheets can be used for the alternative expressed, sealant-filled or uPVC joint finish.



This manual covers the use of HardieSoffit Lining, HardieFlex Eaves Lining, Eclipsa Eaves Lining, HardieGroove Soffit Lining, and Villaboard Soffit 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:

- HardieFlex Sheet Technical Specification.
- Villaboard Lining Installation Manual.
- HardieGroove 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.

#### **MAKE SURE YOUR INFORMATION IS UP TO DATE**

When specifying or installing James Hardie products, ensure you have the current manual. If you're not sure you do, or you need more information, visit [www.jameshardie.co.nz](http://www.jameshardie.co.nz) or Ask James Hardie™ on 0800 808 868.

## 1.6 PRODUCT DESCRIPTION

Table 1


HardieSoffit Lining Sheet Sizes					
Square-cut edge for use with jointers 	Length (mm)	Mass (kg/m <sup>2</sup> )	Width 1200mm		
			450	600	750
	4.5mm thickness	6.5			
	2400			401948	401947

Table 2


HardieFlex Eaves Lining Sheet Sizes							
Square-cut edge for use with jointers		Width (mm)	Mass (kg/m²)	Length (mm)			
				1800	2400	2700	3000
		4.5mm thickness	6.5				
		900			400194		
1200		400190	400187	400185	400183		

Table 3

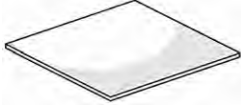
Eclipsa Eaves Lining Sheet Sizes				
Pre-finished square-cut edge sheet for use with jointers 	Length (mm)	Mass (kg/m <sup>2</sup> )	Width (mm)	
	4.5mm thickness	6.6	600	1200
	2400		404807	404808

Table 4

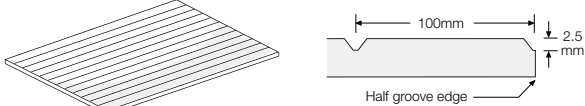
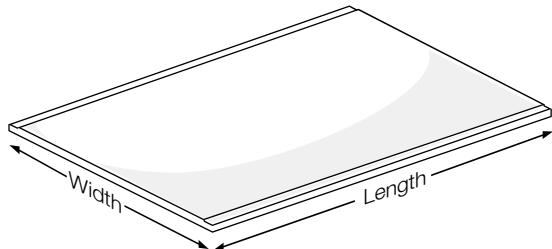
HardieGroove Soffit Lining Sheet Sizes				
Half groove length ways to achieve concealed joints 	Length (mm)	Mass (kg/m <sup>2</sup> )	Width (mm)	
	7.5mm thickness	10.4	1200	
	2400		400246	
	2700		400245	

Table 5

### Villaboard Soffit Lining Sheet Sizes

Smooth recessed edge for flush jointing.  
 Square-cut edge also available for use with jointers.

Villaboard Lining 6mm has no chamfer on square edge sheet.  
 Villaboard Lining 9mm has small chamfer on square edge sheet.



Length (mm)	Mass (kg/m²)	Width 1200mm		
		Edge Finish		
		4 rec/ edges	2 rec/ edges (long)	Square edges
6mm thickness	8.6			
2400		400432	400429	400444
2700			400428	
3000			400427	400442
9mm thickness	12.4			
2400		400439	400436	400445
2700			400435	
3000			400434	400059

## 1.7 ACCESSORIES

Table 6

HardieFlex™ Eaves Lining And HardieSoffit™ Lining — Accessories / Tools Supplied by James Hardie					
Accessories	Description	Product Code	Accessories	Description	Product Code
	<b>Soffit 4.5mm PVC 2-way Jointer</b> 2400mm long, uPVC / White	300915		<b>Hardiejointer 5mm</b> uPVC / White 2400mm long 750mm long 600mm long 450mm long	300729 300921 300920 300919
	<b>6mm Hardiejointer</b> uPVC/Bone colour 2400mm long 3000mm long	300730 300734		<b>HardieFlex 5mm Capping Mould</b> 2400mm long, uPVC / White	300538
	<b>6mm Capping Mould</b> uPVC/Bone colour 2400mm long 3000mm long	300539 300540		<b>Scotia Mould (base and cap)</b> 2400mm long, uPVC / White	300916
	<b>Fastfix Fasteners</b> 38 x 12mm, Nylon / White	300632		<b>Inseal 3259</b> 1.5mm thick 50mm wide x 50m long, Black compressible foam	300767
	<b>HardieKnife™</b> Scoring tool for easy cutting.	305926			

Table 7









Eclipsa Eaves Lining — Accessories / Tools Supplied by James Hardie					
Accessories	Description	Product Code	Accessories	Description	Product Code
	<b>Hardiejointer 5mm uPVC</b> 2400mm long 750mm long 600mm long 450mm long	300729 300921 300920 300919		<b>Soffit 4.5mm PVC 2-way Jointer</b> 2400mm long, uPVC / White	300915
	<b>Soffit Scotia Mould (base and cap)</b> 2400mm long, uPVC / White	300916		<b>HardieFlex Capping Mould 5mm</b> 2400mm long, uPVC / White	300538
	<b>Fastfix Fasteners</b> 38 x 12mm, Nylon / White	300632		<b>Inseal 3259</b> 1.5mm thick 50mm wide x 50m long, Black compressible foam	300767
	<b>Eclipsa Eaves Lining Touch-up Paint</b> 15ml	Free Ask James Hardie on 0800 808 868		<b>HardieKnife™</b> Scoring tool for easy cutting.	305926



Table 8

HardieGroove Soffit Lining — Accessories / Tools Supplied by James Hardie					
Accessories	Description	Product Code	Accessories	Description	Product Code
	<b>Soffit Scotia Mould (base and cap)</b> 2400mm long, uPVC / white	300916		<b>Inseal 3259</b> 1.5mm thick 50mm wide x 50m long, black compressible foam	300767
	<b>HardieBlade Saw Blade</b> Ø184mm poly crystalline diamond blade, for fast, clean cutting of James Hardie fibre cement.	300660		<b>James Hardie Base Coat</b> Base compound for filling over screws. 4kg Pail 15kg Bag	304490 304491
	<b>HardieDrive Screw s/s 316</b> 30mm x 7g. 100 per jar For fastening to timber frames.	300928		<b>Villadrive Screw 6g x 30mm</b> For fastening to timber frames. 100/jar 5kg Box Collated/ 1000	300992 300993 300994
	<b>HardieKnife™</b> Scoring tool for easy cutting.	305926			








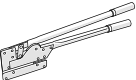
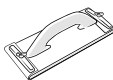




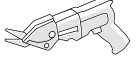
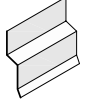







Table 9

Villaboard® Soffit Lining Accessories / Tools Supplied by James Hardie					
Accessories	Description	Product Code	Accessories	Description	Product Code
	<b>Soffit Scotia Mould (base and cap)</b> 2400mm long, uPVC / White	300916		<b>Inseal 3259</b> 1.5mm thick 50mm wide x 50m long, Black compressible foam	300767
	<b>Hardiejointer 6mm</b> uPVC / Bone colour 2400mm long 3000mm long	300730 300734		<b>9mm Hardiejointer</b> uPVC / Bone colour 3000mm long	300736
	<b>HardieFlex Capping Mould 6mm</b> uPVC / Bone colour 2400mm long 3000mm long	300539 300540		<b>Control Joint</b> 2700mm long, uPVC / White	300978
	<b>Corner Angle</b> uPVC 3000mm long	300669		<b>James Hardie Top Coat</b> Topping compound for flush finished jointing. 3kg Pail 15kg Pail	304492 304493
	<b>James Hardie Base Coat</b> Base compound for flush finished jointing. 4kg Pail 15kg Bag	304490 304491		<b>HardieBlade Saw Blade</b> Ø184mm poly crystalline diamond blade, for fast, clean cutting of James Hardie fibre cement.	300660
	<b>HardieDrive Screw s/s 316</b> 30mm x 7g 100 per jar For fastening to timber frames.	300928		<b>Villadrive Screw 6g x 30mm</b> For fastening to timber frames. 100/jar 5kg Box Collated/1000	300992 300993 300994
	<b>FibreZip® Screws</b> Self drilling rib head screw Box 1000	303840		<b>HardieKnife™</b> Scoring tool for easy cutting.	305926

Table 10

### 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
	<b>HardieFlex Nail</b> 40 x 2.8mm galvanised or stainless steel nails.		<b>Second Coat Trowel 200mm</b> For installing second coats on set joints on Villaboard Lining.
	<b>Rondo P35</b> Control joint used in movement joints.		<b>Finishing Coat Trowel</b> For installing top coats on set joints on Villaboard Lining.
	<b>Perforated Paper Tape</b> Joint reinforcing tape.		<b>Corner Tool</b> For setting of internal corners on Villaboard Lining.
	<b>Level/straight Edge</b> For checking straightness of frame.		<b>Hawk</b> To assist in the application of finishing compounds especially with the use of trowels.
	<b>Hand Guillotine</b> Guillotine for cutting fibre cement.		<b>Hand Sander</b> For sanding set joints on Villaboard Lining.
	<b>Collated Screw Gun</b>		<b>Notched Trowel</b> For applying tile adhesive to face of Villaboard Lining.
	<b>Hole Saw</b>		<b>Broadknife 150mm</b> For setting of joints on Villaboard Lining.
	<b>Electric shear/Fibreshear</b> For cutting Villaboard Soffit Lining, HardieGroove Soffit Lining, HardieSoffit Lining, HardieFlex Eaves Lining.		<b>Flashing to Table 20 'E2/AS1'</b> Flashing fabricator
	<b>Flashing Tape</b> Proprietary tape to adhere to building wrap. Tyvek, Protecto wrap or similar		<b>Flexible Joint Sealant</b> Tube Sikaflex MS or similar
	<b>Masking Tape</b> 3M Scotch™ Blue 2090 - I8E 70006576972 or Sellotape 5855 Long Life		<b>Paperback Corners</b> 'Goldline' corner moulds
	<b>Polyurethane Tape</b>		<b>Adhesive Sealant</b> Sikaflex-11FC by Sika Seal N Flex-1 by Bostik
	<b>Acrylic Paint</b> Dulux X10 or similar brand		<b>Waterproofing Admixture</b> Multiplast Resin by Plaster Systems. Used in diluted form over Villaboard Lining sheet edges to control moisture suction before flush stopping.



# 2 Safe working practices

## STAY HEALTHY WHEN WORKING WITH BUILDING PRODUCTS CONTAINING CRYSTALLINE SILICA

---

### Crystalline Silica

What is it? Why and when is it a health hazard?

### 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).

**FAILURE TO ADHERE TO OUR WARNINGS, SAFETY DATA SHEETS AND INSTALLATION INSTRUCTIONS WHEN WORKING WITH JAMES HARDIE PRODUCTS MAY LEAD TO SERIOUS PERSONAL INJURY OR DEATH.**

## 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 extractor unit as a minimum and always hose down with water/wet wipe for clean up
- 👎 NEVER use grinders
- 👍 ALWAYS use a circular sawblade specifically designed to minimise dust creation when cutting fibre cement – preferably a sawblade that carries the HardieBlade™ logo or one with at least equivalent performance.
- 👍 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 an approved properly-fitted, approved dust mask (P1 or P2) or respirator

Use one of the following methods based on the required cutting rate:

### BEST

- HardieKnife™
- Hand guillotine
- Fibreshear

### BETTER

- Dust reducing circular saw equipped with HardieBlade™ Saw Blade and M Class extractor unit.

### GOOD

- Dust reducing circular saw with HardieBlade™ Saw Blade

### Working 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
- 👍 Cut products with either a HardieKnife or fibre cement shears or, when not feasible, use a HardieBlade™ Saw Blade (or equivalent) and a dust-reducing circular saw attached to a M Class extractor unit
- 👍 When sawing, sanding, rebating, drilling or machining fibre cement products, always:
  - Wear your P1 or P2 mask (correctly fitted in accordance with manufacturers' instructions) and when others are close by, ask them to do the same
  - If you are not clean shaven, then use a powered air respirator with a loose fitting head top.
  - Wear safety glasses
  - Wear hearing protection
  - When others are close by, ask them to do the same.

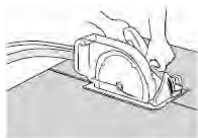
### Working indoors

- 👎 Never cut using a circular saw indoors
- 👍 Position cutting station in a well ventilated area
- 👍 Cut ONLY using a HardieKnife, 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 extractor unit

**IF CONCERN STILL EXISTS ABOUT EXPOSURE LEVELS OR YOU DO NOT COMPLY WITH THE ABOVE PRACTICES, YOU SHOULD ALWAYS CONSULT A QUALIFIED INDUSTRIAL HYGIENIST.**

## Working Instructions

- Refer to Recommended Safe Working Practices before starting any cutting or machining of product.



### HardieBlade™ Saw Blade

The HardieBlade™ Saw Blade used with a dust-reducing saw is ideal for fast, clean cutting of James Hardie fibre cement products. A dust-reducing saw uses a dust deflector or a dust collector connected to a vacuum system. 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.

## STORAGE & DELIVERY

### Keeping products and people safe

#### Off loading

- James Hardie products should be off-loaded carefully by hand or by forklift.
- James Hardie products should not be rolled or dumped off a truck during the delivery to the jobsite.

#### Storage

##### James Hardie 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

##### James Hardie 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.**

## TIPS FOR SAFE AND EASY HANDLING

### Weatherboard products

- Do not lift planked products flat and in the middle
- Carry the products on the edge
- If only one person is carrying the product, hold it in the middle and spread arms apart to better support the product
- If two people are carrying the plank, hold it near each end and on edge
- Exercise care when handling weatherboard products to avoid damaging the edges/corners

### 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 Framing

## 3.1 TIMBER FRAME

Timber framing must be in accordance with NZS 3604 Timber Frame Buildings.

Specific design to NZS 3603 and AS/NZS 1170 can also be undertaken providing that:

- the framing centres do not exceed those given in this specification
- the framing member widths conform to this specification.

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

## 3.2 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 the 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. If heavier sections are used difficulties may be experienced in fixing the self-drilling, self-tapping fasteners. Refer to specific details for the minimum flange width requirements.

Sheets must not be fixed directly to drawn steel or hot-rolled steel sections. These must first be battened out with ex 50mm-thick (40mm minimum) timber battens or light-gauge metal furring channels.

Screw-fix 6mm or thicker sheets only.

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 capacity of the sheet.

## 3.3 FRAMING SET-OUT

For the framing set-out of up to 600mm-wide soffit refer to Figure 1.

For the framing set-out of 601mm to 1200mm wide soffits refer to Figure 2.

### 3.3.1 Pre-finished steel fascia/gutters

When pre-finished steel fascia/gutters are used the soffit edge must be supported 4mm minimum into fascia recess, similar to Figure 10.

Ribbon board to be continuous for product fixing.

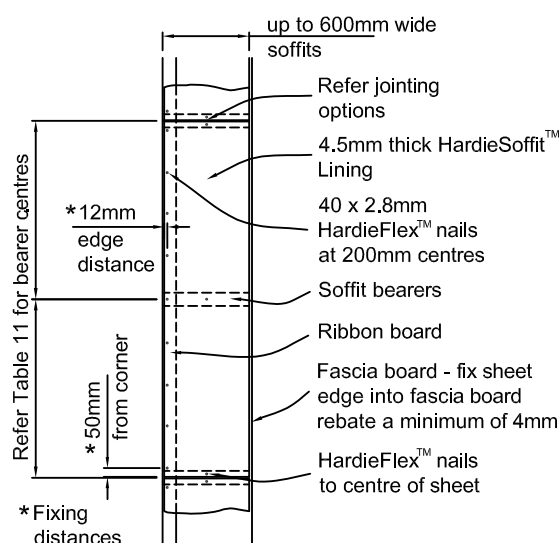
NOTE: Because of the limited fascia groove available with some metal fascias a supporting ribbon board will be required with fixings at 300mm centres maximum. Pre-finished soffits can distort due to surface tension when adequate edge support is not provided.

Table 11

Eaves Lining Framing Centres		
Eaves And Soffit Width (mm)	Wind Zone	Max. Soffit Bearer Centres (mm)
Up to 450	L, M	1200
	H, VH	900
451 - 600	L, M	1200
	H, VH	600
601 - 1200	L, M, H, VH	600
Various	EH*	600

\*HardieFlex Sheet 6mm or Villaboard Lining 6mm must be used in EH Wind Zone with soffit bearers maximum 600mm centres.

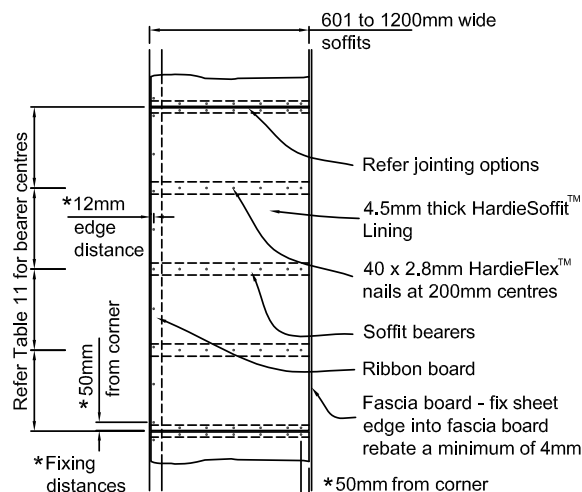
Figure 1: Eaves and soffit up to 600mm



### Notes

1. HardieFlex™ nails are the usual fixing method for HardieSoffit™ Lining. The fastfix method can also be used as an alternative.
2. When fastfix fastenings are used refer to Table 7 and Figure 8 and 9.

Figure 2: Eaves and soffits 601mm to 1200mm



1. HardieFlex™ nails are the usual fixing method for HardieSoffit™ Lining. The fastfix method can also be used as an alternative.
2. When fastfix fastenings are used refer to Table 7 and Figure 8 and 9.

NOTE: Because of the limited fascia groove available with some metal fascias a supporting ribbon board will be required with fixings at 300mm centres maximum. Pre-finished soffits can distort due to surface tension when adequate edge support is not provided.

### 3.4 BATTEN REQUIREMENTS

Battens are required when sheets are fixed over:

- Gypsum board exceeding 20mm in thickness
- Softboard, polystyrene or similar
- Concrete, masonry block or brick.

Timber battening is to be a minimum of 35mm deep x 40mm wide to achieve adequate sheet nail penetration.

Steel battens must be minimum 0.55mm thick, 23mm deep and have a bearing surface of 38mm min. Battens must be galvanised to meet the durability requirements of the New Zealand Building Code (NZBC) and fixed to manufacturer's specifications. All battening centres and sheet fixing is to be strictly in accordance with the framing and fixing required by this manual. Care must be taken to ensure the battens are packed and aligned to give a true even surface for the sheets to be fixed. Check the face of the battens with a long straight-edge before fixing sheets.

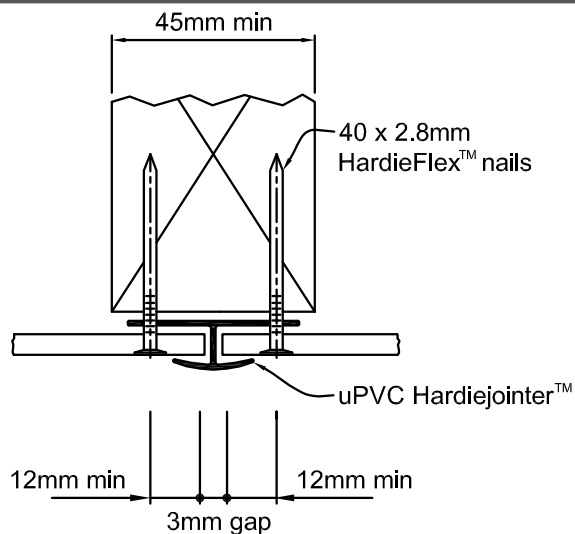
### 3.5 SKILLION ROOF DESIGN

When installing soffit linings direct to the under side of 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 roof framing. Therefore the framing in skillion soffits and ceilings need a specific engineering design consideration.

General design guide for a narrow strip of flash stopped soffits is to provide a control joint at 4.8m centres.

General design guide for large flash stopped soffits is to provide control joints at 4.8m x 3.6m in either direction when fixing to this type of framing.

Figure 3: uPVC Hardiejointer detail



# 4 Jointing options

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

## HARDIESOFFIT LINING

- Refer to Figure 3 for uPVC Hardiejointer detail
- Refer to Figure 5 for express joint detail
- Refer to Figure 9 for two-way uPVC jointer

## HARDIEFLEX EAVES LINING

- Refer to Figure 3 for uPVC Hardiejointer detail
- Refer to Figure 4 for butt joint detail
- Refer to Figure 5 for express joint detail
- Refer to Figure 9 for two-way uPVC jointer

## ECLIPSA EAVES LINING

- Refer to Figure 3 for uPVC Hardiejointer detail
- Refer to Figure 8 for Fastfix Fasteners fixing detail. Use a 6mm diameter masonry drill bit to drill a hole and fix fasteners
- Refer to Figure 9 for Two-way uPVC Jointer

## HARDIEGROOVE SOFFIT LINING

- Sheets have half groove along the long edges for butt jointing
- Sheets have chamfer formed on site along the short edge for butt jointing

## VILLABOARD SOFFIT LINING

- Refer to Figure 6 for flush joint details. Refer to Section 5.5 for flush jointing
- Refer to Figure 3 for uPVC Hardiejointer detail
- Refer to Figure 4 for butt joint detail
- Refer to Figure 5 for express joint detail
- Refer to Figure 7 for sealant joint detail

Figure 4: Butt joint detail

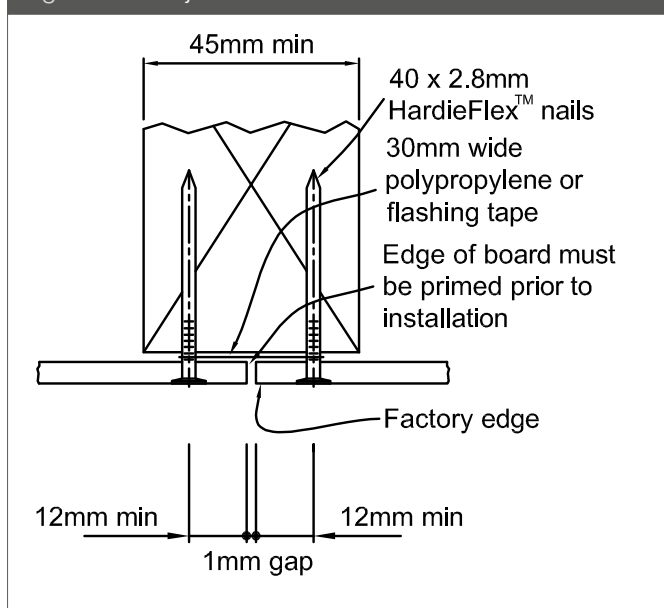


Figure 5: Expressed joint detail

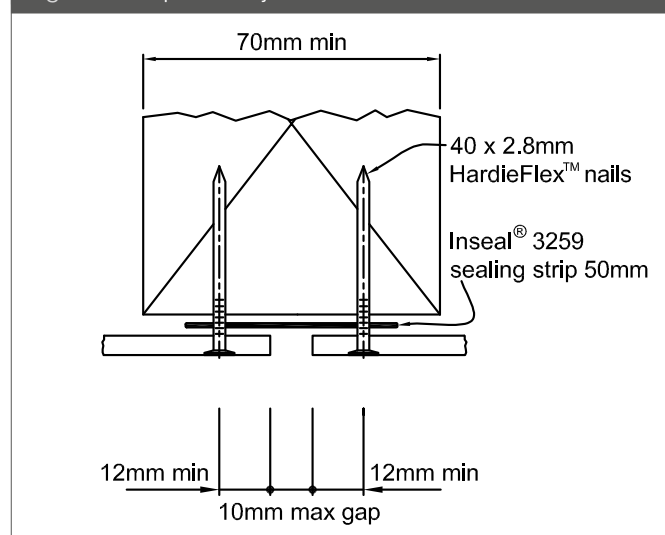


Figure 6: Vertical flush joint setout

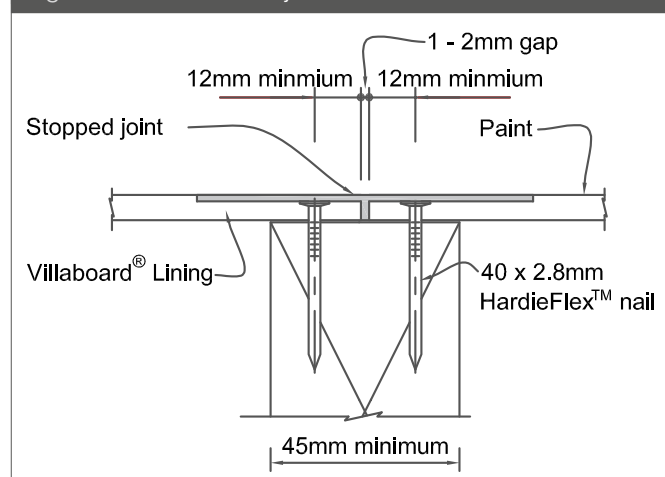


Figure 7: Sealant joint detail

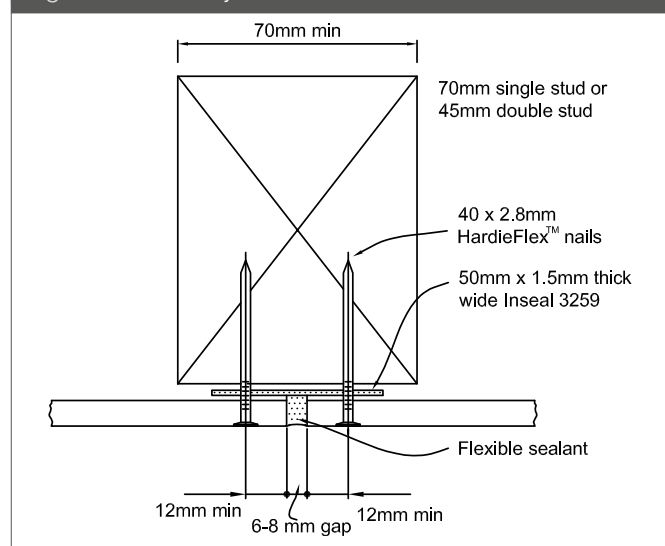
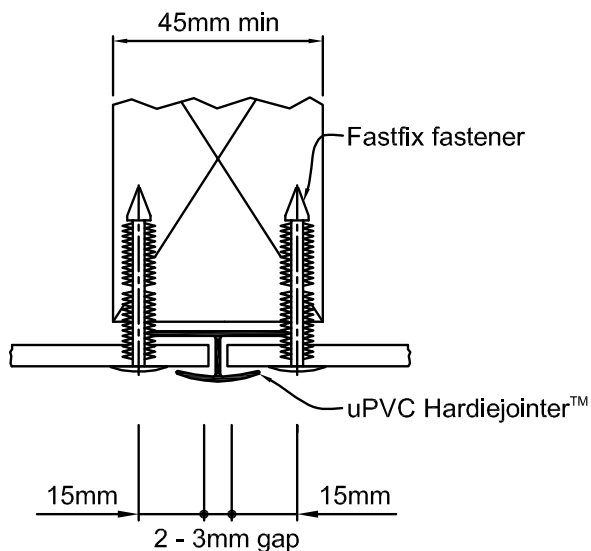


Figure 8: Fastfix fastener fixing detail



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

Figure 10: Cladding detail with scotia mould

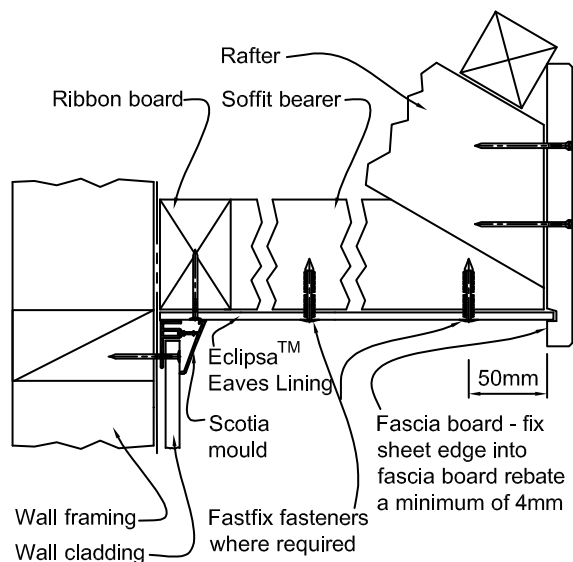
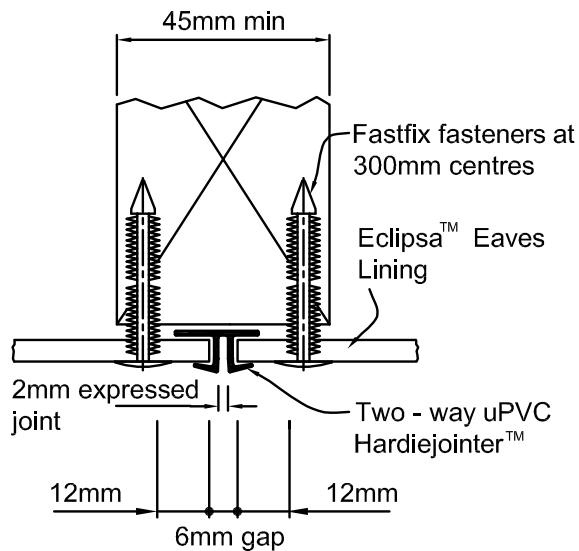
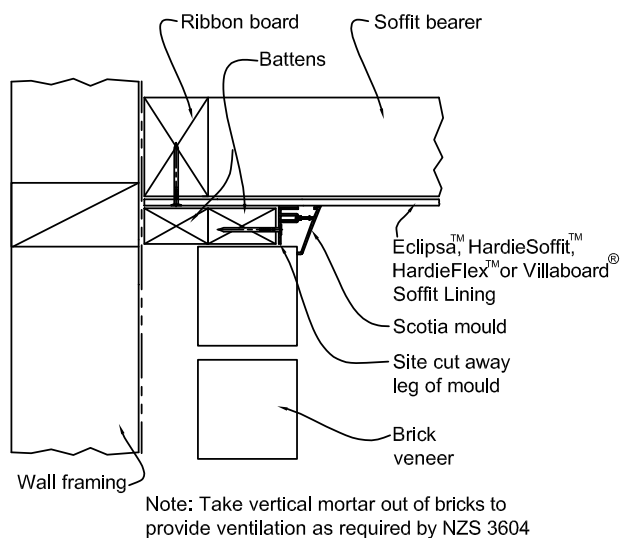


Figure 9: Two-way uPVC jointer



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

Figure 11: Brick veneer detail with scotia mould





# 5 Installation

This installation manual covers the use of James Hardie Eaves and Soffits for buildings within the scope of NZS 3604. For all other buildings specific engineering design is required.

## 5.1 GENERAL

Refer to Table 11 and Figure 1 and 2 regarding 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 Figure 27 - Figure 30.

### 5.1.1 Drip Edge

All soffit linings must either be installed with a grooved fascia, refer Figure 10, 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.

### 5.1.2 Structural Ceiling Diaphragms

HardieFlex Eaves Lining and Villaboard Soffit Lining are suitable for use in structural ceiling diaphragms as per NZS 3604. Refer to the James Hardie Bracing Design Manual.

### 5.1.3 Curved Applications

HardieFlex Eaves Lining and Villaboard Soffit Lining can be used for curved applications.

The minimum bending radii are shown below.

Table 12

Curved Soffit/Ceiling Minimum Bending Radii	
	Along length (mm)
9mm Villaboard Lining	3000
6mm Villaboard Lining	1800
HardieFlex Eaves Lining	1800
HardieSoffit Lining	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 13

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

### 5.1.4 FIRE RATED SOFFITS

For full details refer to the James Hardie Fire and Acoustic Design Manual or Ask James Hardie on 0800 808 868.

## 5.2 FASTENER DURABILITY

Fasteners used in external applications must meet the minimum durability requirements of the NZBC. NZS 3604 specifies the requirements for fixing's material to be used in relation to the exposure conditions and are summarised in Table 14.

Table 14

### Exposure conditions and nail selection prescribed by NZS 3604

Zone / Nail Material		
Zone D*	Zone C outside sea spray zone and Zone B and geothermal hot spots	Bracing — All zones
Grade 316 Stainless	Hot-dipped galvanised or 316 stainless	Grade 316 Stainless

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

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

## 5.3 HARDIESOFFIT LINING

For framing and fixing schedules refer to Section 3.

All sheet edges are to be supported by framing or a fascia board. Fixings are to be at 200mm centres to all framing (refer Figures 1 and 2).

HardieSoffit Lining up to a max. width of 600mm can be jointed up to a maximum 150mm off the ceiling/soffit batten when using uPVC jointers.

### NOTES

1. Use of 6mm thick sheets will minimise the deflection and enhance the impact resistance.
2. Sheets can be jointed as per Section 4.
3. Do not screw fix 4.5mm thick sheets.

## 5.4 HARDIEFLEX EAVES LINING

For framing and fixing schedules refer to Section 3.

All sheet edges are to be supported by framing or a fascia board. Fixings are to be at 200mm centres to all framing (refer Figures 1 and 2).

### NOTES

1. Use of 6mm thick sheets will minimise the deflection and enhance the impact resistance.
2. Sheets can be jointed as per Section 4.
3. Do not screw fix 4.5mm thick sheets.

For framing and fixing schedules refer to Section 3.

To achieve a concealed joint, butt the long edges together (half grooved). (Refer Figure 13).

2400mm long sheet

\*12mm edge distance

1200mm wide soffits

Bearers at 600mm centres

\*50mm from corner

\*Fixing distances

Fascia board

7.5mm HardieGroove™ Soffit Lining

Daubs of adhesive at 300mm centres

Double nails or screws 50mm apart to centre of sheet

Ribbon board

40 x 2.8mm HardieFlex™ nails or Villadrive screws at 200mm centres

Butt joint with 1 - 2mm gap

1. Do not place nails or screws within 100mm of the adhesive daubs.
2. Fix with either HardieFlex nails 40 x 2.8mm (galvanised or 316 stainless steel), Villadrive wood screws or HardieDrive stainless steel 30mm x 7g wood screws.
3. Use only stainless steel fixings in sea spray zones.
4. When butt jointing short ends of HardieGroove Lining in ceiling/soffit applications, the short edges must be cut square and have chamfer formed.

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

Diagram of a double channel section showing dimensions: 100mm centres, 5mm, 2.5mm, and 2.5mm.

Once the sheets are in place, fill over all driven fixings with James Hardie Base Coat to the required level of finish.

- Eclipsa Eaves Lining are to be supported by bearers and fasteners at the maximum spacings specified for the 4.5mm sheets in Section 3, Table 11 and Figures 3, 8 and 9 of this manual
- To fix larger soffit, ceiling or verandah applications provide a perimeter frame to all sheet edges and intermediate nogging at the centres shown in Table 11.
- Fix the Eclipsa Eaves Lining into the fascia board groove then nail into the ribbon board at 300mm centres with 40 x 2.8mm HardieFlex nails. Ensure nails will be hidden by the scotia mould or timber scotia (refer Figures 10, 11 and 14).
- Use a 6mm-diameter masonry bit to drill holes and fix Fastfix fasteners (refer Figures 8 and 9).
- Eclipsa Eaves Lining up to a maximum 600mm width can be jointed up to a maximum 150mm off the ceiling/soffit batten when using uPVC jointers.

The diagram illustrates the installation of a fascia board. On the left, a vertical dimension of 2400mm is shown for the long sheet, with bearers spaced at 600mm centres. A 50mm gap is indicated from the corner. The top of the installation is labeled '1200mm wide soffits'. The components and dimensions are as follows:

- \*12mm edge distance**: Indicated at the top left corner.
- distance**: A horizontal dimension line at the top.
- Fascia board**: The main horizontal board being installed.
- Eclipse™ Eaves Lining**: The material being attached to the underside of the fascia board.
- Daubs of adhesive at 300mm centres**: Points of adhesive application along the length of the board.
- Fastfix fasteners at 300mm centres alternative to adhesive**: An alternative fastening method to the adhesive.
- Ribbon board**: A board attached to the underside of the fascia board.
- 40 x 2.8mm HardieFlex™ nails or adhesive secure at 200mm centres**: Fasteners securing the ribbon board.
- \*Fixing distances**: Indicated at the bottom left corner.

### 5.6.1 Fastfix fasteners

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.

### 5.6.2 Masking Tape

The recommended masking tape for use with Eclipsa Eaves Lining is 3M Scotch Blue I8E 2090 or Sellotape 5855 longlife. This tape can only be left on the Eclipsa Eaves Lining for maximum 7 days, otherwise tape removal may cause paint loss.

## 5.7 VILLABOARD SOFFIT LINING (SOFFITS UP TO 1200mm)

Villaboard Lining 6mm-thick is used when a smooth sanded sheet is required to achieve a painted flush finish.

Refer to the framing fixing schedule Section 3 Table 11, Figures 1 and 2, and finishing schedules on Section 6.

Refer to the flush jointing procedures, Section 6.

Fix with either HardieFlex nails 40 x 2.8mm (galvanised or 316 stainless steel), Villadrive sood screws or HardieDrive stainless steel 30mm x 7g wood screws

Screws finished 0.5mm below surface,

Nails finished flush with surface.

Figure 15: Nail/screw and adhesive fixed soffit

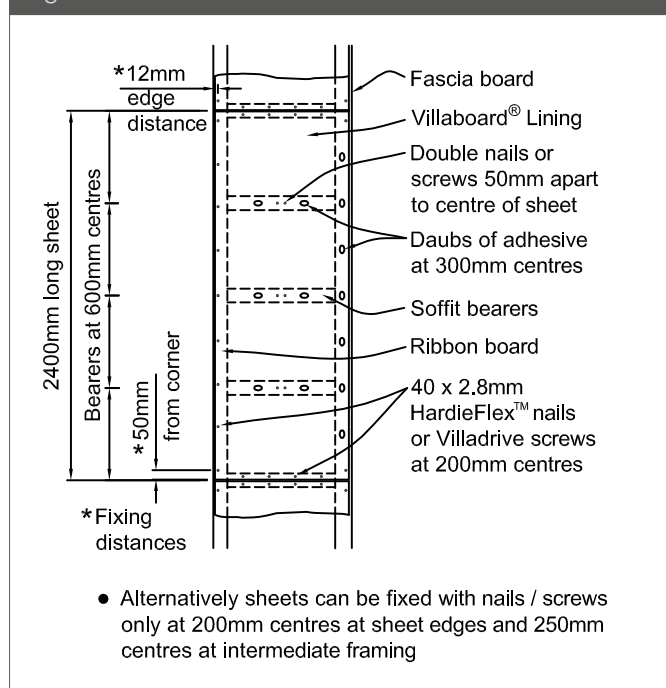
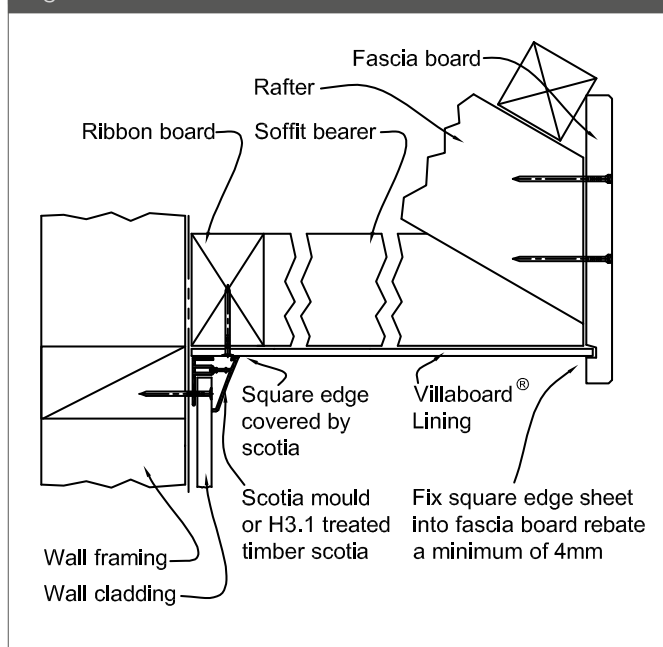


Figure 16: Soffit cross section



### 5.7.1 Control Joints

Control joints are required in long runs of Villaboard Lining soffits/ceilings to accommodate structural movement. 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 15 for maximum control joint spacing and Figure 17 for a typical control joint detail.

### 5.7.2 Jointing Options

Villaboard Soffit Lining is suitable for:

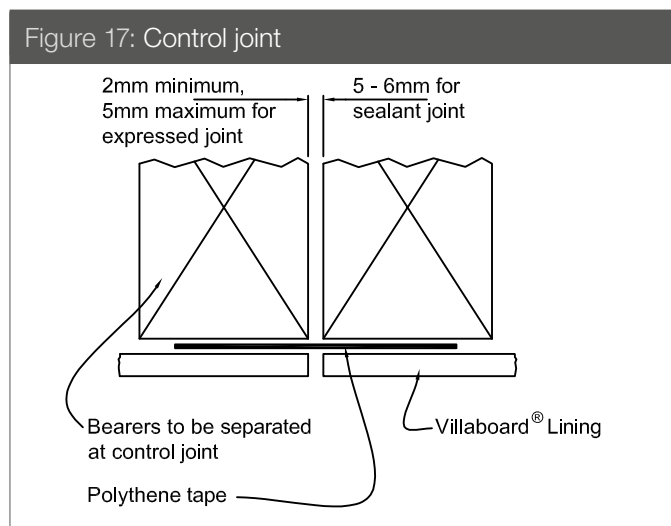
- Flush-jointed narrow strip soffits around a building
- Flush-jointed ceilings over verandahs, porches and entryways to residential and small-scale commercial buildings
- Expressed, uPVC-jointed and sealant-filled joint ceilings where a smooth surface finish is required
- All edges to be supported by the framing.

Table 15

Maximum spacing for control joints (m)		
	STEEL FRAMING	TIMBER FRAMING
General	4.8	7.2

### 5.7.3 Narrow-Strip Flush-Jointed Soffits And Ceilings

In these applications sheets must be jointed on the framing as shown in Figures 1 and 2. Control joints, as shown in Figure 17, must be located at a distance as specified in Table 15. Sheets must not be fixed to the bottom cord of roof trusses.



#### NOTE

Refer Section 5.7.3 for skillion roof design.

## 5.8 VILLABOARD SOFFIT AND CEILING LINING (LARGE AREAS)

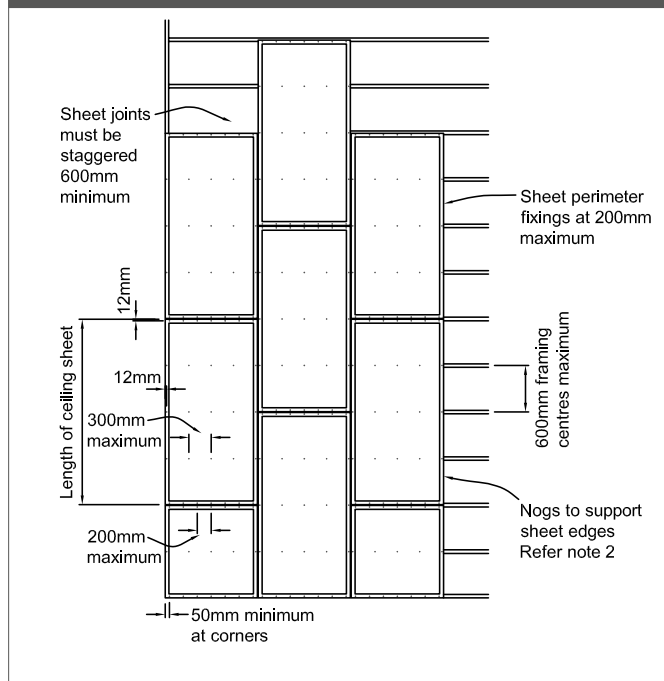
For standard commercial soffits and ceilings, framing must be at 600mm maximum centres and 6mm thick Villaboard Soffit Lining can be used. For high-impact areas, heavy-use commercial areas, and high-wind areas, framing at 600mm maximum centres and 9mm thick Villaboard Soffit Lining should be used. Sheets 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 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<sup>2</sup> 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 6.

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

1. It is recommended that flush stopping of joints is suitable when using recessed edge Villaboard Lining.
2. When nogs not installed for perimeter support, the unsupported sheet edges across the framing must be supported by back blocking using a 300 – 400mm wide Villaboard Lining strip adhered to rear face and centred between the framing.

**Figure 18: Ceiling layout**



### 5.8.1 Control Joints

The ceilings 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 19, 20, 21 and 22) and at the junction of large ceilings with narrow passage strips or where there is a change in direction (also refer Figures 20 and 21). Each bay must be independent of adjacent bays and the surrounding building structure. When the ceilings or soffits contain sloping areas then control joint centres must be reduced to coincide with the slope change lines (refer Figure 22). Framing members (to which the sheet is fixed) must not continue across this control joint. Sheets shall be fixed across the ceiling joists or ceiling battens (refer Figures 24 and 25). Figures 20 and 21 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 19: Control joint layout

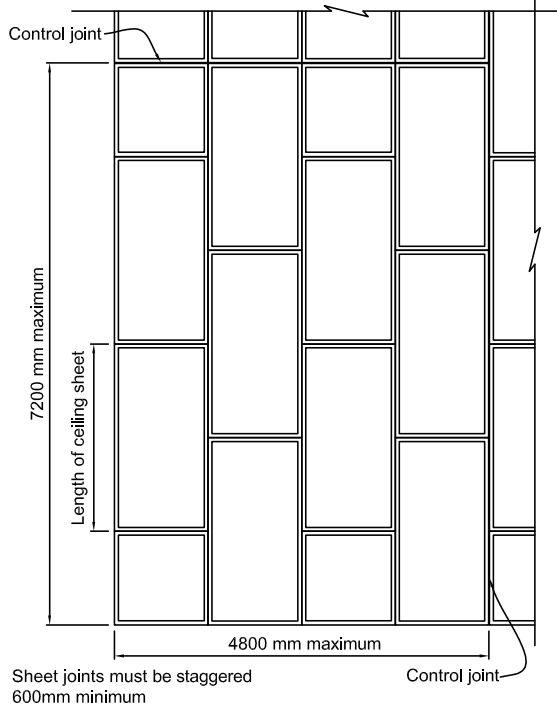


Figure 21: Timber control joint detail

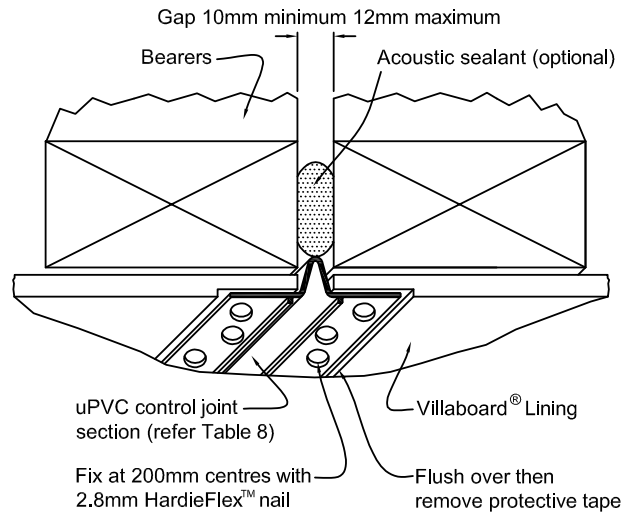


Figure 20: Steel ceiling batten control joint detail

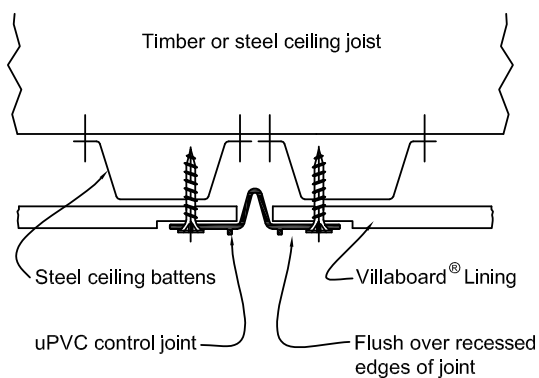
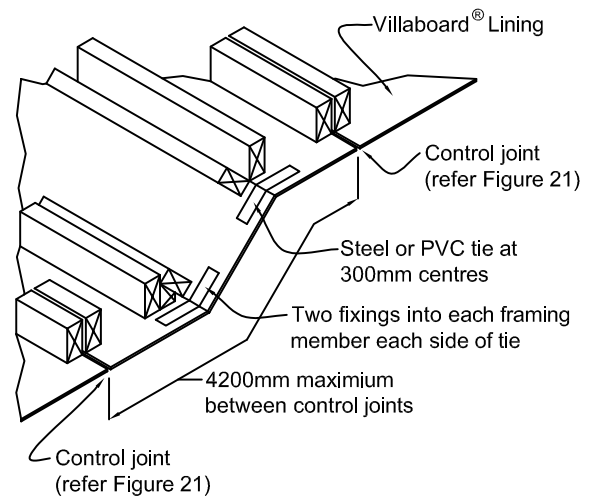
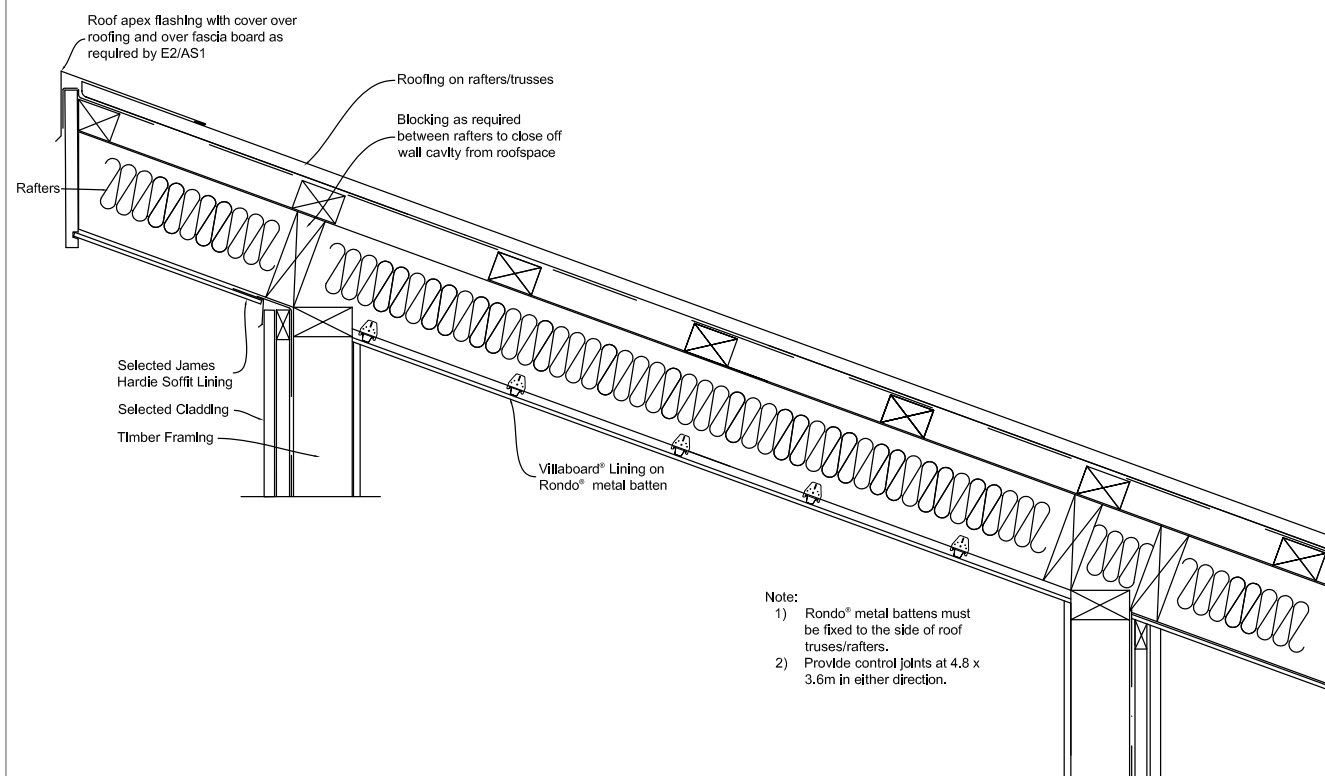


Figure 22: Directional changes to soffits and ceilings — control joint



Note: Tie fixings to be 40 x 2.8mm HardieFlex™ nails.

Figure 23: Skillion Roof/Ceiling



### 5.8.2 Skillion Roof Design

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 the framing in skillion soffits and ceiling need a static engineering design consideration. General design guide is to provide control joints at 4.8m x 3.6m in either direction when fixing to this type of framing.

### 5.8.3 Fixing Option One

A smooth surface finish is obtained by minimising the visible sheet fixings. For painted finishes the combined nail or screw and adhesive method gives this superior finish (refer Figure 24). Fix at 200mm centres down each sheet end with edge fixings in each joist or batten. Double-fix in the centre of each joist or batten. Do not place nails or screws within 100mm of adhesive daubs. Daubs of wallboard adhesive 25mm diameter and 15mm thick must be applied to the intermediate joists or battens at 250mm centres (refer Figure 24). When nogs are not installed for perimeter support, the unsupported edges between ceiling joists or battens must be supported with back blocking using a 300-400mm wide Villaboard Lining strip adhered to rear face and centred between framing.

### NOTES

1. All surfaces to receive adhesive must be clean, free of dust, oil etc.
2. Ensure daubs of adhesive never coincide with permanent fastener points, as adhesive shrinkage may cause fastener head protrusion.

Figure 24: Nail or screw and adhesive fixing

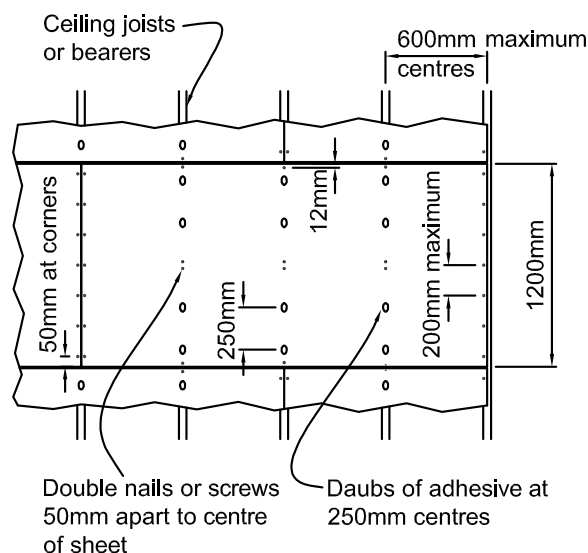
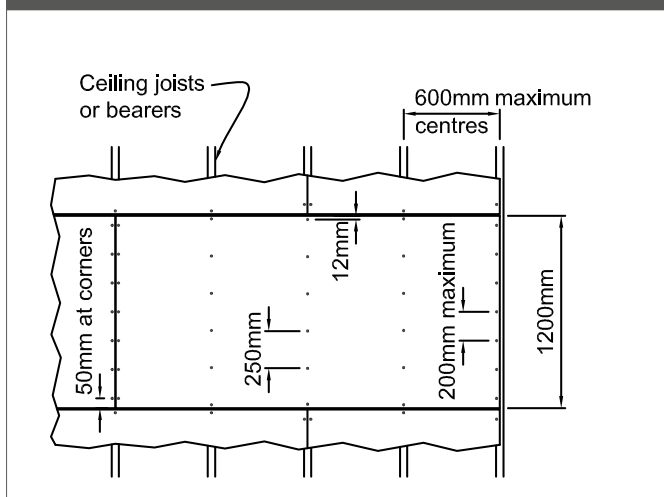




Figure 25: Nail or screw



#### 5.8.4 Fixing Option Two

For an alternative nail or screw-fixing method, fasteners are to be driven along the sheet perimeter at 200mm centres and along intermediate ceiling battens at 250mm centres (refer Figure 25).

When nogs are not installed for perimeter support, the unsupported edges between ceiling joists or battens must be supported with back blocking using a 300-400mm wide Villaboard Lining strip adhered to rear face and centred across ceiling joists.

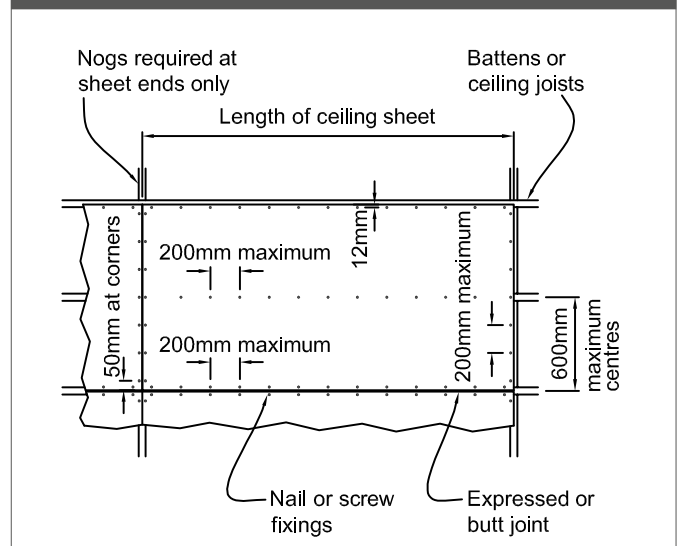
#### 5.8.5 Column Or Wall Abutments

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.

#### 5.8.6 Square-Edge Villaboard Lining Ceilings And Soffits

Square-edge Villaboard Lining is used for butt-joint; expressed-joint or uPVC-jointed ceilings.

Figure 26: Nail or screw along ceiling joist (expressed or butt joints)



### 5.9 TITAN FACADE PANEL

May be used as soffit with expressed joint when installed as per Figure 5 and fixings as per Villaboard Soffit Lining.

### 5.10 INTERNAL SWIMMING POOL APPLICATION

For fixing Villaboard Lining and HardieGroove 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 HardieGroove 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.

5.11 SPECIAL DETAILS

Figure 27: Sloping soffit and direct fixed flatsheet cladding

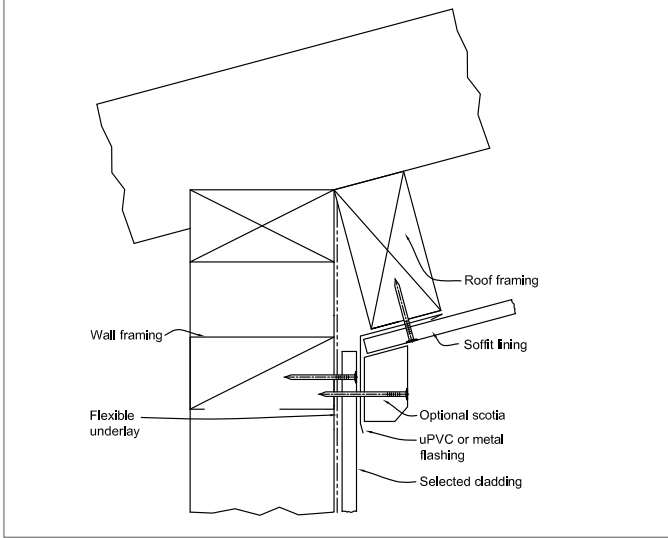


Figure 29: Sloping soffit and direct fixed weatherboard cladding

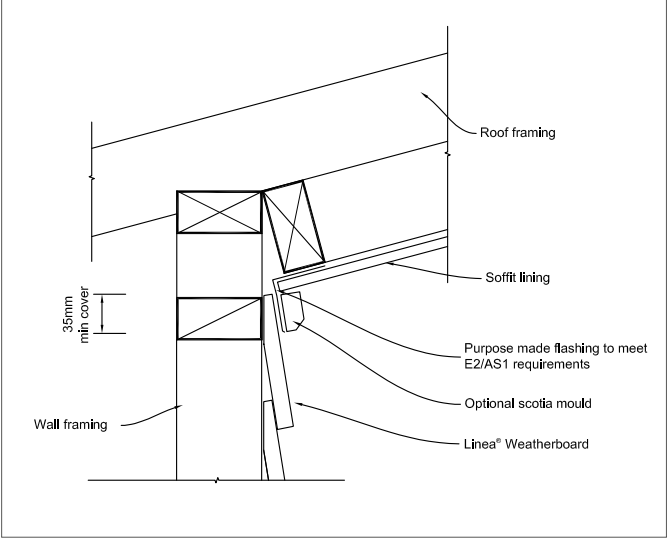


Figure 28: Sloping soffit and cavity fixed flatsheet cladding

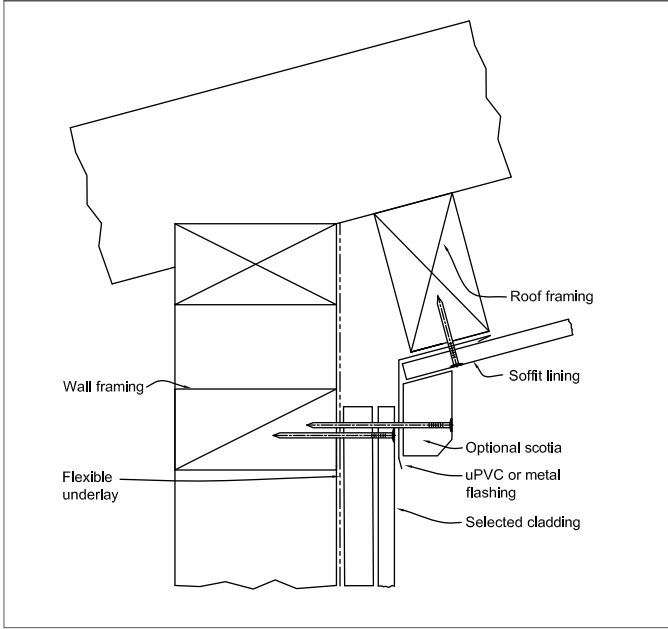
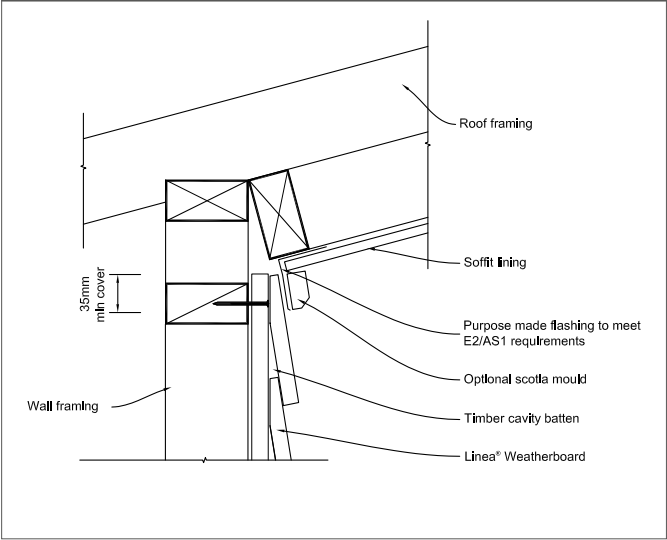


Figure 30: Sloping soffit and cavity fixed weatherboard cladding



# 6 Villaboard Joint Stopping

## FOR VILLABOARD LINING

### 6.1 GENERAL

Villaboard Soffit 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 Multiplast resin, water proofing admixture or other similar products.

### 6.2 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.

### 6.3 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 Soffit Lining referred to above. A description of the various levels of finishes and the jointing/coating requirements can be found in Table 16.

Table 16

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 James 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 James Hardie Base Coat reinforced with perforated paper tape and James 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 James Hardie Base Coat reinforced with perforated paper tape and James 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 noncritical lighting.	Refer to flush jointing recommendations on page 24.  All joints and corner joints will have tape embedded in James 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 page 23 steps 1–4 for jointing.  Final James Hardie Base Coat application should be feathered out to approximately 200mm + each side of the joint. Then a full skim coat of James 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'

## 6.4 PAINT FINISHES

Prior to application of paint finishes, remove any residual sanding dust and ensure the surface is suitable for paint application.

Always follow the paint manufacturer's recommendations for paint suitability, mixing and application.

### NOTES

1. Use of a 'sealer coat' or 'preparation undercoat' is recommended.
2. Do not tile ceilings.

## 6.5 VILLABOARD SOFFIT LINING JOINTING AND STOPPING

Villaboard Soffit Lining joints are set with James 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 Table 16 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. James Hardie compounds have been specifically developed for use with Villaboard Soffit Lining.

In addition, provision for movement needs to be made by the installation of control joints. Refer to clause 5.7.1.

### COMPOUND COVERAGE

1kg of Base Coat will provide approximately 5 lm of standard joints.

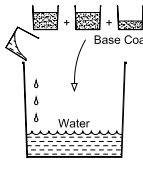
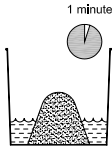
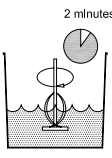
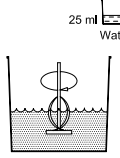
1kg of Top Coat will provide approximately 5.6 lm of standard joints.

### NOTE

Follow the mixing instructions carefully when mixing James Hardie Base Coat and Top Coat.

## MIXING INSTRUCTIONS

Table 17

James Hardie Base Coat Mixing Instructions	
	<p><b>Step 1</b> First, add 1 part of clean water into bucket.</p> <p>Then add 2½ parts James Hardie Base Coat powder</p> <p>Allow to soak for 1 minute.</p> 
	<p><b>Step 2</b> Mix for 1½ – 2 minutes using paint mixer or equivalent. (approximately 2500-3000rpm)</p> <p>James Hardie Base Coat is NOT like the plaster based compounds. Initial mixing will indicate a dry mix and further mixing <b>WITHOUT</b> further addition of water will deliver the ideal workable paste.</p> <p>Warning: Inadequate or over mixing can lead to poor workability and can cause performance issues. <b>Do not hand mix.</b></p>
	<p><b>Step 3</b> The mix at this stage should be consistently smooth.</p> <p>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.</p> <p>(Note: Adding excess water than the recommendation may delay the drying of base coat and may cause joint cracking due to excessive shrinkage.)</p> <p>Mix should be glossy and smooth. There should be no lumps in the mix.</p>
<p><b>Important Notes:</b></p> <ol style="list-style-type: none"> <li>1. Do not apply James Hardie Base Coat in temperatures above 40° C or below 5° C.</li> <li>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.</li> <li>3. 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.</li> <li>4. In corners, use James Hardie uPVC internal/external corner mould primed with Dulux Primerlock or similar. A 'GIB® Goldline™ Platinum' corner mould can also be used.</li> <li>5. Use only perforated paper tapes in straight joints.</li> <li>6. It is recommended that one (1) base coat bag is mixed in three (3) portions.</li> <li>7. Before stopping the sheet edges, Multiplast Resin or a similar product in diluted form must be applied over the sheet edges. Mix the resin as per the manufacturers recommendations.</li> </ol>	
<p><b>Product Life:</b> James Hardie Base Coat has a shelf life of 12 months in unopened bags when stored in a cool dry place.</p> <p>James Hardie Base Coat has a bag life of 1 month if opened bags are resealed and stored in a cool dry place.</p>	

## 6.6 SET JOINTS

### Step 1 — Preparation

Ensure that the recesses are clean and free of dust and contaminants. Sheet edges must be sealed with Multiplast resin, water proofing admixture or other similar products. If working conditions are hot and dry, dampen the area around the joint prior to working.

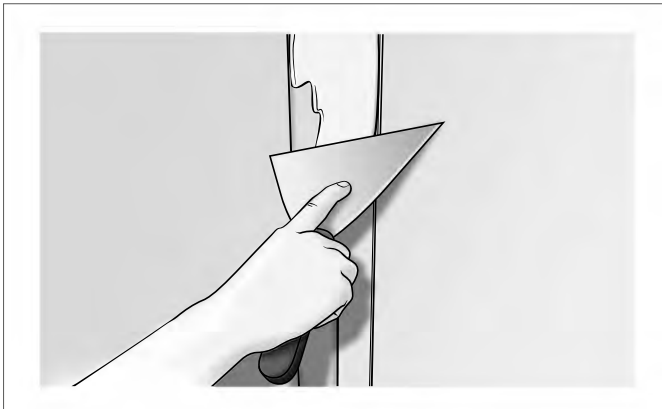


#### NOTE

The jointing method shown below provides a Level 4 finish. For more information about this and other finishes refer to page 21.

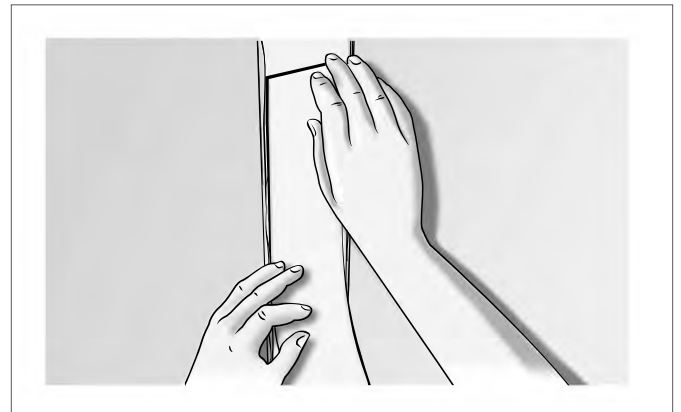
### Step 2 — First Coat

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



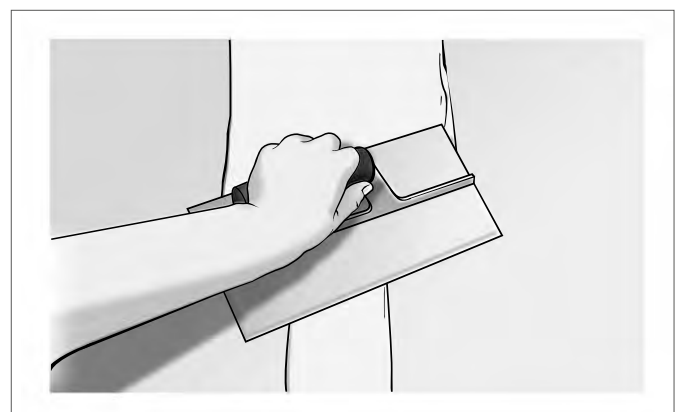
### Step 3 — Embed Tape

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 James Hardie Base Coat applied with a 150mm broadknife.



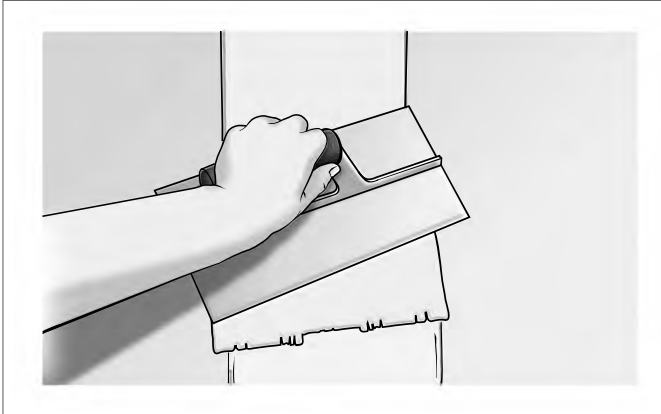
#### NOTE

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

# 7 Finishing

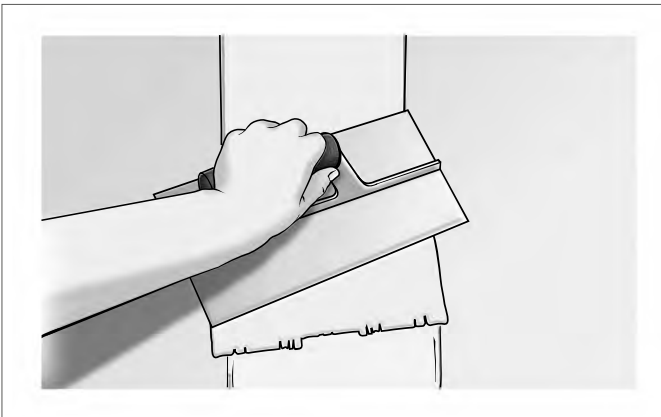
## Step 5 — Second Coat

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



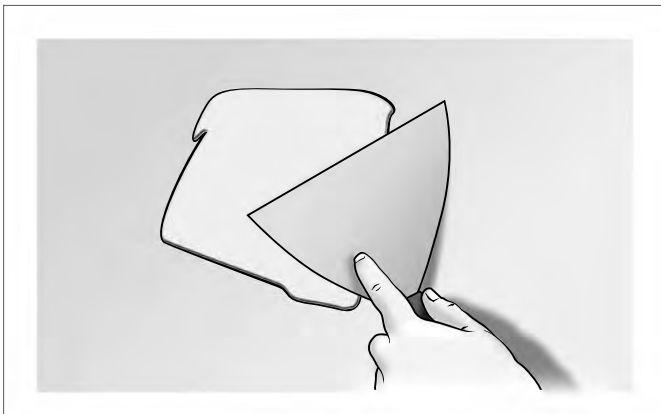
## Step 6 — Finishing Coat

Ensure the second coat is fully dry. Using a finishing trowel, apply a coat of James 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 James Hardie Base Coat to fastener heads, feathering out the edges. Allow to fully dry before sanding.



## 7.1 PAINTING

HardieSoffit Lining, HardieFlex Eaves Lining, Villaboard Soffit Lining and HardieGroove Soffit 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 3 months 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 HardieSoffit Lining, HardieFlex Eaves Lining, Villaboard Soffit Lining and HardieGroove Soffit 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 Product information

## 8.1 GENERAL

HardieSoffit Lining, HardieFlex Eaves Lining, Eclipsa Eaves Lining, HardieGroove Soffit Lining and Villaboard Soffit Lining are a cellulose fibre reinforced cement building product. The basic composition is Portland cement, ground sand, cellulose fibre and water.

HardieSoffit Lining, HardieFlex Eaves Lining, Eclipsa Eaves Lining, HardieGroove Soffit Lining and Villaboard Soffit Lining is manufactured to AS/NZS 2908.2 'Cellulose-Cement Products Part 2: Flat Sheets' (ISO 8336 'Fibre Cement Flat Sheets').

James Hardie New Zealand Limited is an ISO 9001 'Telarc' certified manufacturer. HardieSoffit Lining, HardieFlex Eaves Lining, Eclipsa Eaves Lining, HardieGroove Soffit Lining and Villaboard Soffit Lining are classified Type A, Category 3 in accordance with AS/NZS 2908.2 'Cellulose-Cement Products'.

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

## 8.2 DURABILITY

### Resistance to moisture/rotting

HardieSoffit Lining, HardieFlex Eaves Lining, Eclipsa Eaves Lining, HardieGroove Soffit Lining and Villaboard Soffit Lining has demonstrated resistance to permanent moisture induced deterioration (rotting) and has passed the following tests in accordance with 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)

## 8.3 FINISHES

HardieSoffit Lining, HardieFlex Eaves Lining, Eclipsa Eaves Lining, HardieGroove Soffit Lining and Villaboard Soffit Lining must be paint finished within 90 days of their installation. Refer to the paint manufacturer for paint suitability, mixing and application.

## 8.4 GROUP NUMBER CLASSIFICATION

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

# 9 Maintenance

It is the responsibility of the specifier to determine normal maintenance requirements for eaves and soffits to comply with 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\*,
- Pre-painted soffits, such as Eclipsa Soffit Lining, when used in harsh coastal 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\*\*,
- 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.

\* Do not use a water blaster to wash down the soffits.

\*\*Refer to your paint manufacturer for washing down and recoating requirements related to paint performance.

## Notes





# Product Warranty

## Eaves & Soffits

All James Hardie eaves and soffit linings 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](http://www.jameshardie.co.nz) or Ask James Hardie on 0800 808 868.

Disclaimer: The recommendations in James Hardie's literature are based on good building practice, but are not an exhaustive statement of all relevant information and are subject to conditions (c), (d), (f) and (g) in each products warranty under "Conditions of Warranty". James Hardie has tested the performance of the HardieSoffit™ Lining, HardieFlex™ Eaves Lining, Eclipsa™ Eaves Lining, HardieGroove™ Lining and Villaboard™ Soffit Lining, and when installed in accordance with the HardieSoffit™ Lining, HardieFlex™ Eaves Lining, Eclipsa™ Eaves Lining, HardieGroove™ Lining and Villaboard™ Soffit Lining installation manual, in accordance with the standards and verification methods required by the New Zealand Building Code (NZBC) and those test results demonstrate the product complies with the performance criteria established by the NZBC. However, as the successful performance of the relevant system depends on numerous factors outside the control of James Hardie (e.g. quality of workmanship and design) James Hardie shall not be liable for the recommendations made in its literature and the performance of the relevant system, including its suitability for any purpose or ability to satisfy the relevant provisions of the NZBC, regulations and standards, as it is the responsibility of the building designer to ensure that the details and recommendations provided in the relevant James Hardie installation manual are suitable for the intended project and that specific design is conducted where appropriate.

Copyright April 2019. © James Hardie New Zealand Limited. TM and ® denotes a Trademark or Registered Mark owned by James Hardie Technology Limited.

