# TECHNICAL UPDATE

June2025

Singh Kamboj



JamesHardie™

# AGENDA

- Extended Scope of JH Claddings
- New Soffit & Eaves Installation
- New Secura Flooring
- Axon Panel & CLD Structural cavity Batten, Axent Trims
- Other Updates



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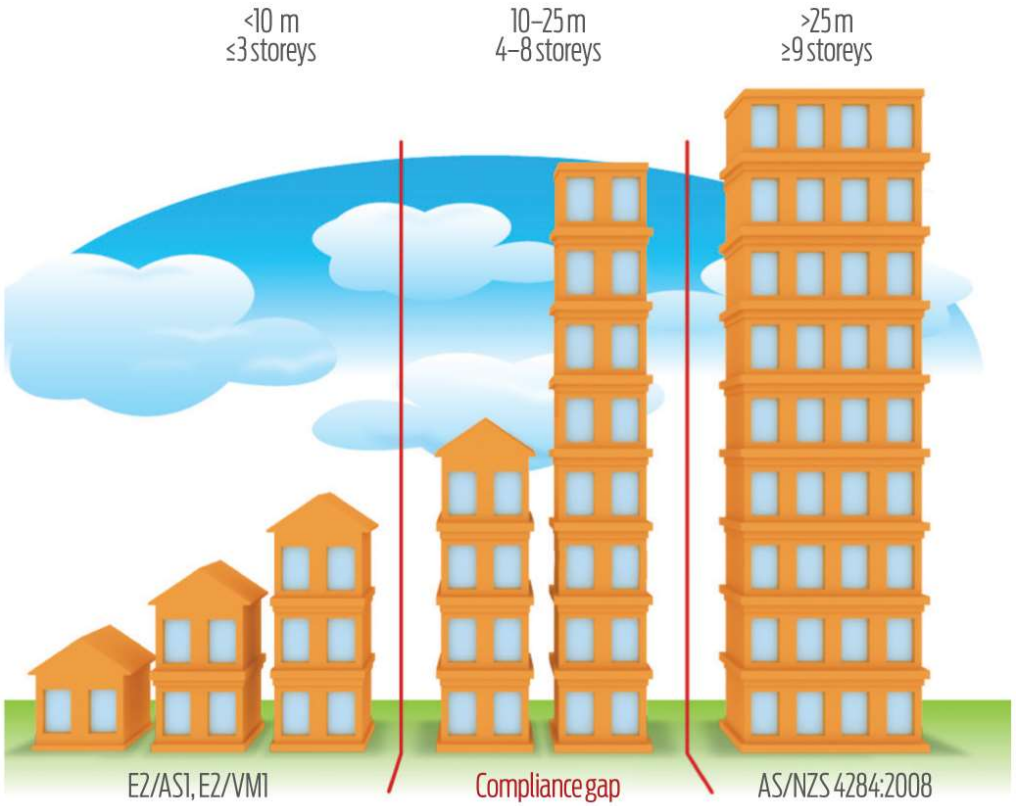
# NEW E2/VM2

- Buildings higher than 10m are complex, exposed to higher wind pressures, seismic deflections, structural movements etc.
- **E2/VM2** - New weathertightness verification test method introduced for building facades up to 25m height
- Also known as BRANZ – **'EM7'** test method based on series of tests from AS/NZS4284:2008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# KEY REQUIREMENTS OF TEST

- Increased wind pressures +2.25Kpa (SLS) and +3.2Kpa (ULS)
- Inter-storey deflections up to span/200 or +/- 15mm minimum, 15 cycles, each within 15 seconds
- Deflection joints required at each floor
- Cladding supported over a light weight frame i.e. timber/steel
- Must use a rigid underlay fixed to frame e.g. RAB™ Board for pressure equalisation
- Height - Measured between the lowest ground adjacent to building and highest point of roof



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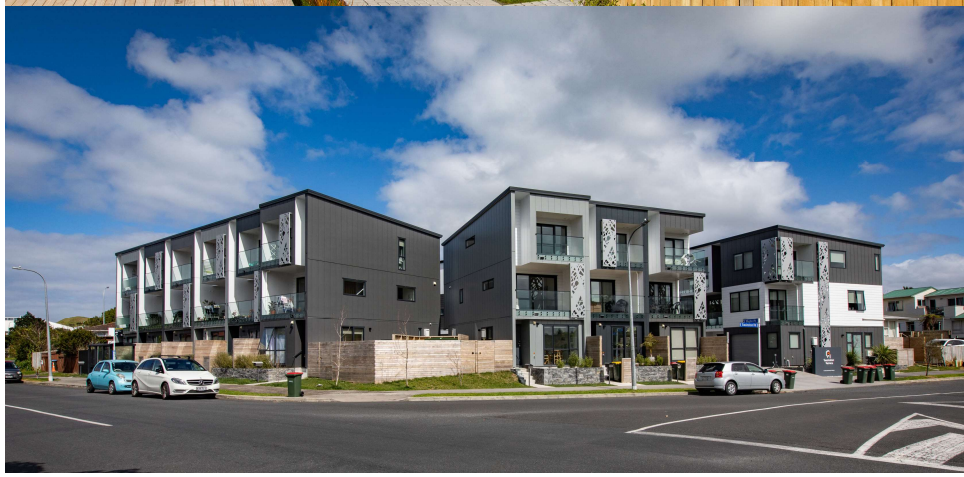
# KEY REQUIREMENTS OF TEST

- Isolation at each floor level for movement is must
- Windows verified separately for the wind pressure suitability
- Specimen size 3m x 3m minimum with a window 1.8m x 0.8m
- Standard set of details that will get used on building site must be included e.g. vertical/horizontal joints, inter-storey drainage joints, window junctions



# E2/VM1 VS. E2/VM2

| Test Stages | E2/VM1 | E2/VM2 |
|---|---|---|
| Pre-Conditioning | +1.5kPa & 1.5kPa | +2.25kPa & -2.25kPa 1 minute |
| Air Infiltration Test 1 | N/A | 75Pa above and below atm pressure |
| Lateral Building Movement Test | N/A | Span /200 |
| Air Infiltration Test 2 | N/A | 75Pa above and below atm pressure |
| Static Water Penetration | 455Pa for 15 minutes | 675Pa |
| Cyclic Water Penetration | 455 – 910Pa for 15 minutes | 338-675Pa, 450-900Pa & 675-1350Pa |
| Water Management Test | Repeat of Static and Cyclic Test above | Repeat of Static and Cyclic Test above |
| Wet Wall Test | 50Pa across the wet wall | 75Pa across the wet wall |

# E2/VM1 VS. E2/VM2

- E2/VM1 Specimen Size- 2.4m x 2.4m
- E2/VM2 Specimen size- 3m x 3m

Photograph 2: Showing face of sample.

Photograph 3: Different view of face of panel.

Photograph 5: Showing rear of sample, installed in testing apparatus.

E2/VM1

E2/VM2

Gap for seismic movement

# E2/VM2- TEST

## Test Frame

- Wall size - 3m high x 3.9m wide
- Window size- 1.8m high x 0.8m wide
- Penetration – ø 150mm
- Must include a rigid backing – RAB™ Board



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# RIGID AIR BARRIER TEST DETAILS

- RAB™ Board installed as per its installation manual
- Fixings at 200mm c/c to all frame
- Vertical Joints taped with 3M™ Flashing tape
- Horizontal joint flashed with uPVC horizontal flashing





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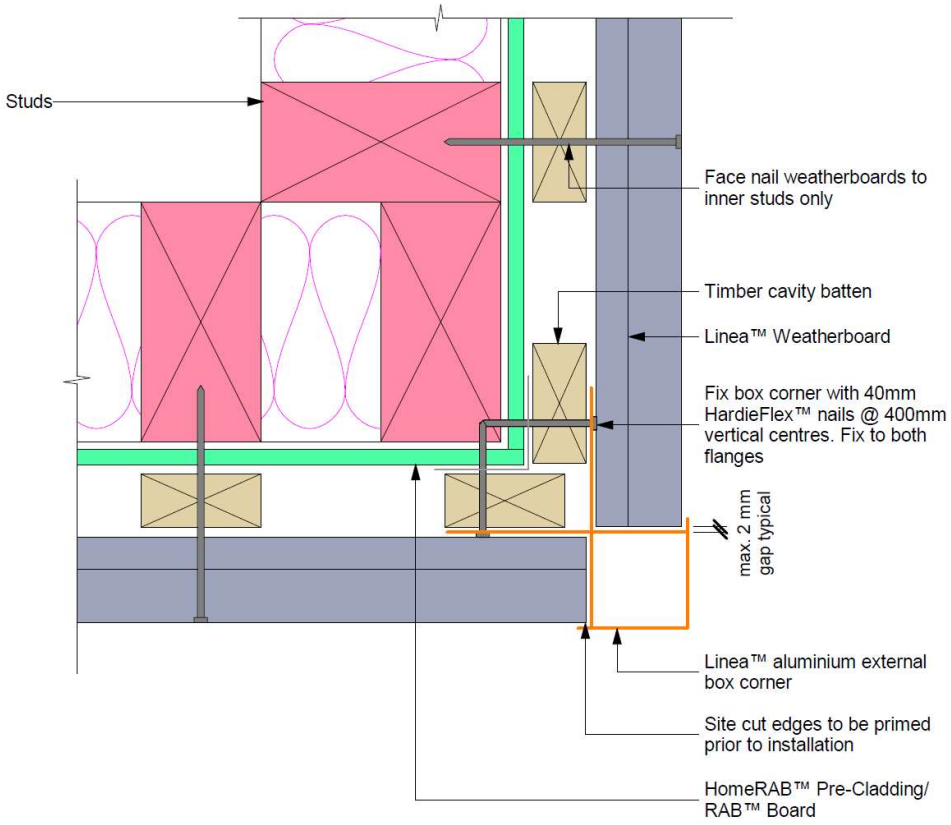
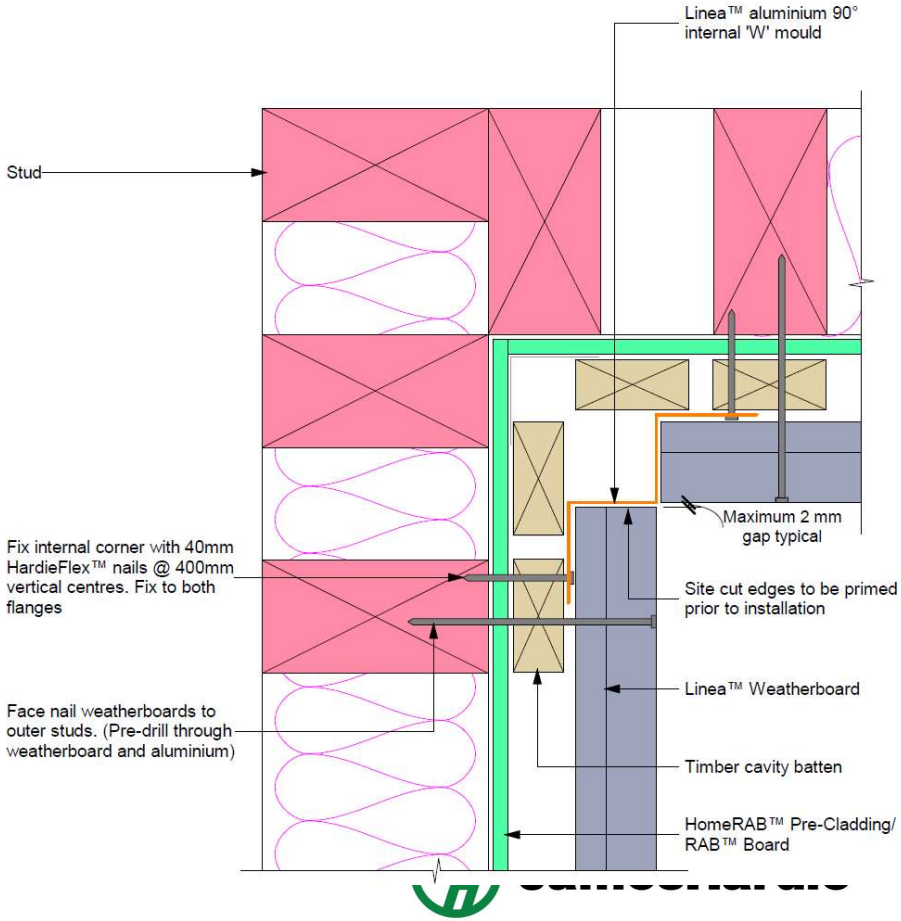
# CLADDING TEST DETAILS

**External Corner**




**Internal Corner**

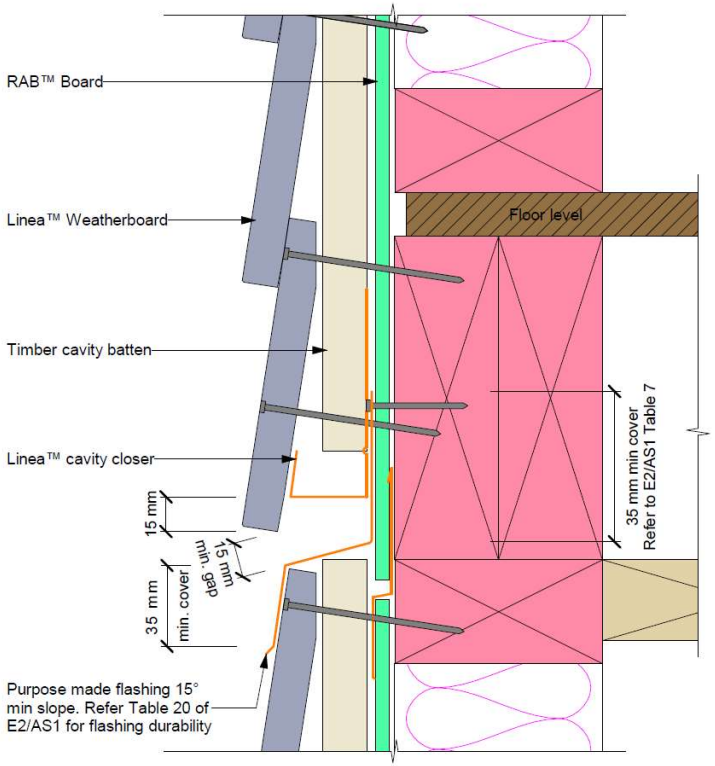





Linea™ Weatherboard

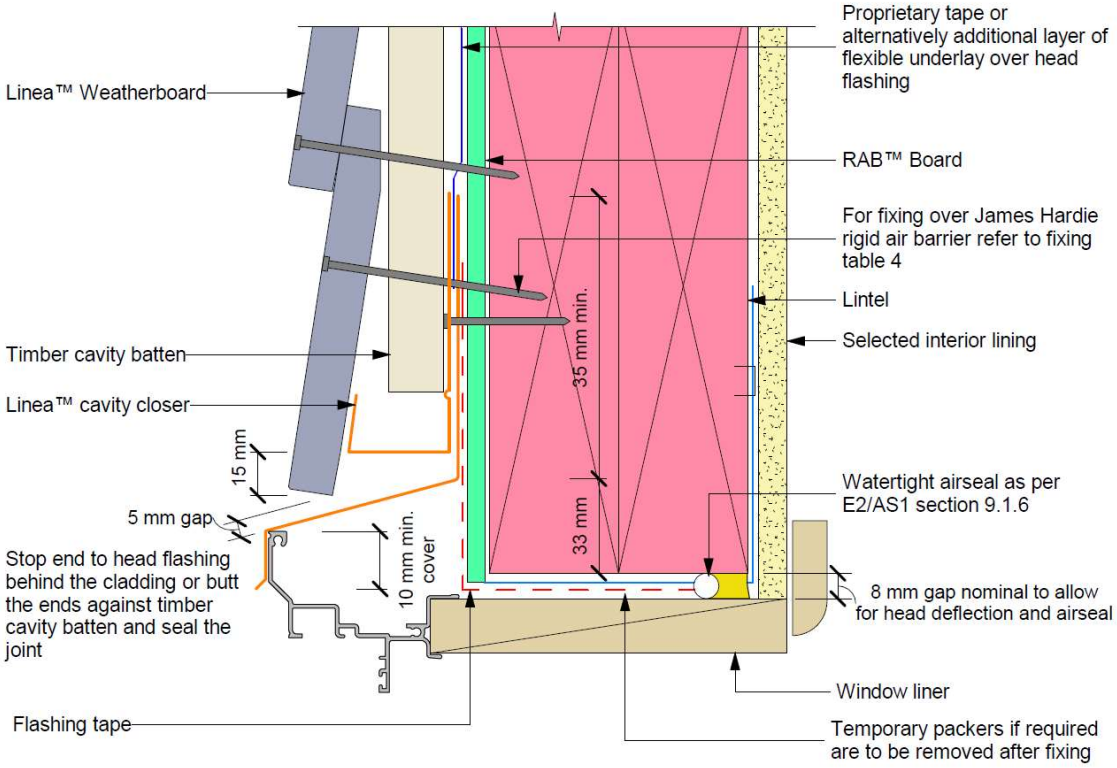
# CLADDING TEST DETAILS

**Inter-storey horizonal joint**




Note:
This detail is required to limit cavities to a maximum of 2 stories or 7 metres. Refer E2/AS1 clause 9.1.9.4.

**Head Flashing**



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# E2/VM2 TEST STAGES

**Eight test stages in total**

**Step 1**

Preliminary Test - Air pressures to ± 2.25Kpa - 1 minute

**Step 2**

Air Infiltration Test 1 - 75Pa

Air leakage allowance - 0.3L/s.m$^2$

**Step 3**

- Seismic deflections Limit – Span /180

SLS - ±17mm

- 15 cycles, each within 15 seconds

**Step 4**

Air Infiltration Test 1 - 75Pa

Air leakage allowance - 0.6L/s.m$^2$

# Seismic Movement

Seismic deflections limit – Span /180

Air leakage allowance - 0.6L/s.m$^2$



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# CLADDING SAMPLE IN E2/VM2 TEST BOOTH

- Linea™ Weatherboard installation in accordance with its technical specification

# INTER-STOREY HORIZONTAL JOINT

- Horizontal flashing required to allows for inter-storey deflections as per structural design



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# SEISMIC MOVEMENT



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# E2/VM2 TEST STAGES

**Step 5**

Water Penetration Test

Static +675Pa , 15 minutes

**Step 6**

Cyclic 338-675Pa, 450-900Pa & 675-1350Pa, 15minutes

**Step 7**

Water Management Test, Repeat of Step 4 & Step 5

**Step 8**

Wet wall Test - 75Pa, 15 minutes



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# TEST REPORT



## 1. Summary

The Linea Weatherboard system was subjected to tests from AS/NZS 4284:2008 as called up by BRANZ EM7 (referenced as E2/VM2 within the NZBC), with the following results.

The construction of specimen included the use of timber frame, RAB Board as rigid backing, timber cavity battens and Linea Weatherboard cladding.

### 1.1. Preliminary Test

Compliant – to air pressure of ±2.5 kPa

### 1.2. Air Infiltration Test 1

Non-compliant, due to high air leakage around the sample, being 0.6 L/s.m².

### 1.3. Seismic Testing at Serviceability Limit State.

Compliant with requirements at 15 cycles of ± 15 mm.

### 1.4. Air Infiltration Test 2

Non-compliant, due to high air leakage around the sample, being 0.6 L/s.m², however there was no increase in air leakage following the seismic racking.

### 1.5. Water Penetration Tests

#### 1.5.1. Static Water Penetration Test

Compliant with water and air pressure at +675 Pa

#### 1.5.2. Cyclic Water Penetration Test

Compliant with air cycling from 338 to 1350 Pa

### 1.6. Water Management Tests

#### 1.6.1. Static Water Management Test

Compliant with water and air pressure at +675 Pa

#### 1.6.2. Cyclic Water Management Test

Compliant with requirements at stage 1, stage 2 and stage 3 cyclic pressures.

### 1.7. Wetwall Test

Compliant with requirements at 75 Pa above atmospheric pressure.



Air Infiltration Test 1 - at 75Pa = 0.3l/s.m$^2$

Seismic Testing at SLS 15 cycles of ±15mm

Air Infiltration Test 2 - 0.6l/s.m$^2$

Testing and Reporting Issued by John Burgess, IANZ Authorised Signatory

IANZ ACCREDITED LABORATORY façadelab

Report 20-15

### Testing of James Hardie Linea - Weatherboard on RAB Board in accordance with E2/VM2 (BRANZ - EM7)

| | |
|---|---|
| Client: | James Hardie NZ Ltd |
| Sample Designer: | James Hardie NZ Ltd |
| Installer: | James Hardie NZ Ltd |
| Test Dates: | 20-21/10/2020 |
| Test Schedule | The tests required by BRANZ EM7 were completed. |
| Persons Present: | Richard Gibbs (Facadelab manager)<br>John Burgess (IANZ authorised signatory) |
| Test Facility: | Facadelab Ltd, 320 Rosedale Rd, Albany, Auckland. |
| IANZ Accredited Testing Officer: | John Burgess |

IANZ accreditation number for testing 1091, including AS/NZS 4284 and VM2.



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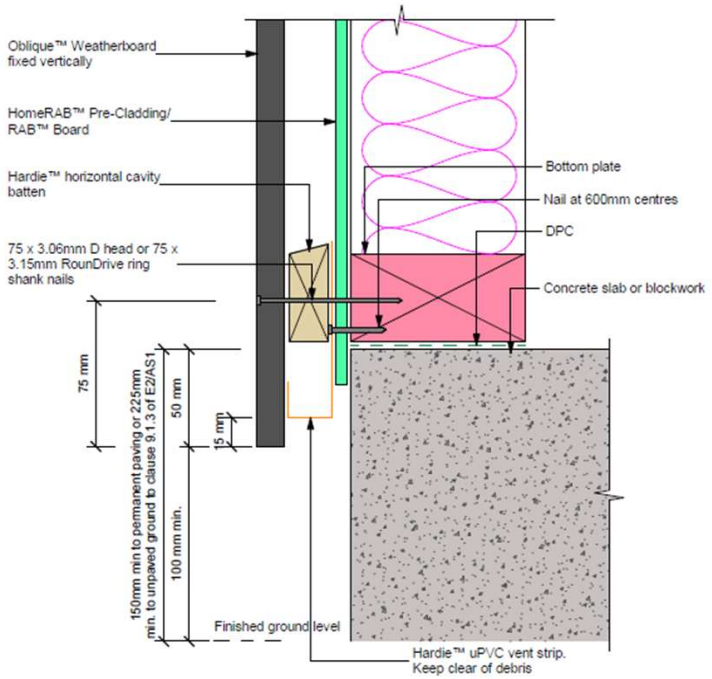
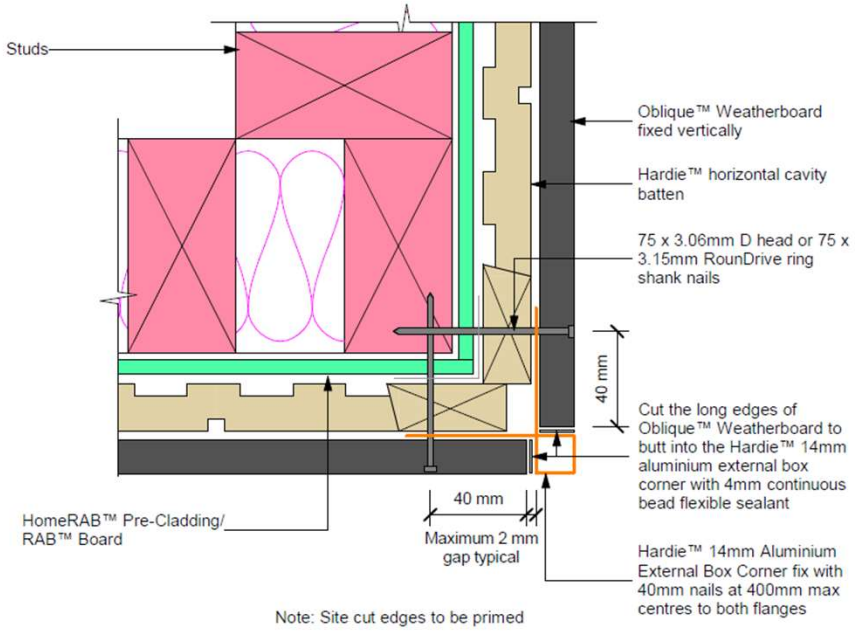
# TEST SYSTEM #2 DETAILS




Note: Site cut edges to be primed




Note: Site cut edges to be primed



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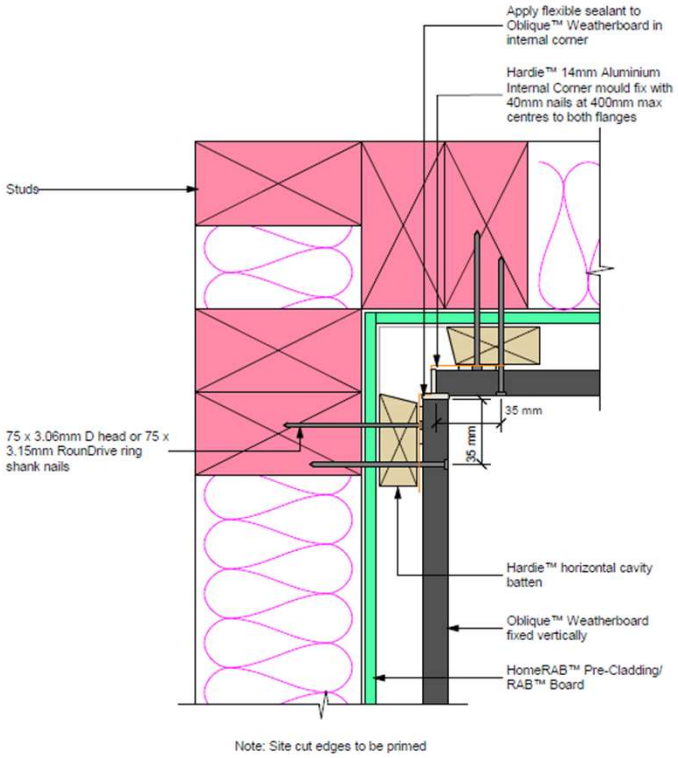
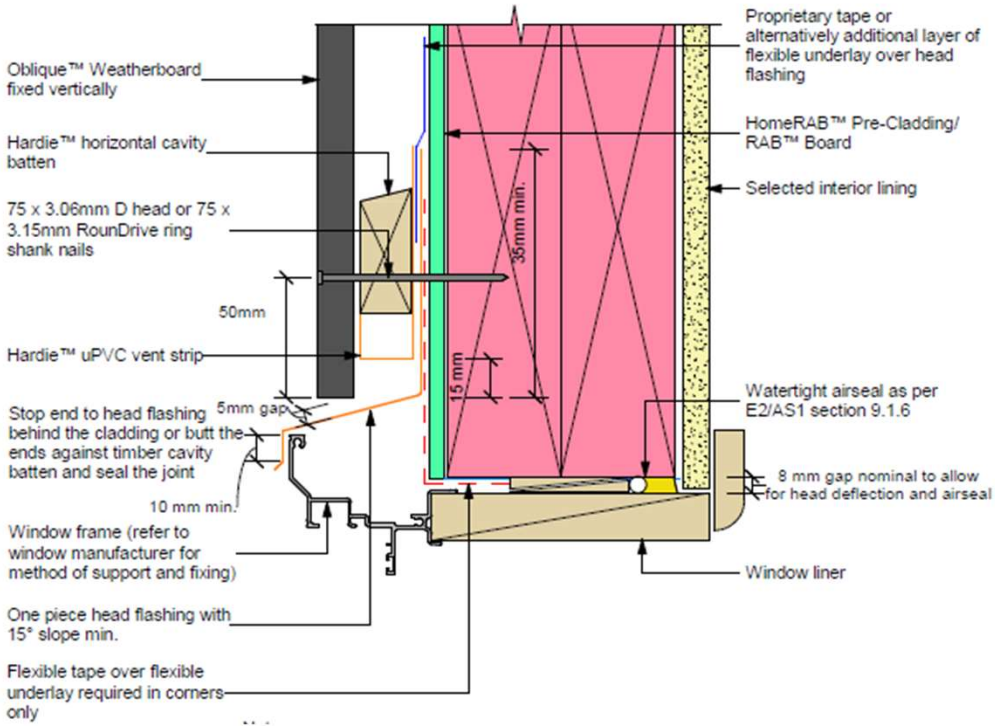
# TEST SYSTEM #2 DETAILS



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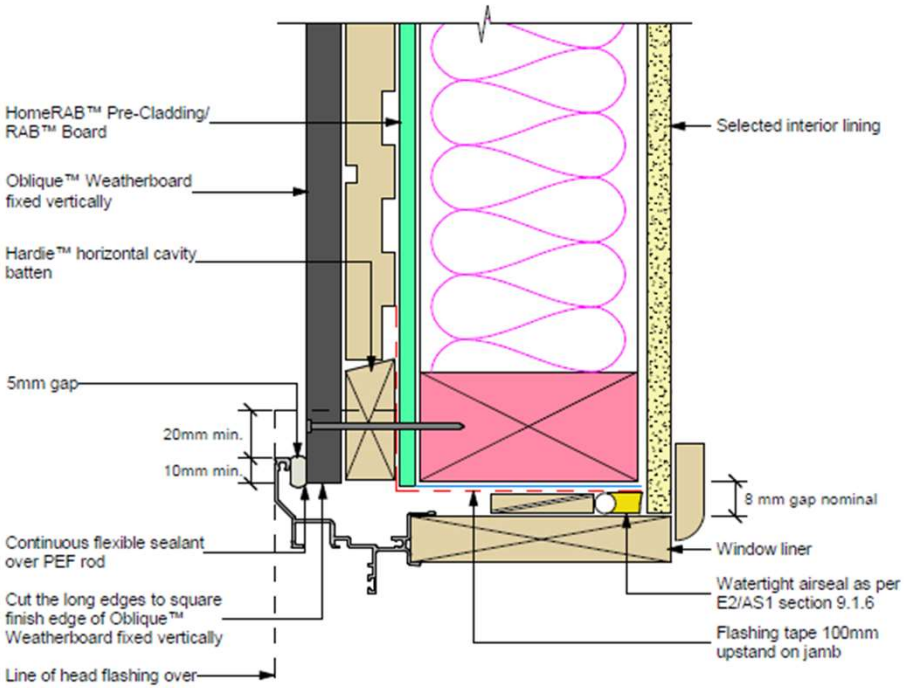
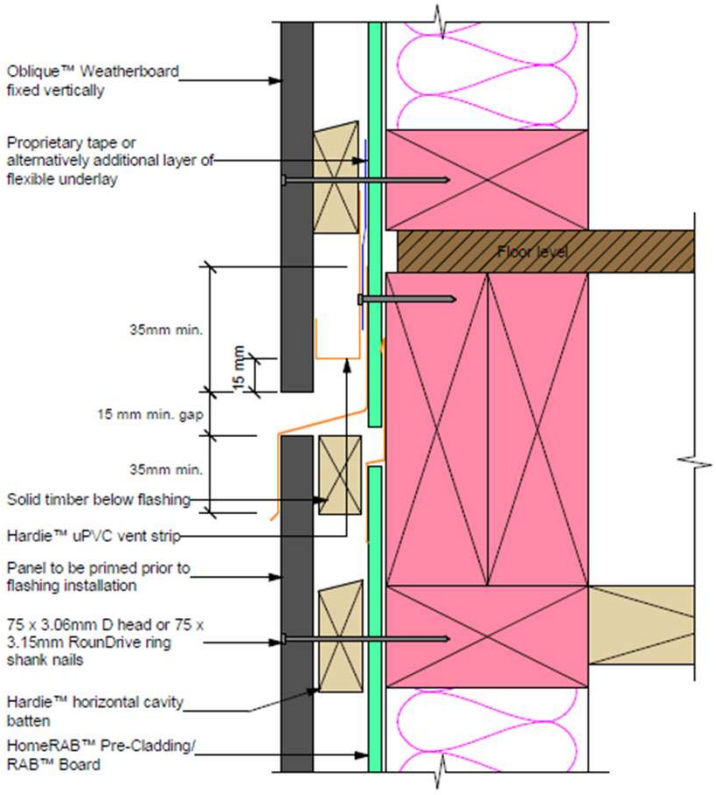
# TEST SYSTEM #2 DETAILS






JamesHardie™

# OBLIQUE WEATHERBOARD E2/VM2 TEST

Oblique™ Weatherboard



JamesHardie™

# AXON PANEL CLD CAVITY BATTEN E2/VM2 TEST



JamesHardie™

# E2/VM2 TEST REPORT



## 1. Summary

The Linea oblique vertical 'ship-lap' cladding system was subjected to tests from AS/NZS 4284:2008 as called up by BRANZ EM7 (referenced as E2/VM2 within the NZBC), with the following results.

### 1.1. Preliminary Test

Compliant – to air pressure of ±2.25 kPa

### 1.2. Air Infiltration Test 1

Compliant. Air flow less than 0.3 l/s.m²

### 1.3. Seismic Testing at Serviceability Limit State.

Completed lateral displacement of 15 cycles of ± 15 mm.

### 1.4. Air Infiltration Test 2

Compliant. Air flow less than 0.6 l/s.m²

### 1.5. Water Penetration Tests

#### 1.5.1. Static Water Penetration Test

Compliant with water and air pressure at 675 Pa

#### 1.5.2. Cyclic Water Penetration Test

Compliant with cyclic air pressure test from 338 to 1350 Pa

### 1.6. Water Management Tests

#### 1.6.1. Static Water Management Test

Compliant with water and air pressure at 675 Pa

#### 1.6.2. Cyclic Water Management Test

Compliant with cyclic air pressure test from 338 to 1350 Pa

### 1.7. Wetwall Test

Compliant with requirements at 75 Pa above atmospheric pressure.

Air Infiltration Test 1 - at 75Pa
= 0.3l/s.m2

Seismic Testing at SLS 15 cycles of ±15mm

Air Infiltration Test 2 - 0.6l/s.m2

IANZ ACCREDITED LABORATORY façadelab

## Testing of James Hardie Linea Oblique vertical weatherboard on rigid wall underlay to E2/VM2 (BRANZ EM7) using tests from AS/NZS 4284:2008 'Testing of Building Facades'

| | |
|---|---|
| Client: | James Hardie NZ Ltd |
| Sample Designer: | James Hardie NZ Ltd |
| Installer: | James Hardie NZ Ltd |
| Test Dates: | 10-11/12/2020 |
| Test Schedule | BRANZ EM7 |
| Persons Present: | Richard Gibbs (Facadelab manager) part time<br>John Burgess (IANZ authorised signatory)<br>Steve Cleary (building contractor)<br>Singh Kamboj (James Hardie) |
| Test Facility: | Facadelab Ltd, 320 Rosedale Rd, Albany, Auckland. |

IANZ Accredited Testing Officer: John Burgess

Note: While the cladding was new for this test, the RAB had previously been subjected to parts of the E2/VM2 test. The cladding was not painted after erection.

IANZ accreditation number for testing 1091, including AS/NZS 4284 and VM2.



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# OBLIQUE WEATHERBOARD  CERTIFICATION

- Scope- Buildings up to 25m high
- Buildings above 10m height, RAB™ Board must be used with James Hardie claddings
- A seismic deflection joint must be provided at each floor for buildings above 10m
- Wind pressure up to 3.2Kpa
- Systems comply with the requirements of C3.5 - Vertical fire spread & C3.7 -Horizontal fire spread safety

CodeMark

Certificate no: CMNZ30147
Version: 8
Original issue date: 17/10/2022
Version date: 23/10/2024
Renewal Date: 17/10/2025

1. Certificate Holder Details

JamesHardie™

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TechnicalTeam@jameshardie.co.nz
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www.jameshardie.co.nz

2. Product Certification Body

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Trading as Global-Mark
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customer.service@global-mark.co.nz
+64 9 889 0622
www.global-mark.co.nz

Complaints: The complaints process for this certificate can be found here:
www.global-mark.co.nz/complaints

Global-Mark Managing Director.

Herve Michoux

global-mark

Product Certificate

Oblique™ Weatherboard by James Hardie
Cavity Cladding System

3. Description of Building Method or Product

Oblique™ Weatherboard Cladding is a cavity-based fibre cement weatherboard wall cladding system.

Oblique™ Weatherboard Cladding consists of Oblique™ Weatherboard, which is a 14mm profile fibre cement weatherboard, fixed horizontally or vertically over battens to form a nominal 20 mm cavity. Proprietary ventilated timber battens are used in vertical applications. The cladding is finished with a latex paint system.

The cladding system incorporates a primary and secondary means of weather resistance (first and second lines of defence) against water penetration by separating the cladding from the external wall framing with a nominal 20 mm cavity. The cavity allows for any occasional ingress of water that may get past the external skin to drain to the exterior of the building, and any remaining moisture to dry by evaporation.

4. Intended use of Building Method or Product

The system is designed to be used as part of an external cladding system on timber framed building

5. New Zealand Building Code Provisions

The System if designed, used, installed and maintained in accordance with the conditions of this Certificate will comply with or contribute to compliance with the following performance provisions of the NZ Building Code:

| | |
|---|---|
| Clause B1 STRUCTURE: | Performance B1.3.1, B1.3.2 and B1.3.4, for the relevant physical conditions of B1.3.3 (a), (f), (h), (j) & (q) |
| Clause B2 DURABILITY: | Performance B2.3.1(b) 15 years and B2.3.2(a) |
| Clause C3 FIRE AFFECTING AREAS BEYOND THE FIRE SOURCE: | Performance C3.5 and C3.7 |
| Clause E2 EXTERNAL MOISTURE: | Performance E2.3.2, E2.3.5, E2.3.6 and E2.3.7 |
| Clause F2 HAZARDOUS BUILDING MATERIALS: | Performance F2.3.1 |

6. Conditions and Limitations of Use

1. The system is certified:
   a. as a cavity fixed external wall cladding for buildings:

JAS-ANZ

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The purpose of construction site audits is to confirm the practicability of installing the product; and to confirm the appropriateness and accuracy of installation instructions. In issuing this certificate, Global-Mark has relied on the independent expert and/or laboratory advise or reports. In placing the CodeMark mark on the product/system, the certificate holder makes a declaration of compliance with the certification standard(s) and confirms that the product is identical to the product certified herein.

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BRANZ Appraised
Appraisal No. 1232 [2022]

OBLIQUE™ WEATHERBOARD [VERTICAL] CAVITY CLADDING

Appraisal No. 1232 [2022]

BRANZ Appraisals
Technical Assessments of products for building and construction

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WFTAO

Product

1.1 Oblique™ Weatherboard [Vertical] Cavity Cladding is a cavity-based fibre cement weatherboard wall cladding. It is designed to be used as an external cladding system for residential and light commercial type buildings where domestic construction techniques are used.

1.2 Oblique™ Weatherboard [Vertical] Cavity Cladding consists of Oblique™ rusticated profile fibre cement weatherboards fixed vertically over ventilated timber battens to form the cavity. The cladding is finished with a latex paint system.

Scope

2.1 Oblique™ Weatherboard [Vertical] Cavity Cladding installed over 40 mm structural cavity battens has been appraised as an external wall cladding for buildings between 0 and 10 m high within the following scope:
- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; and,
- with a risk score of 0-20, calculated in accordance with NZBC Acceptable Solution E2/AS1, Table 2; and,
- situated in NZS 3604 Wind Zones up to, and including, Extra High.

2.2 Oblique™ Weatherboard [Vertical] Cavity Cladding installed over 20 mm timber cavity battens has also been appraised for weathertightness and structural wind loading when used as an external vertically fixed wall cladding for buildings between 0 and 25 m high within the following scope:
- buildings with a building height not exceeding 25 m; and,
- constructed with timber framing complying with the NZBC; and,
- situated in specific design wind pressures up to a maximum design differential ultimate limit state [ULS] of 3.2 kPa where studs are at maximum 400 mm centres; and,
- with inter-storey deflections designed for and up to height/180 of horizontal in-plane movement during seismic serviceable limit state [SLS] events [based on a 3 m inter-storey height]; and,
- constructed with timber framing subject to specific engineering design; and,
- when fixed over RAB™ Board by James Hardie New Zealand Limited.

2.3 Oblique™ Weatherboard [Vertical] Cavity Cladding must only be installed vertically on vertical, flat surfaces.

2.4 Oblique™ Weatherboard [Vertical] Cavity Cladding has been appraised for use with aluminium window and door joinery that is installed with vertical jambs and horizontal heads and sills. *[Note: The Appraisal of Oblique™ Weatherboard [Vertical] Cavity Cladding relies on the joinery meeting the requirements of NZS 4211 for the relevant Wind Zone or wind pressure.]*

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Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

JamesHardie™

# STRIA CLADDING CERTIFICATION

- Scope- Buildings up to 25m high
- Buildings above 10m height, RAB™ Board must be used with James Hardie claddings
- A seismic deflection joint must be provided at each floor for buildings above 10m
- Wind pressure up to 3.2Kpa
- Systems comply with the requirements of C3.5 - Vertical fire spread & C3.7 -Horizontal fire spread safety


CodeMark

Certificate no: CMNZ30109
Version: C
Original issue date: 20/08/2019
Version date: 23/10/2024
Renewal Date: 01/09/2025

1. Certificate Holder Details

JamesHardie

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2. Product Certification Body

Global-Mark Pty Ltd
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www.global-mark.co.nz

Complaints: The complaints process for this certificate can be found here:
www.global-mark.co.nz/complaints

Global-Mark Managing Director.

Herve Michoux


global-mark

Product Certificate

Stria™ Cladding by James Hardie

3. Description of Building Method or Product

Stria™ Cladding is a cavity-based fibre cement panel wall cladding system.

Stria™ Cladding consists of Stria™ Cladding Panel, which is a 14mm profile fibre cement panel, fixed horizontally or vertically over battens to form a nominal 20 mm cavity. Proprietary ventilated timber battens are used in vertical applications. The cladding is finished with a latex paint system.

The cladding system incorporates a primary and secondary means of weather resistance (first and second lines of defence) against water penetration by separating the cladding from the external wall framing with a nominal 20 mm cavity. The cavity allows for any occasional ingress of water that may get past the external skin to drain to the exterior of the building, and any remaining moisture to dry by evaporation.

4. Intended use of Building Method or Product

The system is designed to be used as part of an external cladding system on timber framed building

5. New Zealand Building Code Provisions

The System if designed, used, installed and maintained in accordance with the conditions of this Certificate will comply with or contribute to compliance with the following performance provisions of the NZ Building Code:

| | |
|---|---|
| Clause B1 STRUCTURE: | Performance B1.3.1, B1.3.2 and B1.3.4, for the relevant physical conditions of B1.3.3 (a), (f), (h), (j) & (q) |
| Clause B2 DURABILITY: | Performance B2.3.1(b) 15 years and B2.3.2(a) |
| Clause C3 FIRE AFFECTING AREAS BEYOND THE FIRE SOURCE: | Performance C3.5 and C3.7 |
| Clause E2 EXTERNAL MOISTURE: | Performance E2.3.2, E2.3.5, E2.3.6 and E2.3.7 |
| Clause F2 HAZARDOUS BUILDING MATERIALS: | Performance F2.3.1 |

6. Conditions and Limitations of Use

1. The system is certified:
   a. as a cavity fixed external wall cladding for buildings:

JAS-ANZ

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The purpose of construction site audits is to confirm the practicability of installing the product, and to confirm the appropriateness and accuracy of installation instructions. In issuing this certificate, Global-Mark has relied on the independent expert and/or laboratory advise or reports. In placing the CodeMark mark on the product/system, the certificate holder makes a declaration of compliance with the certification standard(s) and confirms that the product is identical to the product certified herein.

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BRANZ Appraised
Appraisal No. 1225 [2022]

STRIA™ CLADDING VERTICAL

Appraisal No. 1225 (2022)

BRANZ Appraisals
Technical Assessments of products for building and construction

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Porirua 5240,
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Tel: 04 237 1170
branz.co.nz

WFTAO

Pg 1

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

## Product

1.1 Stria™ Cladding Vertical is a cavity-based fibre cement wall cladding. It is designed to be used as an external wall cladding for residential and light commercial type buildings where domestic construction techniques are used.

## Scope

2.1 Stria™ Cladding Vertical installed over 40 mm structural cavity battens has been appraised as an external wall cladding for buildings within the following scope:
- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; and,
- with a risk score of 0-20, calculated in accordance with NZBC Acceptable Solution E2/AS1, Table 2; and,
- situated in NZS 3604 Wind Zones up to, and including, Extra High.

2.2 Stria™ Cladding Vertical installed over 20 mm timber cavity battens has been appraised for weathertightness and structural wind loading when used as an external vertically fixed wall cladding for buildings between 0 and 25 m high within the following scope:
- buildings with a building height not exceeding 25 m; and,
- constructed with timber framing complying with the NZBC; and,
- situated in specific design wind pressures up to a maximum design differential ultimate limit state [ULS] of 3.2 kPa where studs are at maximum 400 mm centres; and,
- with inter-storey deflections designed for and up to height/180 of horizontal in-plane movement during seismic serviceable limit state [SLS] events (based on a 3 m inter-storey height); and,
- constructed with timber framing subject to specific engineering design; and,
- when fixed over James Hardie RAB™ Board rigid air barrier.

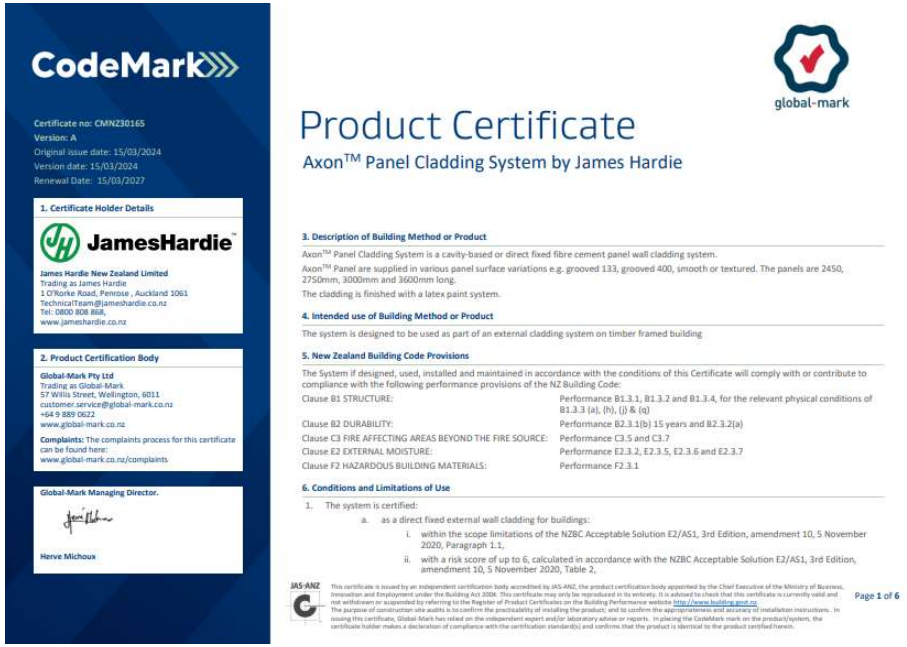
2.3 Stria™ Cladding Vertical must only be installed vertically on vertical, flat surfaces.

2.4 Stria™ Cladding Vertical is appraised for use with aluminium window and door joinery that is installed with vertical jambs and vertical heads and sills. *[Note: The Appraisal of Stria™ Cladding Vertical relies on the joinery meeting the requirements of NZS 4211 for the relevant Wind Zone or design wind pressure.]*

JamesHardie™

# AXON PANEL CLD CAVITY  BATTEN CERTIFICATION

- Scope- Buildings up to 25m high
- Buildings above 10m height, RAB™ Board must be used with James Hardie claddings
- A seismic deflection joint must be provided at each floor for buildings above 10m
- Wind pressure up to 3.2Kpa
- Systems comply with the requirements of C3.5 - Vertical fire spread & C3.7 -Horizontal fire spread safety



CodeMark

Certificate no: CMNZ30165
Version: A
Original issue date: 15/03/2024
Version date: 15/03/2024
Renewal Date: 15/03/2027

1. Certificate Holder Details

JamesHardie

James Hardie New Zealand Limited
Trading as James Hardie
1 O'Rorke Road, Penrose , Auckland 1061
TechnicalTeam@jameshardie.co.nz
Tel: 0800 808 868,
www.jameshardie.co.nz

2. Product Certification Body

Global-Mark Pty Ltd
Trading as Global-Mark
57 Willis Street, Wellington, 6011
customer.service@global-mark.co.nz
+64 9 889 0622
www.global-mark.co.nz

Complaints: The complaints process for this certificate can be found here:
www.global-mark.co.nz/complaints

Global-Mark Managing Director.

Herve Michoux

global-mark

Product Certificate

Axon™ Panel Cladding System by James Hardie

3. Description of Building Method or Product

Axon™ Panel Cladding System is a cavity-based or direct fixed fibre cement panel wall cladding system.

Axon™ Panel are supplied in various panel surface variations e.g. grooved 133, grooved 400, smooth or textured. The panels are 2450, 2750mm, 3000mm and 3600mm long.

The cladding is finished with a latex paint system.

4. Intended use of Building Method or Product

The system is designed to be used as part of an external cladding system on timber framed building

5. New Zealand Building Code Provisions

The System if designed, used, installed and maintained in accordance with the conditions of this Certificate will comply with or contribute to compliance with the following performance provisions of the NZ Building Code:

| | |
|---|---|
| Clause B1 STRUCTURE: | Performance B1.3.1, B1.3.2 and B1.3.4, for the relevant physical conditions of B1.3.3 (a), (h), (j) & (q) |
| Clause B2 DURABILITY: | Performance B2.3.1(b) 15 years and B2.3.2(a) |
| Clause C3 FIRE AFFECTING AREAS BEYOND THE FIRE SOURCE: | Performance C3.5 and C3.7 |
| Clause E2 EXTERNAL MOISTURE: | Performance E2.3.2, E2.3.5, E2.3.6 and E2.3.7 |
| Clause F2 HAZARDOUS BUILDING MATERIALS: | Performance F2.3.1 |

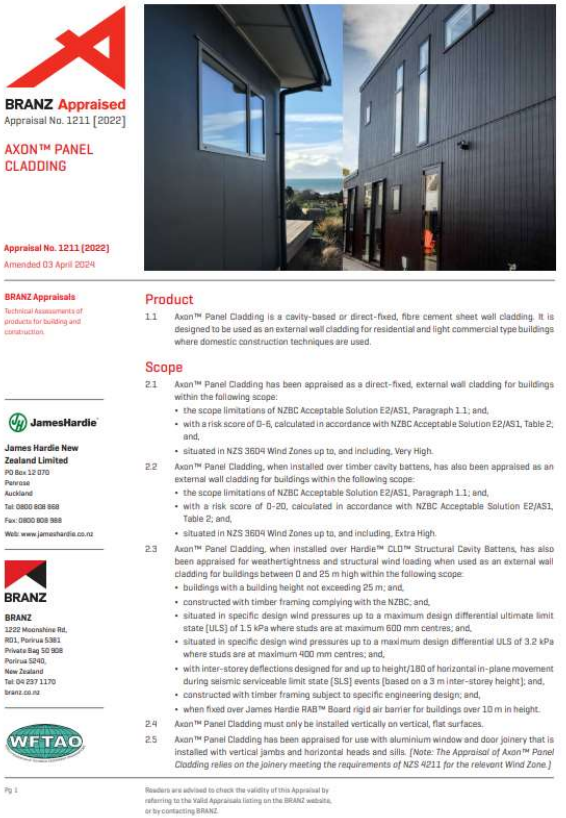
6. Conditions and Limitations of Use

1. The system is certified:
   a. as a direct fixed external wall cladding for buildings:
      i. within the scope limitations of the NZBC Acceptable Solution E2/AS1, 3rd Edition, amendment 10, 5 November 2020, Paragraph 1.1,
      ii. with a risk score of up to 6, calculated in accordance with the NZBC Acceptable Solution E2/AS1, 3rd Edition, amendment 10, 5 November 2020, Table 2,

JAS-ANZ

This certificate is issued by an independent certification body accredited by JAS-ANZ, the product certification body appointed by the Chief Executive of the Ministry of Business, Innovation and Employment under the Building Act 2004. This certificate may only be reproduced in its entirety. It is advised to check that this certificate is currently valid and not withdrawn or suspended by referring to the Register of Product Certificates on the Building Performance website http://www.building.govt.nz/. The purpose of construction site audits is to confirm the practicability of installing the product; and to confirm the appropriateness and accuracy of installation instructions. In issuing this certificate, Global-Mark has relied on the independent expert and/or laboratory advise or reports. In placing the CodeMark mark on the product/system, the certificate holder makes a declaration of compliance with the certification standard(s) and confirms that the product is identical to the product certified herein.

Page 1 of 6



BRANZ Appraised
Appraisal No. 1211 [2022]

AXON™ PANEL CLADDING

Appraisal No. 1211 (2022)
Amended 03 April 2024

BRANZ Appraisals
Technical Assessments of products for building and construction

JamesHardie

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BRANZ

BRANZ
1222 Moonshine Rd,
RD1, Porirua 5381
Private Bag 50 908
Porirua 5240,
New Zealand
Tel: 04 237 1170
branz.co.nz

WFTAO

Product

1.1 Axon™ Panel Cladding is a cavity-based or direct-fixed, fibre cement sheet wall cladding. It is designed to be used as an external wall cladding for residential and light commercial type buildings where domestic construction techniques are used.

Scope

2.1 Axon™ Panel Cladding has been appraised as a direct-fixed, external wall cladding for buildings within the following scope:
- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; and,
- with a risk score of 0-6, calculated in accordance with NZBC Acceptable Solution E2/AS1, Table 2; and,
- situated in NZS 3604 Wind Zones up to, and including, Very High.

2.2 Axon™ Panel Cladding, when installed over timber cavity battens, has also been appraised as an external wall cladding for buildings within the following scope:
- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; and,
- with a risk score of 0-20, calculated in accordance with NZBC Acceptable Solution E2/AS1, Table 2; and,
- situated in NZS 3604 Wind Zones up to, and including, Extra High.

2.3 Axon™ Panel Cladding, when installed over Hardie™ CLD™ Structural Cavity Battens, has also been appraised for weathertightness and structural wind loading when used as an external wall cladding for buildings between 0 and 25 m high within the following scope:
- buildings with a building height not exceeding 25 m; and,
- constructed with timber framing complying with the NZBC; and,
- situated in specific design wind pressures up to a maximum design differential ultimate limit state [ULS] of 1.5 kPa where studs are at maximum 600 mm centres; and,
- situated in specific design wind pressures up to a maximum design differential ULS of 3.2 kPa where studs are at maximum 400 mm centres; and,
- with inter-storey deflections designed for and up to height/180 of horizontal in-plane movement during seismic serviceable limit state [SLS] events (based on a 3 m inter-storey height); and,
- constructed with timber framing subject to specific engineering design; and,
- when fixed over James Hardie RAB™ Board rigid air barrier for buildings over 10 m in height.

2.4 Axon™ Panel Cladding must only be installed vertically on vertical, flat surfaces.

2.5 Axon™ Panel Cladding has been appraised for use with aluminium window and door joinery that is installed with vertical jambs and horizontal heads and sills. *(Note: The Appraisal of Axon™ Panel Cladding relies on the joinery meeting the requirements of NZS 4211 for the relevant Wind Zone.)*

Pg 1

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

JamesHardie™

# EAVES & SOFFITS BY JAMES HARDIE





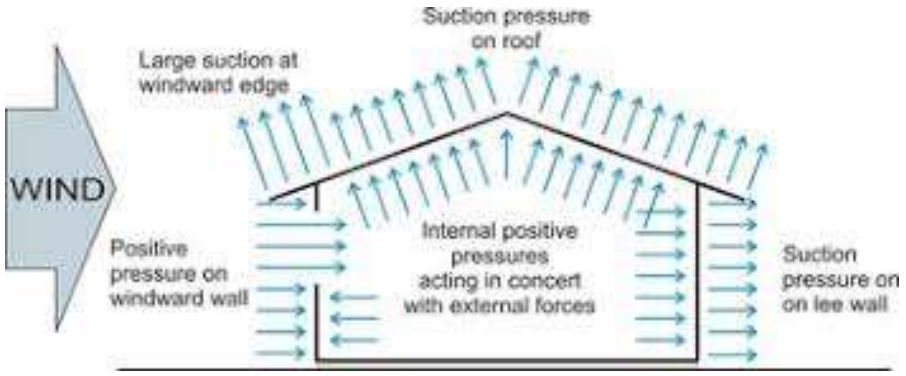
JamesHardie™

# SOFFIT AND EAVES INSTALLATION

- Compliance with Clause B1, B2, & E2 of NZBC
- Most critical performance requirement is to withstand the wind pressures exposure

**Table 7. Demand differential wind (kPa) pressures complying with the scope of NZS 3604:2011 [1] and AS/NZS 1170.2:2011 [6] for eaves (and side walls).**

| NZS 3604 Wind Zones | Wind Speeds (m/s) | Basic Pressure (kPa) | Differential Pressure $p_z$ (kPa) |
|---|---|---|---|
| Low | 32 | 0.61 | -0.80 |
| Medium | 37 | 0.82 | -1.07 |
| High | 44 | 1.16 | -1.51 |
| Very High | 50 | 1.50 | -1.95 |
| Extra High | 55 | 1.82 | -2.36 |
| | | *Negative pressure = suction | |




Wind exposure on roof/soffit



JamesHardie™

# CLAUSE - B1 VERIFICATION

- Independent wind pressures testing of 4.5mm thick Soffit board
- Negative pressure/suction of lining

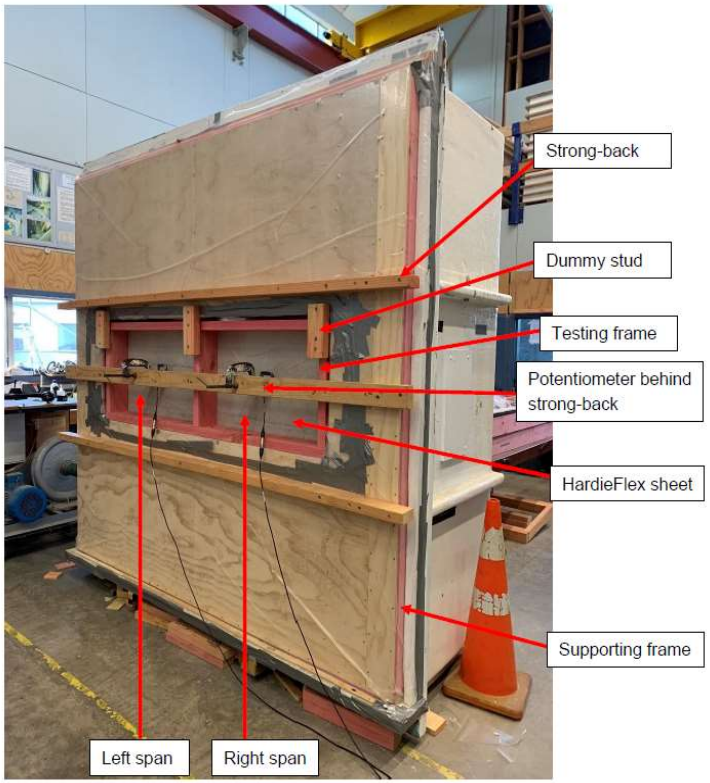



Figure 3. A test specimen fitted into the pressure box.

Figure 4. Typical specimen mode showing fixing pull-throughs and sheet fractures.



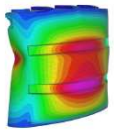




JamesHardie™

# CLAUSE - B1 VERIFICATION

- Soffit width in various wind zones independently verified through structural engineering analysis



**David Beneke Consulting**

Finite Element Analysis for Engineering

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Unit 16 / 10 Chilvers Road
Thornleigh NSW 2120
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davidbenekeconsulting.com

2019-70-LO-10

29 August 2019

James Hardie Building Products
50 O'Rorke Road
PENROSE AUCKLAND 1061
NEW ZEALAND

Attention: Mr. Singh Kamboj

**PRODUCER STATEMENT**
**STRUCTURAL DESIGN VERIFICATION OF THE JHFC RAIL-FRAMED SOFFIT LININGS AND JHFC BOX-FRAMED SOFFIT LININGS, AS PROPOSED BY JAMES HARDIE**

We have undertaken a structural engineering verification of the proposed 4.5mm SO Soffit or HardieFlex sheet, 8mm HardieGroove sheet as well as 6mm and 9mm Villaboard sheets for soffit applications in New Zealand. Our assessment has been based on relevant sections of the following Codes of Practice and the following documents:-

1. AS/NZS1170.0-2002 Structural design actions, Part 0: General principles.
2. AS/NZS1170.2-2011 Structural Design Actions, Part 2: Wind actions.
3. NZS 3604-2011 Timber Framed Buildings
4. James Hardie Advice Note to Singh Kamboj "Proposed Design Tables for Eaves and Soffits Literature in New Zealand" dated 14 October 2015.
5. James Hardie Submission to David Beneke Consulting "Submission for PS-1 Certification of

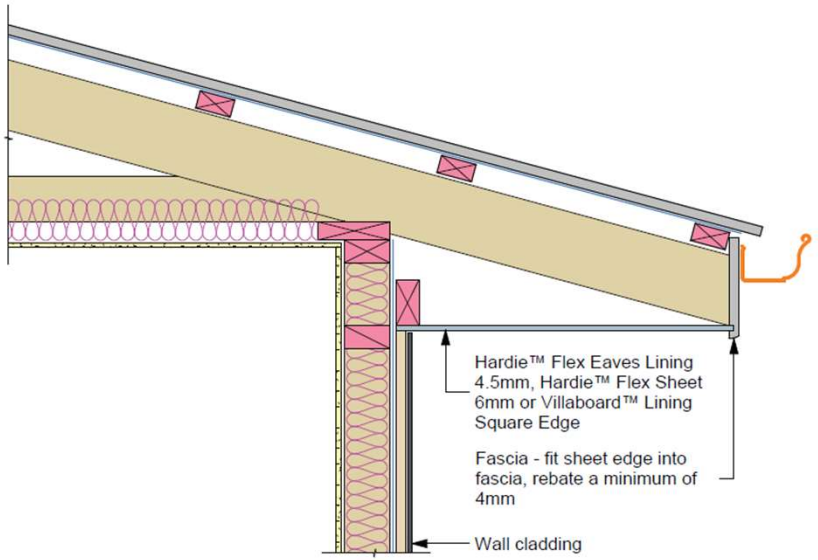
Ask AI Assistant | Summarize this document

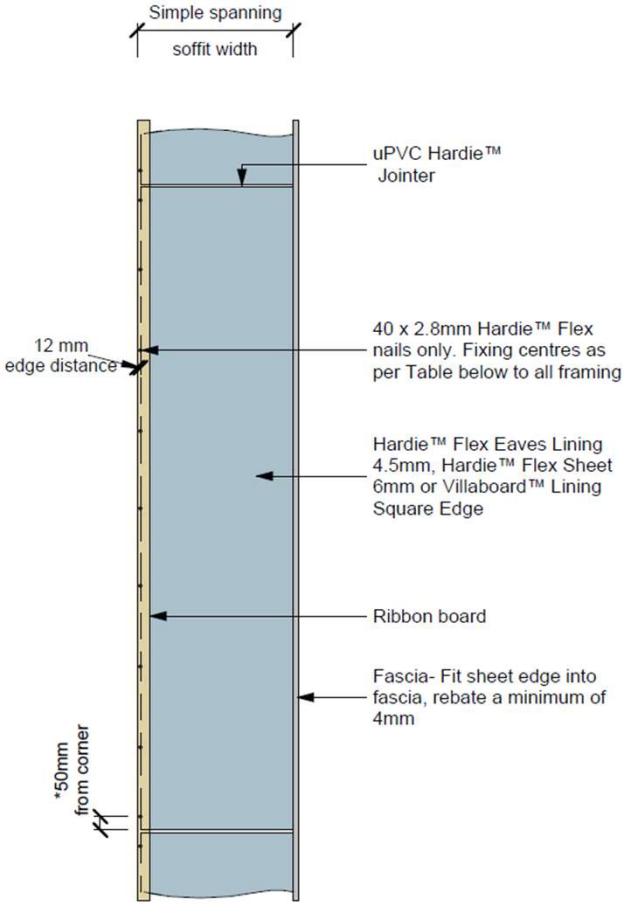


JamesHardie™

# SIMPLE SPANNING SOFFIT- (NEW)

Spanning vs. Wind Zone




| 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 |

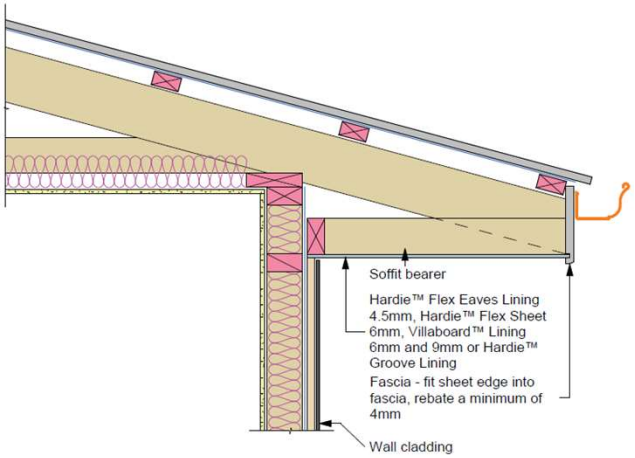
**Note:** Eclipsa™ Eaves Lining is only suitable for use upto VH wind zone.



JamesHardie™

# BOX FRAMED SOFFIT- (NEW)

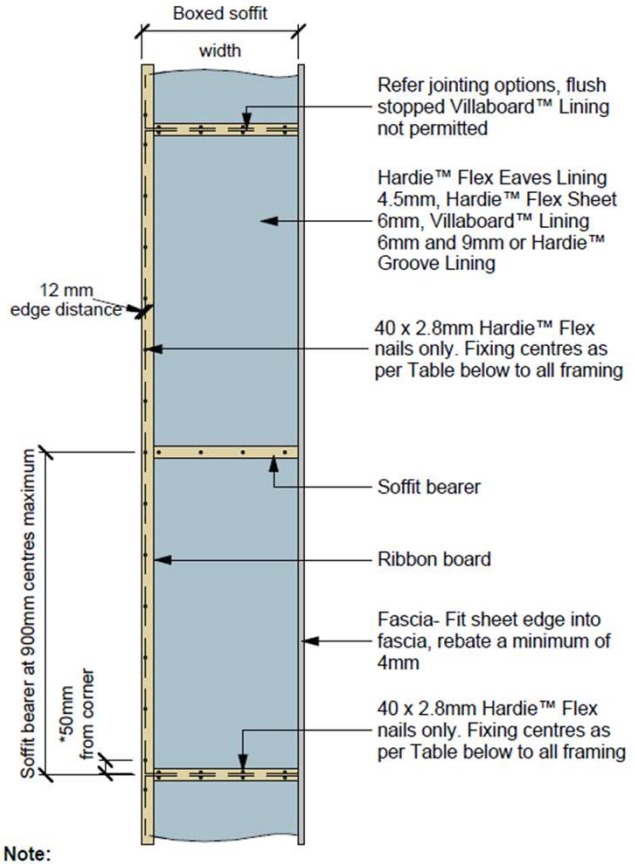
Spanning vs. Wind Zones




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

| 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.




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

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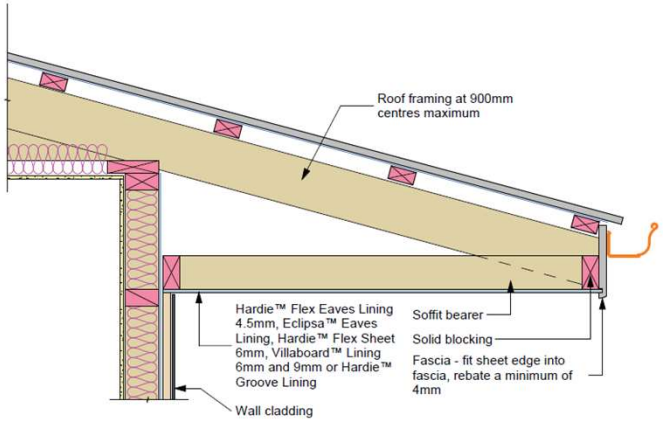
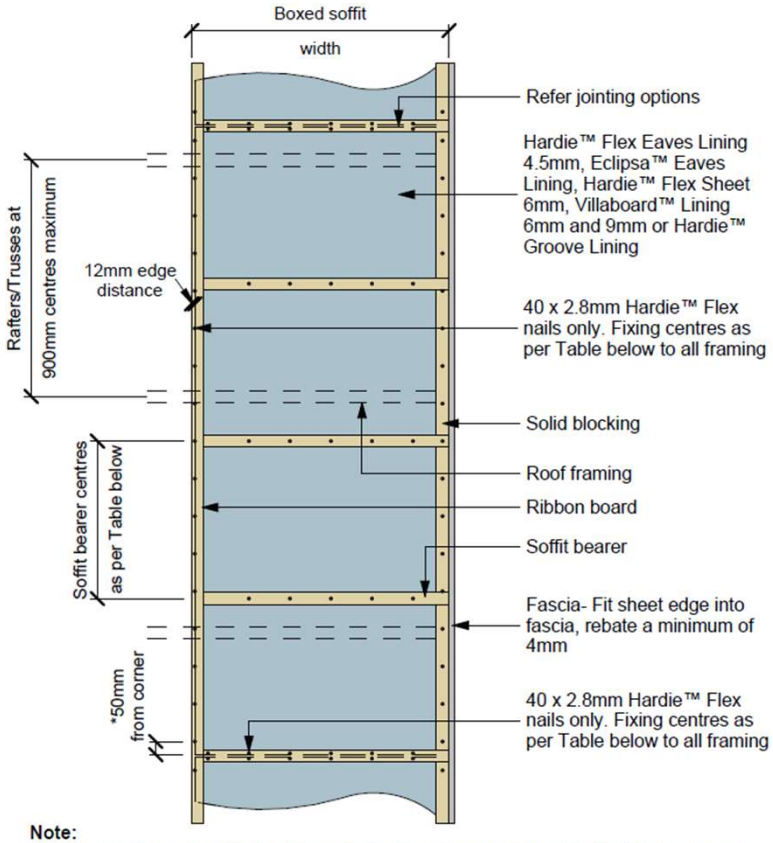
# BOX FRAMED LARGE SOFFIT UP TO 1200MM

Spanning vs. Wind Zones




**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<br>Eclipsa™ Eaves Lining | 1200mm | Up to VH | 600mm | 200mm |
| Hardie™ Flex Sheet 6mm<br>Villaboard™ Lining 6mm | 1200mm | Up to EH | 600mm | 150mm |
| Hardie™ Groove Lining | 1200mm | Up to VH | 600mm | 200mm |
| | 1200mm | Up to EH | 400mm | 150mm |

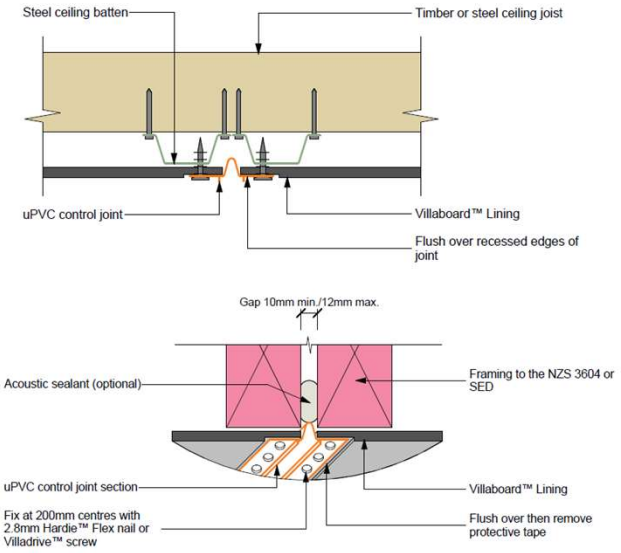


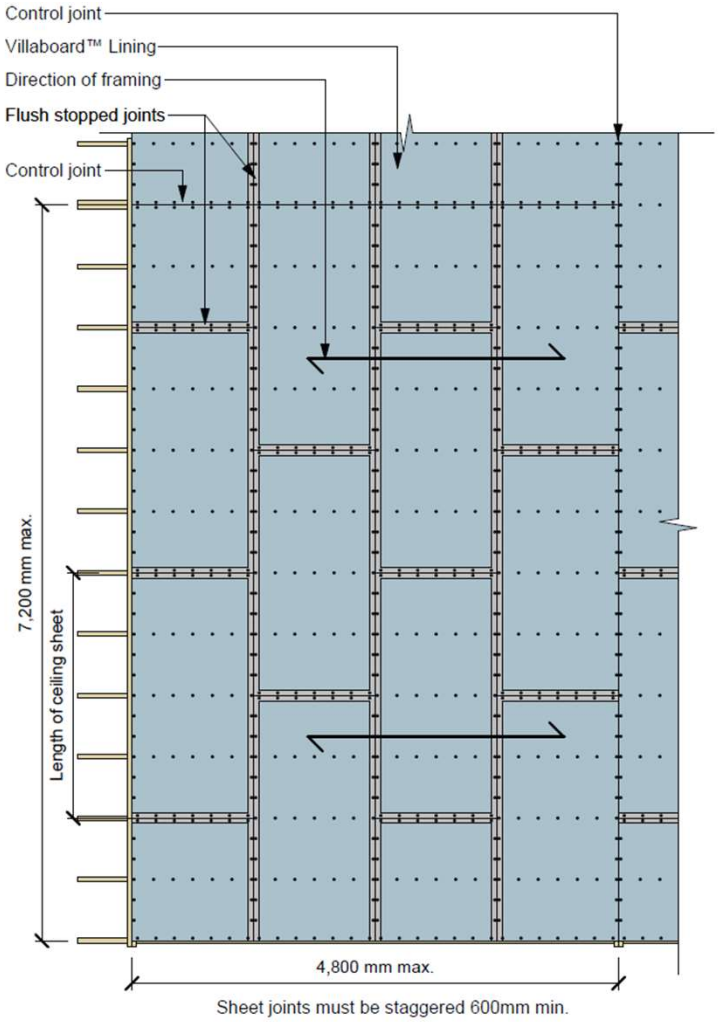

**Note:**
**- Eclipsa™ Eaves Lining fixed to soffit bearers/fascia nogs with Fastfix Fasteners**
**- Villaboard™ Lining and Hardie™ Groove Lining can be fixed with nails or screws**

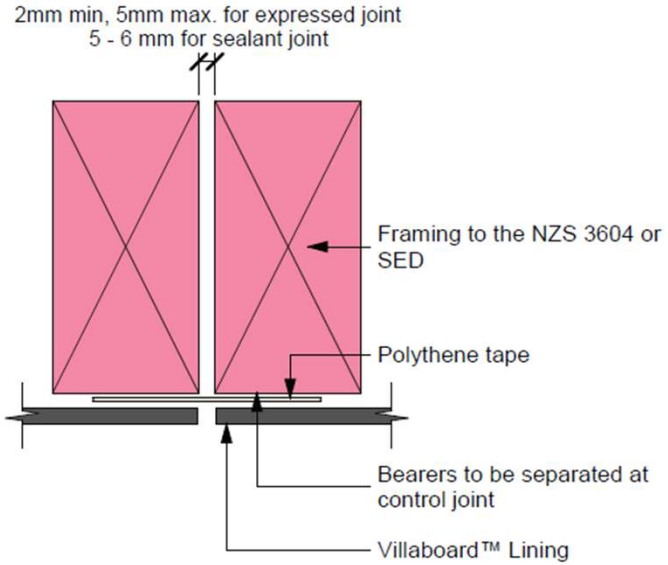
JamesHardie™

# VILLABOARD™ LINING – FLUSH STOPPED

**Control joints are required when Villaboard™ Lining is flush stopped or required by the structure**




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



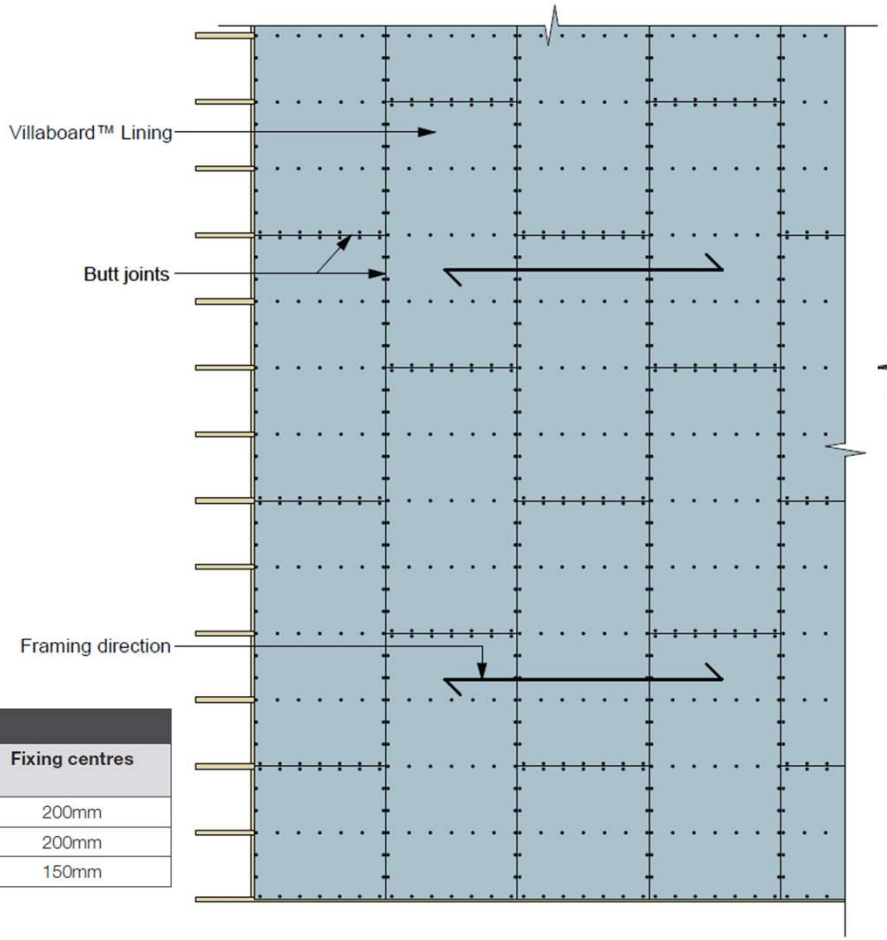
JamesHardie™

# VILLABOARD™ LINING – BUTT JOINT

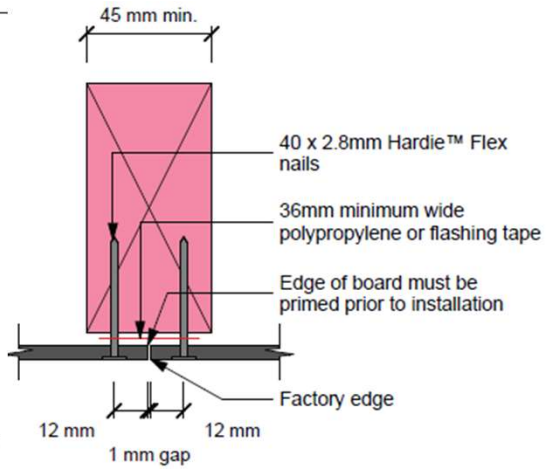
**Control joints are only required when Villaboard™ Lining is flush stopped or required by the structure**

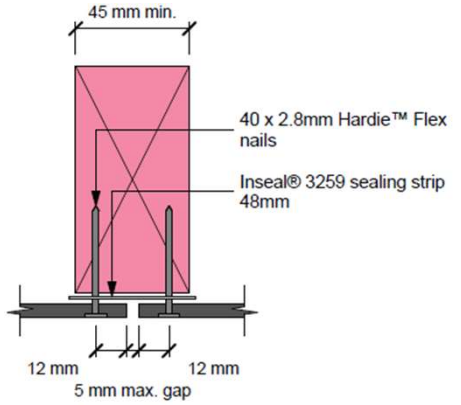
**New Figures highlighting:**
- Fixings edge distance
- Fixings spacing
- Sheets laid across ceiling battens
- Sheets laid along ceiling battens

**New Tables highlighting**
- Wind pressures, batten spacings and fixing centres




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 |

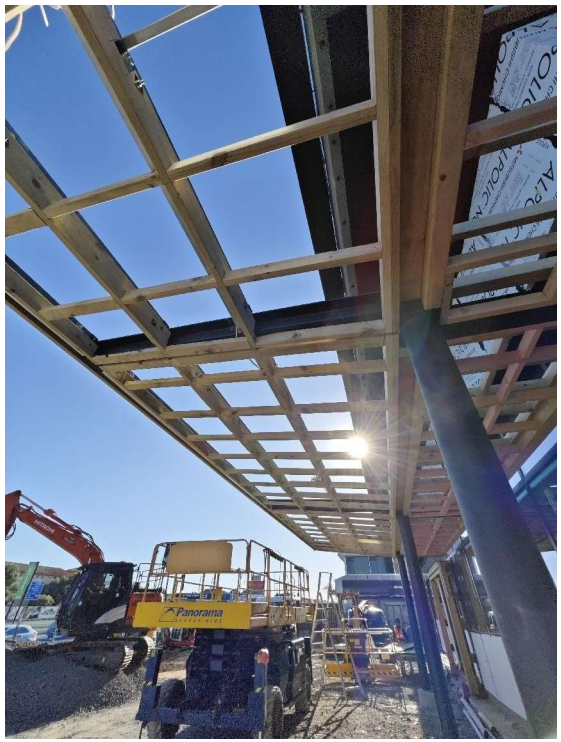


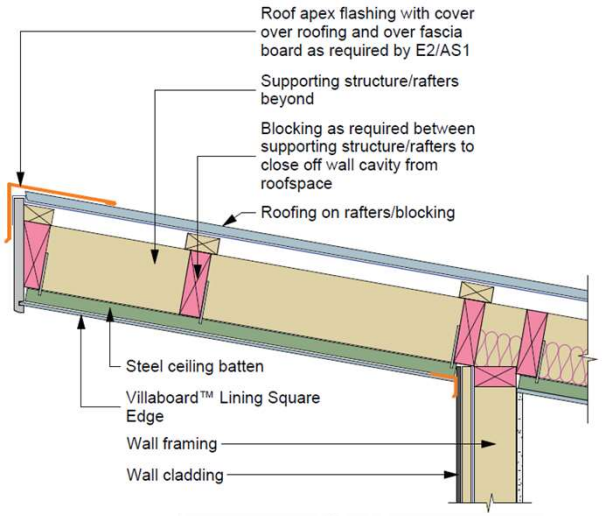
JamesHardie™

# SKILLION ROOFS

**Things to consider:**

- Sufficient roof space ventilation
- Possibility of high temperatures
- Structural movement
- Ceiling battens (Rondo)



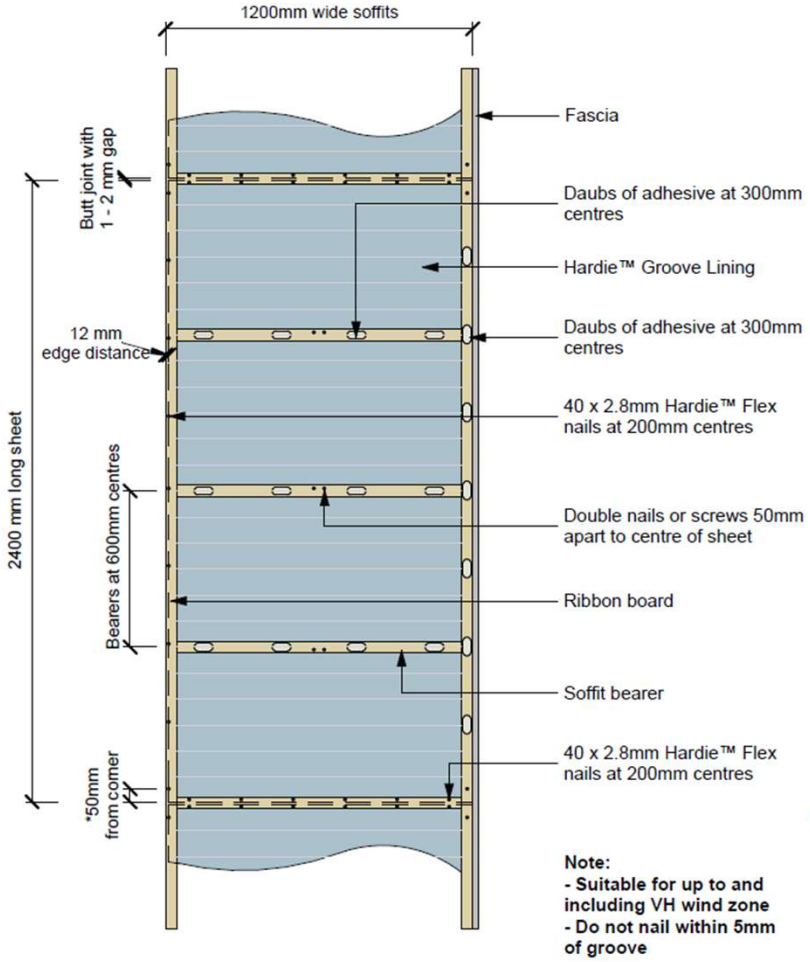


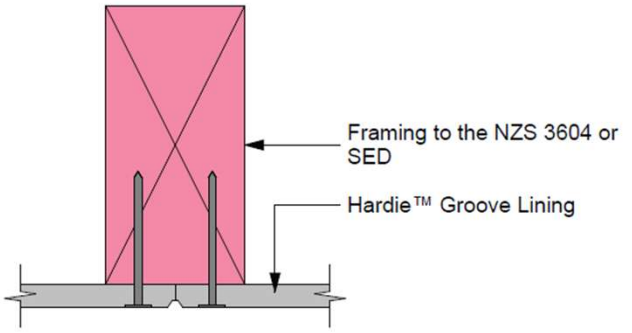

JamesHardie™

# HARDIE™ GROOVE LINING

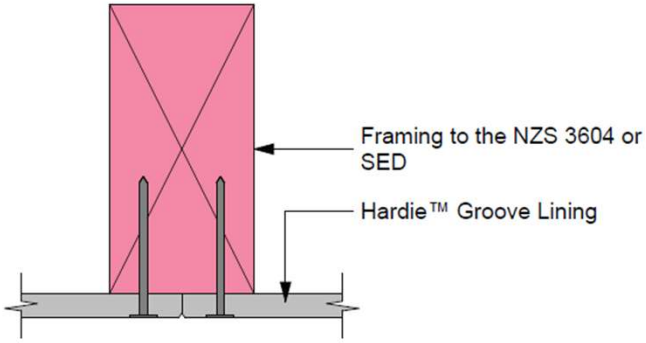
New Figures highlighting:
- Fixings edge distance
- Fixings spacing
- Sheets laid across ceiling battens
- Sheets laid along ceiling battens
- Soffit application with mix of adhesive and mechanical fixings

New Tables highlighting
- Wind pressures, batten spacings and fixing centres




Note: Typical long edge joint




Note: Typical short edge site cut and chamfer



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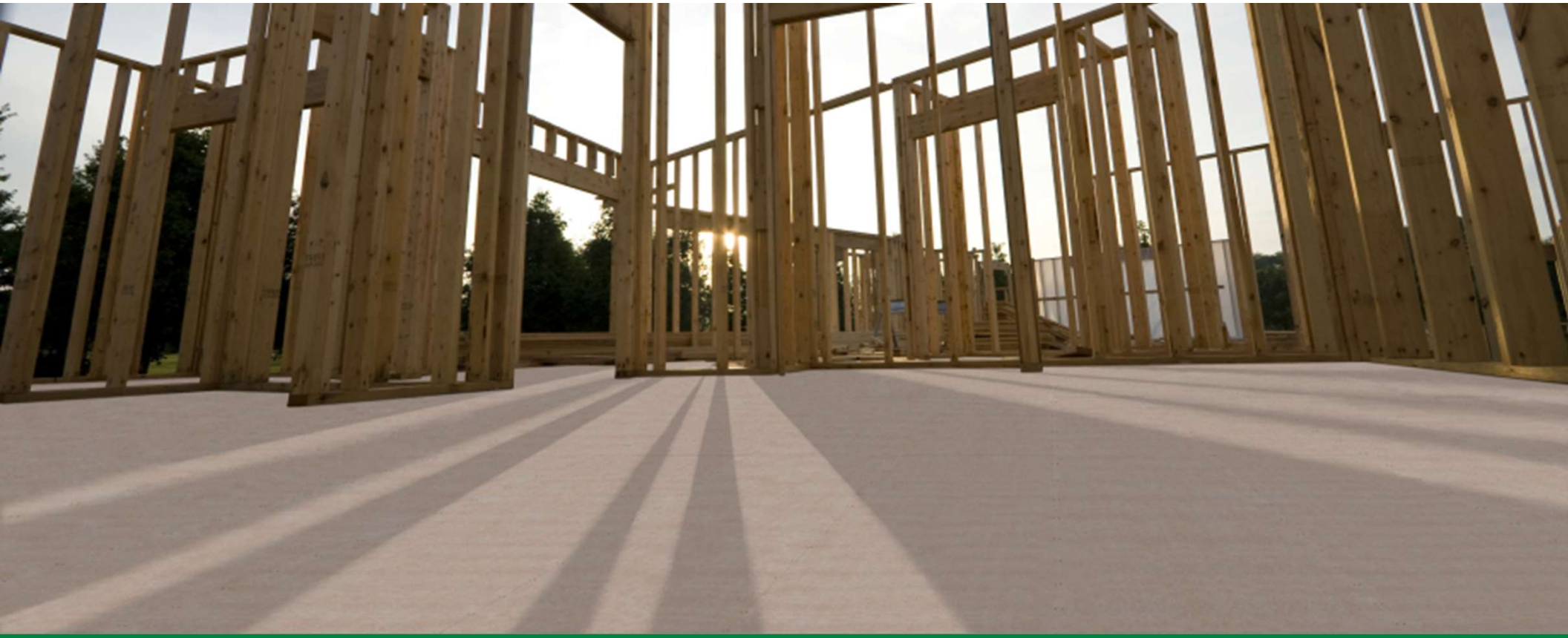


# NEW SECURA™ FLOORING

JamesHardie™

# KEY FEATURES AND BENEFITS

- **Resistant to moisture damage:** It’s resistant to moisture damage when installed and maintained correctly, making it suitable for wet areas and semi wet areas.
- **Impact resistance:** Secura™ Flooring is highly resistant to impact and abrasion, making it suitable for high-traffic areas.
- **Rot resistant:** Unlike wood, Secura™ Flooring doesn't rot, swell, or crack.
- **Fire Resistance:** It is suitable for use as non-combustible material and offers excellent fire resistance.
- **Dimensional Stability:** It's highly dimensionally stable, it doesn’t warp or deform over time.
- **Weather resistant:** Can be exposed for up to 90 days during construction.
- **Easy to Install:** It can be installed using gun nails
- **Product Warranty:** 25 years



JamesHardie™

# SECURA™ FLOORING

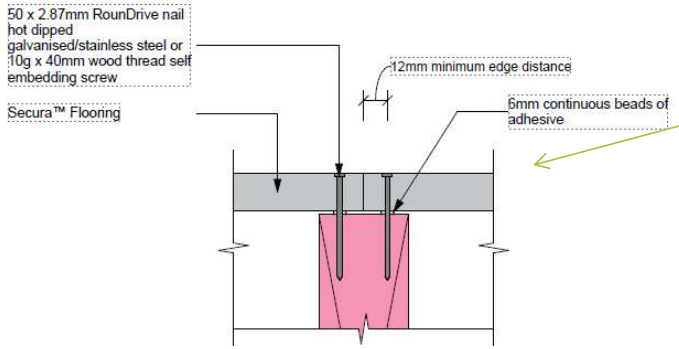
- New size 2400 x 600mm (old size 2700 x 600mm)
- Tongue and Groove long edges
- Can be used for both **wet and dry areas**, as well as **structural diaphragms**
- Suitable for 3kPa (UDL) & 2.7kN concentrated load
- Stable and **squeak free** substrate for indoor comfort

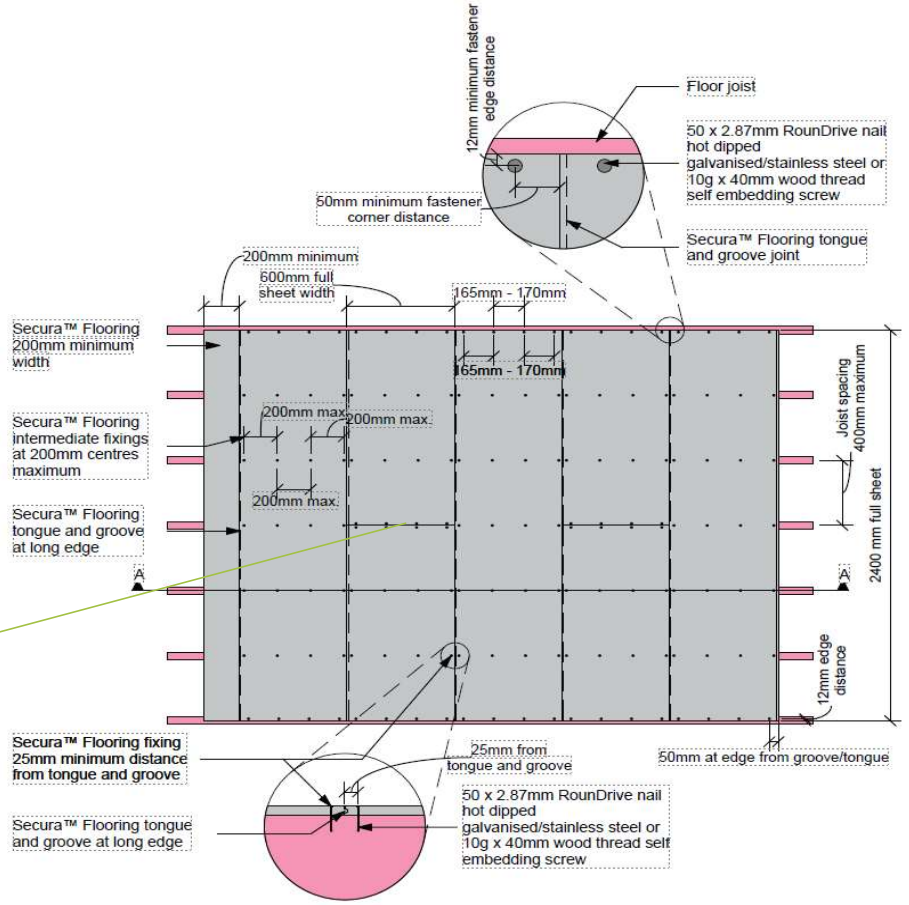


JamesHardie™

# INSTALLATION

- Joists @ 400mm c/c max.
- Joist design as per NZS3604 or SED
- Fixings – 50x2.8mm Roundrive gun nails galv. /stainless steel or 10gx40mm screw
- No blocking needed under T & G joint



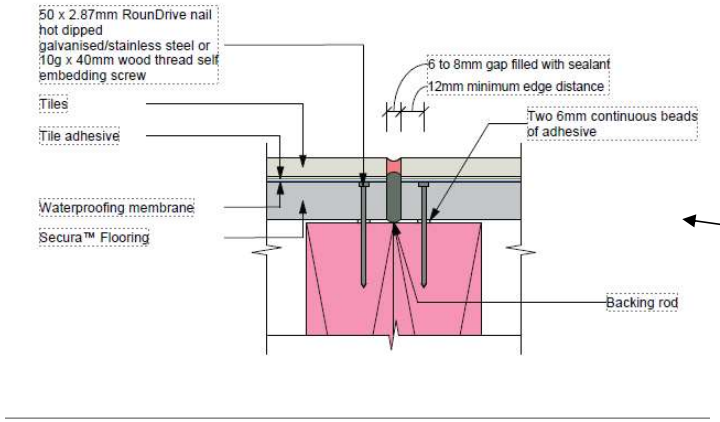



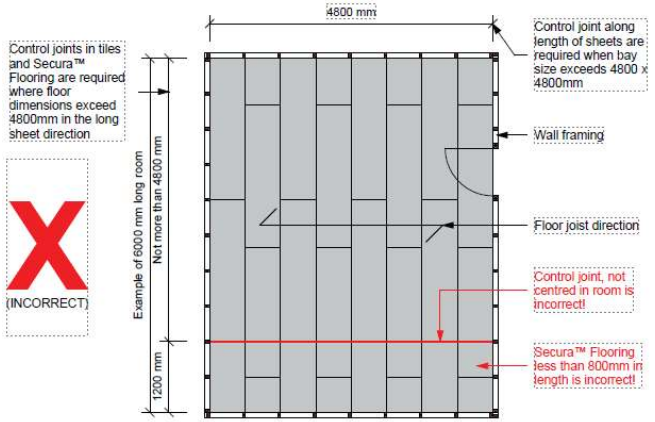


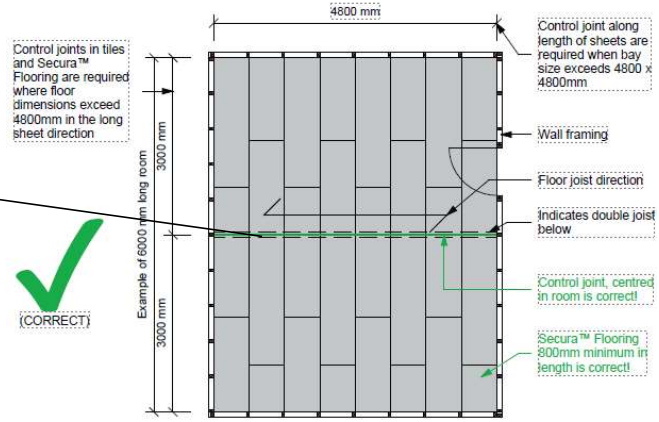

JamesHardie™

# CONTROL JOINTS

- For tiled floor applications control joints are required at 4.8mx4.8m max.
- Control joint in the flooring should continue through the tiles above



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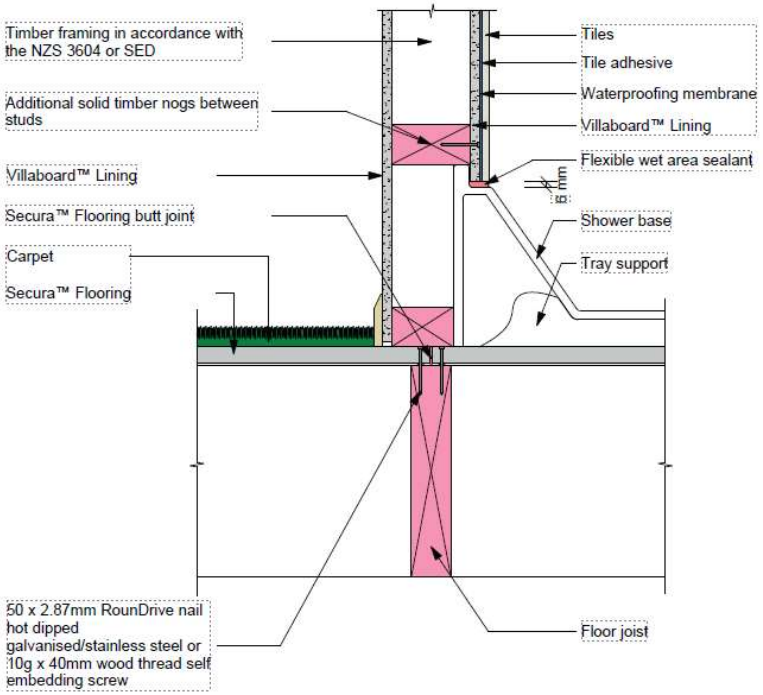
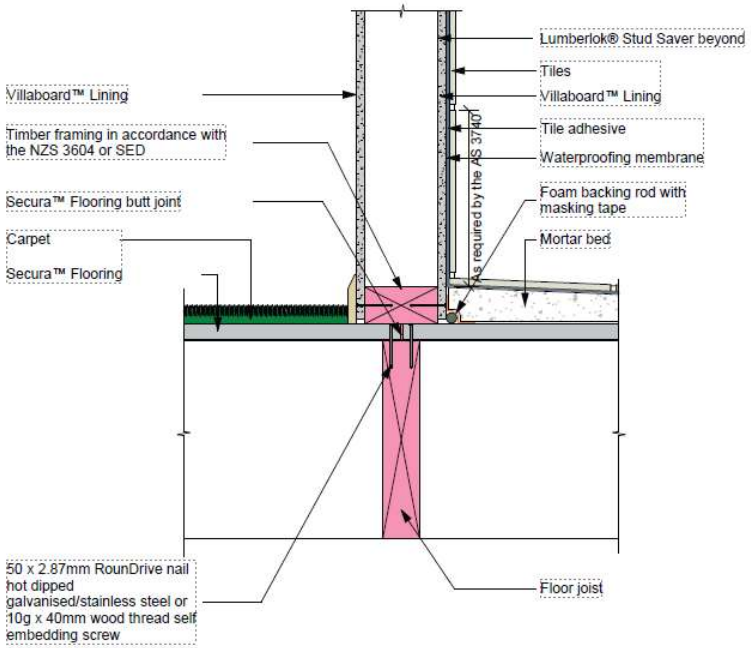
# WET AREA DETAILS

## Shower Tray Detail




## Wet Area Waterproofing Membrane



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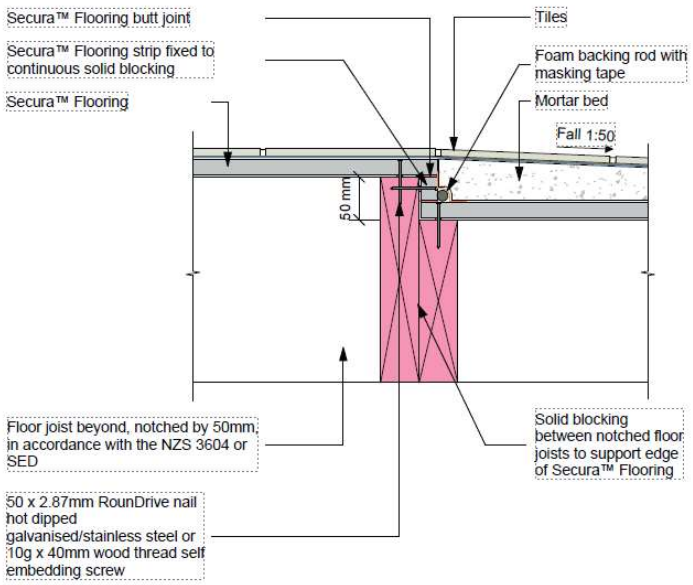
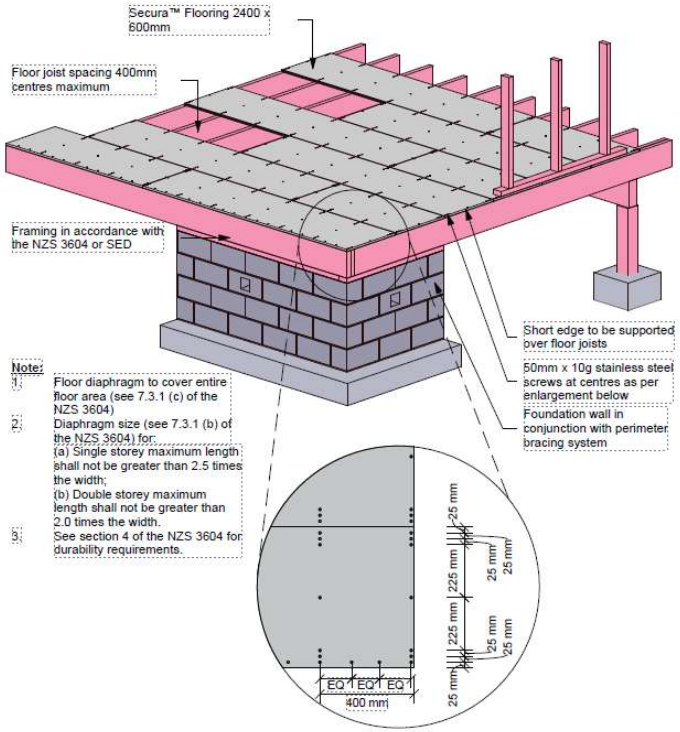
# COMMON DETAILS

## Recessed Floor Wet Area Membrane/Tiles




## Diaphragm Floor



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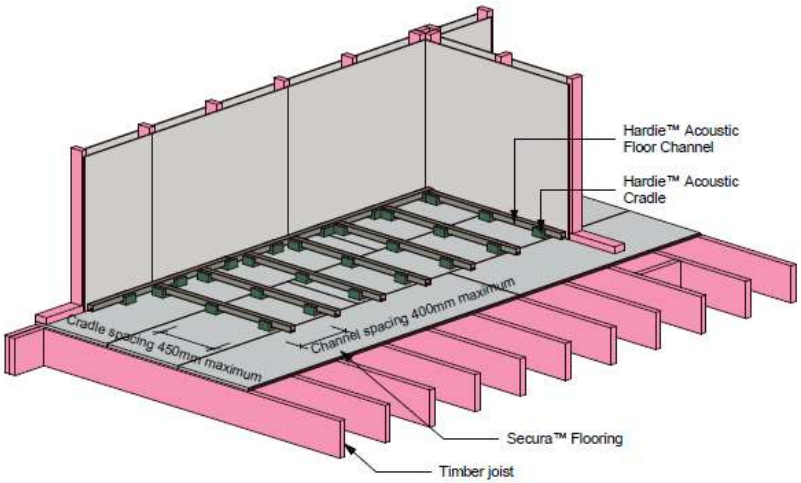
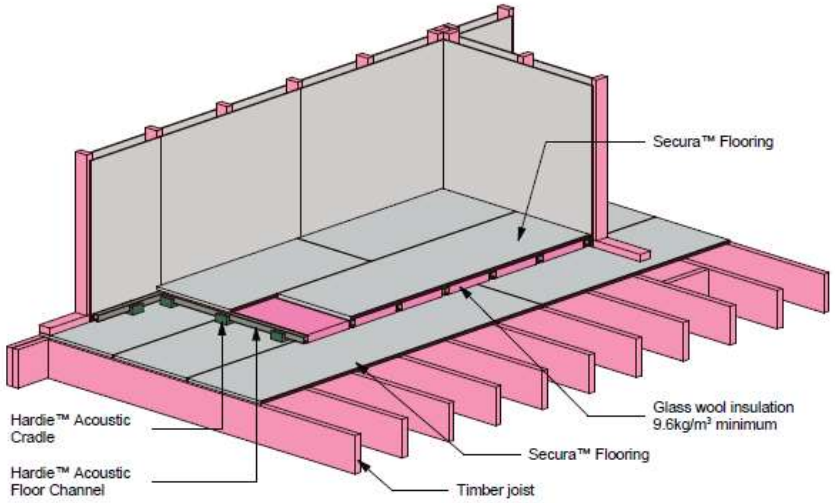
# FRR AND ACOUSTIC FLOOR

FRR 60/60/60
STC 67, IIC 57




Batten & Cradle Installation




Floating Floor Installation



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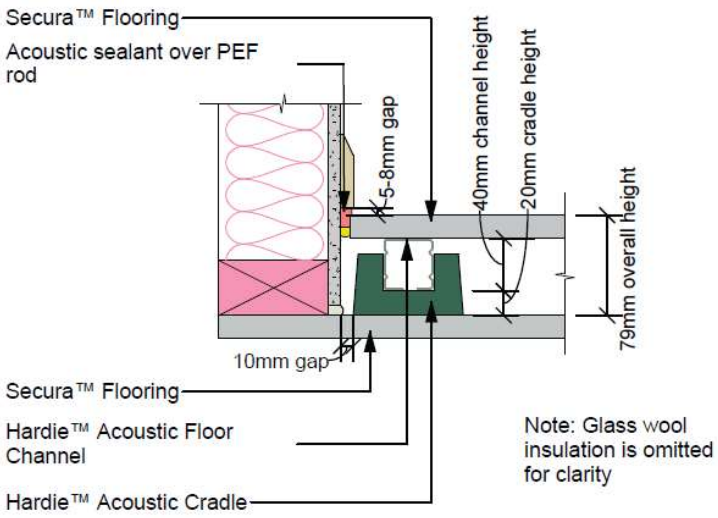
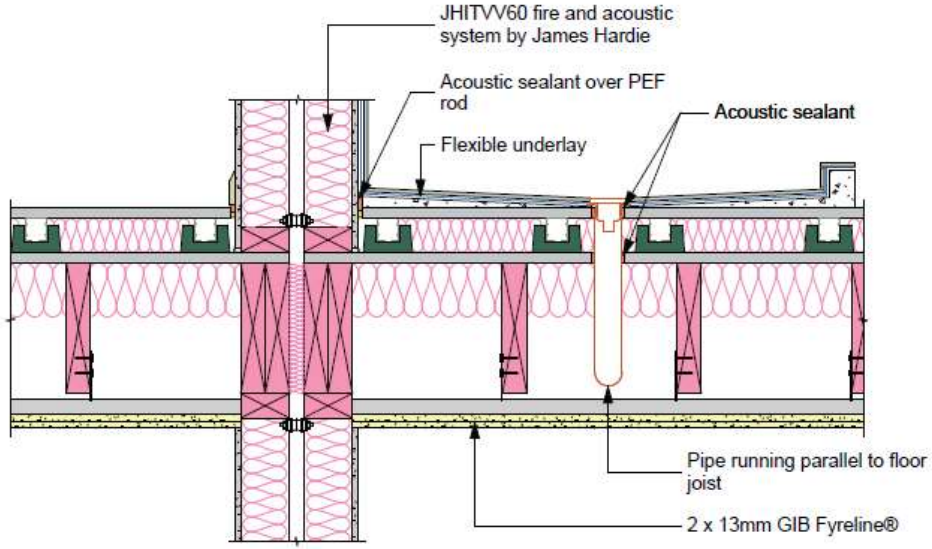
# FRR AND ACOUSTIC FLOOR




Floor to wall Junction




Wet area detail



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# FRR AND ACOUSTIC FLOOR

## Over Timber Structure


- **Acoustics:** 67 STC & 57 IIC
- **Fire FRR:** 60min

## Over Concrete Structure


- **Acoustics:** 70 STC & 58 IIC
- **Fire FRR:** 60min



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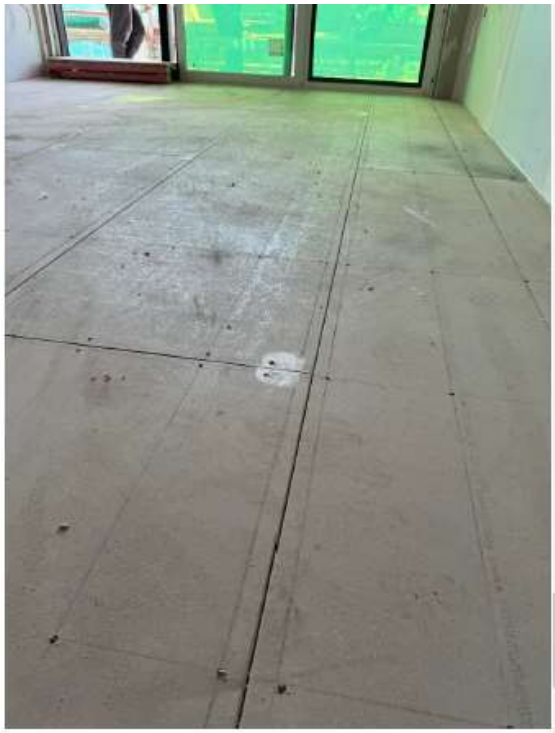
# SECURA™ FLOORING- CASE STUDY

## Highbury Triangle, Avondale – Kainga Ora



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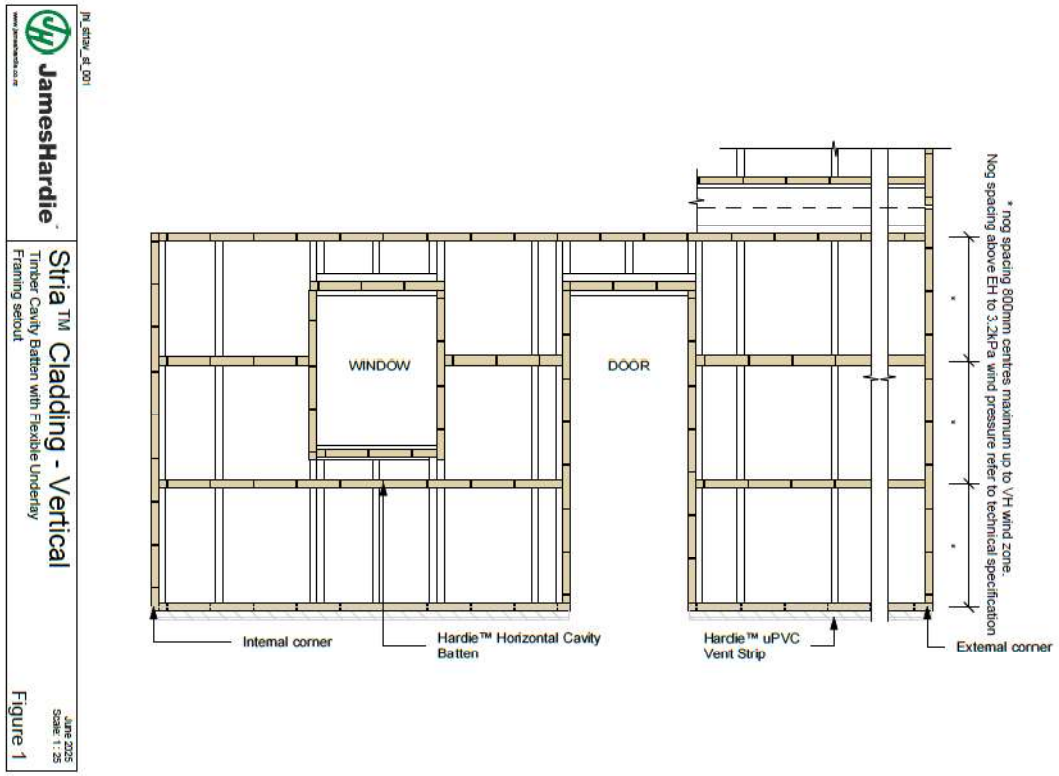
# OBLIQUE / STRIA CLADDING

Vertical Installation- Nog Spacing will change to 800mm c/c up to VH wind zone



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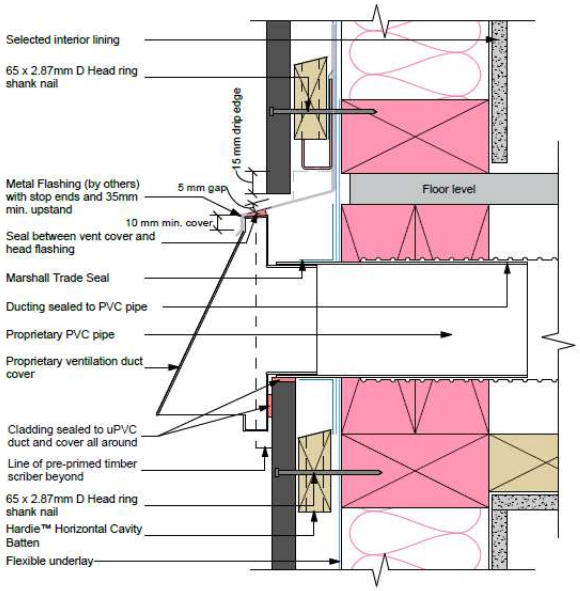
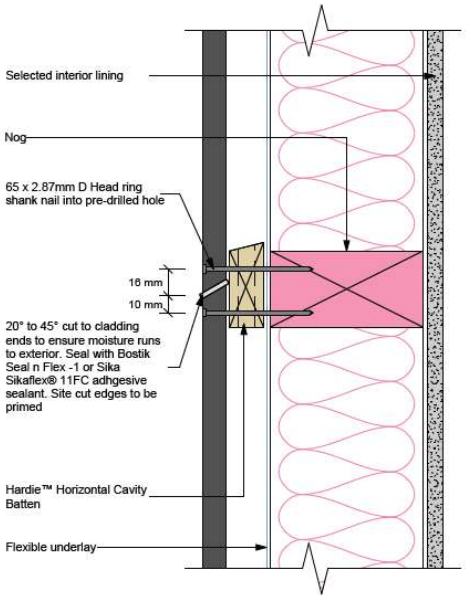
# OBLIQUE / STRIA CLADDING

## Ducting through ‘h’ flashing




**Notes:**
- Scribers at jamb to have profile filled with sealant and around perimeter of ventilation duct
- Cladding to be sealed and painted prior to ventilation duct is installed
- Maximum hole size through joists in accordance with the NZS 3604 or structural engineer

## Butt jointing option




**Important Notes:**
- Ensure this joint visibility is discussed with all parties involved
- This joint is ONLY an option for tall walls exceeding 4.2m in height, i.e., tall agble end walls



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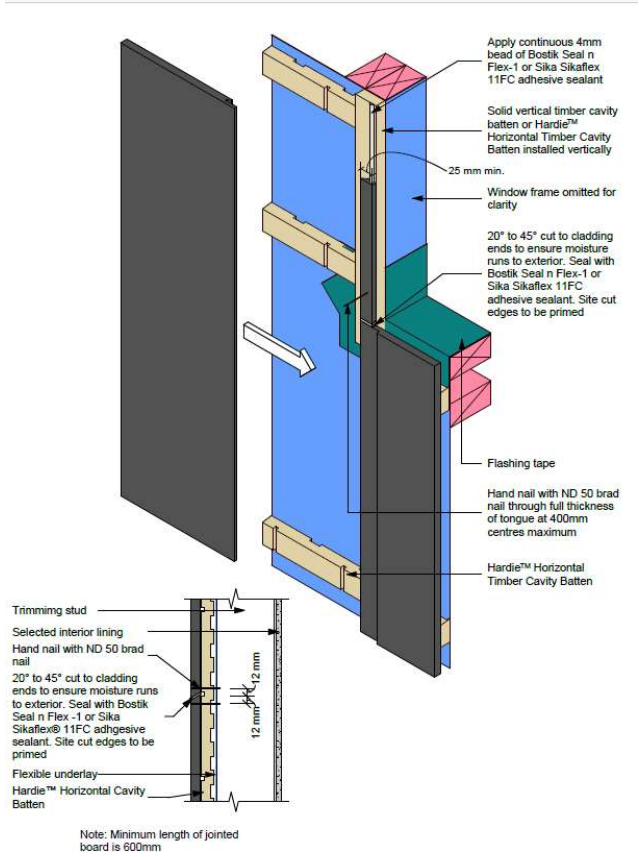
## Scarf Joint around joinery



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# JH FIRE AND ACOUSTIC SYSTEMS

**JH Fire & Acoustic Systems Appraisal Issued June2025**

BRANZ Appraised
Appraisal No. 1285 (2025)

JAMES HARDIE FIRE AND ACOUSTIC SYSTEMS

Appraisal No. 1285 (2025)

BRANZ Appraisals
Technical Assessments of products for building and construction

JamesHardie

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WFTAC

## Product

1.1 James Hardie Fire and Acoustic Systems are a range of two-way fire and/or acoustic systems based on the use of James Hardie fibre cement products. These fire-rated systems and details are covered in the James Hardie Fire and Acoustic Design Manual.

## Scope

2.1 James Hardie Fire and Acoustic Systems have been appraised for use as vertical or horizontal fire and/or acoustic-rated, load-bearing and non-load bearing framed construction elements in buildings. The range consists of timber and steel-framed wall and floor/ceiling systems used for single or multi-level construction as well as solutions for service penetrations.

2.2 This Appraisal covers the following BRANZ appraised systems:

- BRANZ Appraisal No. 446 Linea Weatherboard Direct Fixed Cladding
- BRANZ Appraisal No. 447 Linea Weatherboard Cavity Cladding
- BRANZ Appraisal No. 466 Axon Panel Smooth for Texture Coating
- BRANZ Appraisal No. 611 James Hardie Rigid Air Barriers
- BRANZ Appraisal No. 850 Secura Flooring
- BRANZ Appraisal No. 1211 Axon Panel Cladding
- BRANZ Appraisal No. 1224 Stria Cladding Horizontal
- BRANZ Appraisal No. 1225 Stria Cladding Vertical
- BRANZ Appraisal No. 1231 Oblique Weatherboard (Horizontal) Cavity Cladding
- BRANZ Appraisal No. 1232 Oblique Weatherboard (Vertical) Cavity Cladding

## Building Regulations

**New Zealand Building Code (NZBC)**

3.1 In the opinion of BRANZ, James Hardie Fire and Acoustic Systems, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet or contribute to meeting the following provisions of the NZBC:

**Clause B1 STRUCTURE:** Refer to the relevant BRANZ Appraisal for system specific provisions.

**Clause B2 DURABILITY:** Refer to the relevant BRANZ Appraisal for system specific provisions.

**Clause F2 HAZARDOUS BUILDING MATERIALS:** Performance F2.3.1. James Hardie Fire and Acoustic Systems meet this requirement.

**Clause G6 AIRBORNE AND IMPACT SOUND:** Performance G6.3.1 and G6.3.2. Selected James Hardie Fire and Acoustic Systems meet these requirements. See Paragraphs 17.1-17.3.

Pg 1

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.



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# HARDIE™ AXENT™ TRIM

Hardie™ Axent™ Trim made from fibre cement is an easy way to create the classic feature corners often seen on traditional New Zealand homes. Use it to create box corners, exterior trim for around windows and doors or to incorporate unique architectural features.

Hardie Axent Trim also brings texture and depth to your walls with a vertical board and batten application. EasyLap Panel makes the perfect surface for battens creating modern looks with design impact or use the battens as accent features with weatherboards for a more classic finish.

**Features and benefits**

- 19mm thick and 3000mm in length
- Available in three widths – 45mm, 70mm or 89mm
- 70mm and 89mm together form a box corner and around windows and doors
- Engineered to stand up to harsh conditions, including coastal conditions
- Resistant to fire, rot resistant and resistant to moisture damage
- Can be painted a large variety of colours, even the darker shades
- Suitable for use where non-combustible materials are required
- Comes pre-sealed, ready for paint
- Low maintenance
- 15 year product warranty



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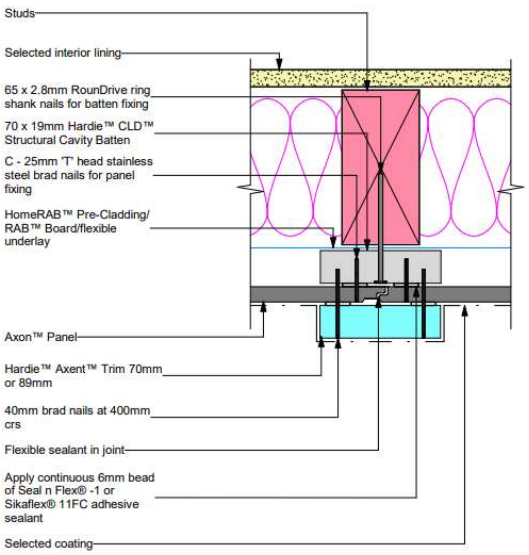
# AXON PANEL OVER CLD STRUCTURAL BATTENS

## Axon Panel with Axent Trim (Board & Batten Look)

**Figure 12: Hardie™ Axent™ Trim at joint**




Note:
* Ensure that a continuous 6mm bead of adhesive sealant is applied between Hardie™ CLD™ Structural Cavity Batten and Axon™ Panel.
* Ensure that the required edge distance is maintained when fixing.
* Seal cut edges with a primer compatible with final coatings.

**Figure 15: Hardie™ Axent™ Trim fixing**

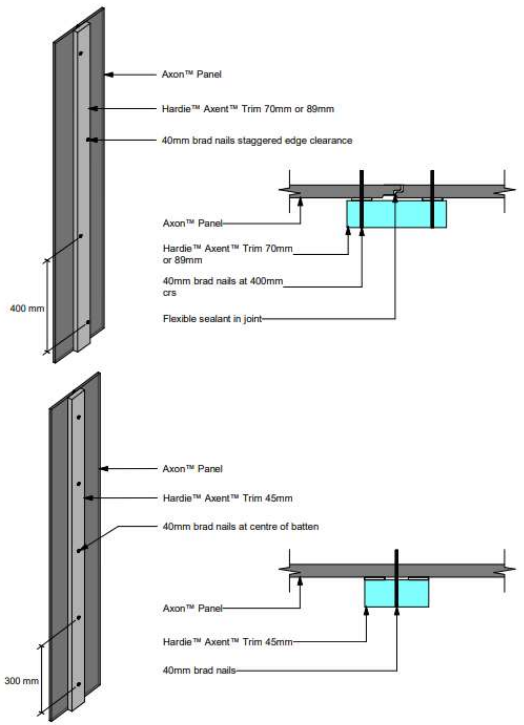
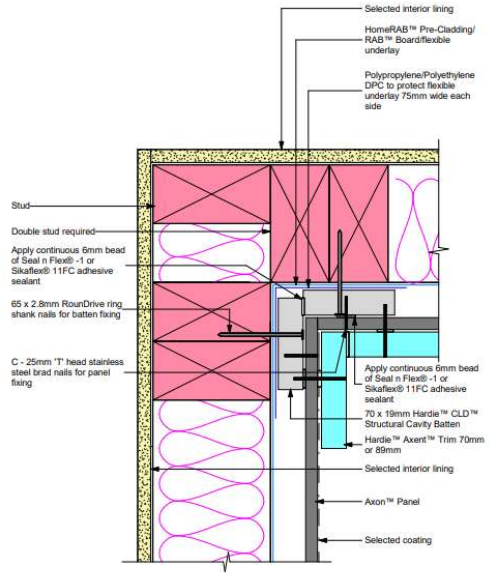



**Figure 16: Hardie™ Axent™ Trim at internal corner**



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# NEW AXON™ PANEL BRUSHED CONCRETE

**Hardie™ Brushed Concrete Panel**

https://www.jameshardie.com.au/productrange/hardie-brushed-concrete-cladding



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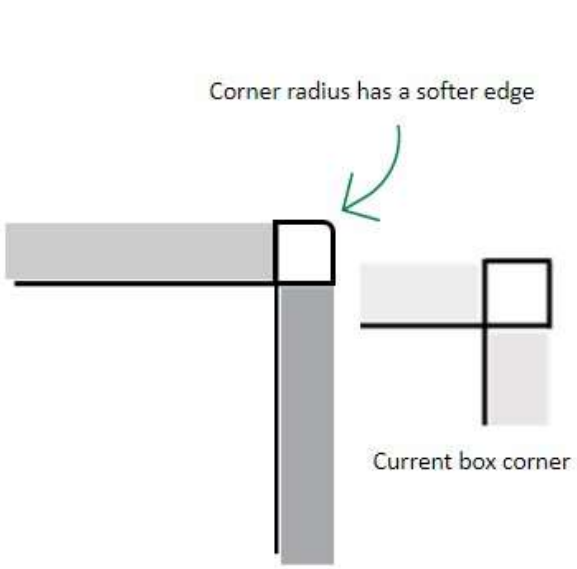
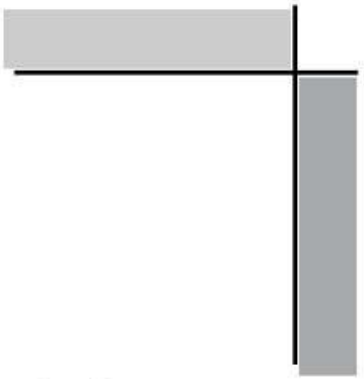
# NEW ACCESSORIES



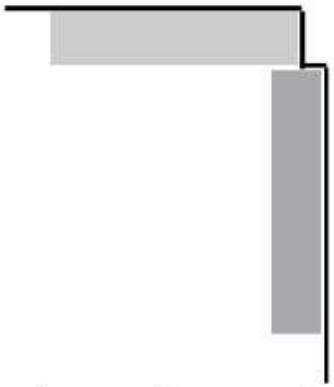

Hardie Alum Radius External Box Cnr

IMPROVED LOOK



Hardie Alum Invert Ext Box Cnr

NEW LOOK



Hardie 9mm Alum Internal Corner

NEW OPTION

Hardie 9mm Alum Angle T Socket

NEW OPTION

Enhance aesthetic and performance (buildability / weathertightness) of current 9mm NZ aluminium accessories to suit the addition of Brushed Concrete panel to Axon / EasyLap 9mm specification

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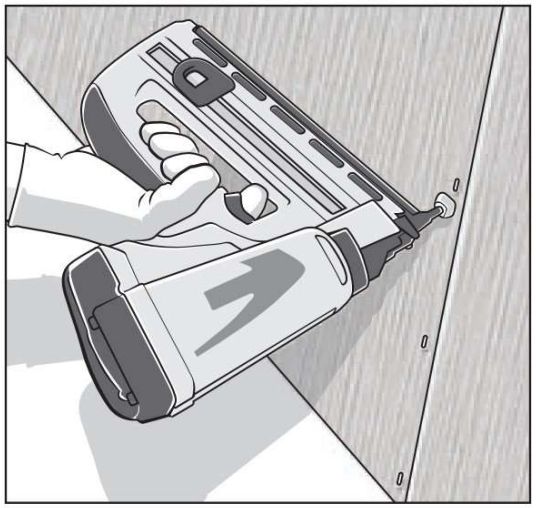
# NAIL GUN SET UP FOR BRUSHED CONCRETE



**Preparation:** Set up nail gun in accordance with manufacturer's instructions.

**Test:** Use small piece of fibre cement and timber to test nail depth before installation of sheets. For best results, leave nail heads proud and carefully tap flush with a smooth hammer.

**Check**: If using a pneumatic hose, fit a pneumatic pressure gauge to ensure consistent firing pressure.

When installing Axon™ Panel Brushed Concrete, it is recommended to position the gun nail sideways, so the square head brad nails are aligned with the texture

# QUESTIONS