

4231HA JAMES HARDIE AXON™ PANEL CLADDING

Masterspec sections must be customised to suit the project being specified, by removing irrelevant information and adding project-specific information and selections.

1. GENERAL

This section relates to the supply and fixing:

- James Hardie Axon™ Panel cladding
- James Hardie Villaboard® Soffit Lining
- James Hardie selected soffit lining

Modify or extend the above description to suit the project being specified.

Where the cladding manufacturer prepares bracing schedules for their products, these lists should be used in preference to preparing your own bracing schedules. Include them either in the specification or on the drawings. This approach ensures the industry becomes familiar with one set of terminology for bracing elements.

1.1 RELATED WORK

Refer to ~ for ~.

Refer to painting section/s for the protective coating required to meet the NZBC durability requirements.

Include cross references to other sections where these contain related work. These may include; 4231HF JAMES HARDIE FACADE CLADDING for Titan® Facade Panel and ExoTec® Facade Panel rainscreen, 4231HH JAMES HARDIE HARDIEFLEX™ SHEET CLADDING for James Hardie HardieFlex™ Sheet cladding, 4231HW JAMES HARDIE WEATHERBOARD CLADDING for Linea™ Weatherboards and James Hardie Weatherboards, 4256HM JAMES HARDIE MONOLITHIC CLADDING for Monotek® Sheet and Hardiebacker™ Substrate. 4171HR JAMES HARDIE RIGID AIR BARRIERS for James Hardie HomeRAB™ PreClad™ Lining and RAB™ Board for pre-cladding

1.2 ABBREVIATIONS AND DEFINITIONS

Refer to the general section 1232 INTERPRETATION & DEFINITIONS for abbreviations and definitions used throughout the specification.

The following abbreviations apply specifically to this section:

LRV Light reflective value

Documents

1.3 DOCUMENTS

Refer to the general section 1233 REFERENCED DOCUMENTS. The following documents are specifically referred to in this section:

NZBC E2/AS1	External moisture
AS/NZS 1170	Structural design actions (parts 0 to 4)
NZS 1170.5	Structural design actions Earthquake
AS/NZS 2908.2	Cellulose-cement products - Flat sheet
NZS 3602	Timber and wood-based products for use in building
NZS 3604	Timber framed buildings

Delete from the DOCUMENTS clause any document not cited. List any additional cited documents. The following are related documents and if referred to in the work section need to be added to the list of DOCUMENTS.

NZS 3640	Chemical preservation of round and sawn timber
AS/NZS 4284	Testing of building facades
BRANZ BU 353	Ground clearances
BRANZ BU 449	Keeping water out - Timber-framed walls
BRANZ BU 519	Fasteners selection
BRANZ BU 467	Principles of flashing design
BRANZ publication	Selecting wall claddings

1.4 MANUFACTURER/SUPPLIER DOCUMENTS

James Hardie documents relating to this part of the work:

- Axon™ Panel technical specification
- HardieFlex™ Sheet technical specification
- Eaves and Soffit Linings Installation Manual
- James Hardie Fire and Acoustic Design Manual

Manufacturer/supplier contact details

Company: James Hardie New Zealand Limited

Web: www.jameshardie.co.nz

Telephone: Ask James Hardie™ on 0800 808 868.

It is important to ensure that all personnel on site have access to accurate, up to date technical information on the many products, materials and equipment used on a project. In most cases individual products are not used in isolation, but form part of a building process. Also a particular manufacturer's and/or supplier's requirements for handling, storage, preparation, installation, finishing and protection of their product can vary from what might be considered the norm. Access to technical information can help overcome this potential problem.

Warranties

1.5 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

15 years: For James Hardie™ ~.
(refer to James Hardie™ product warranty)

Insert product selected, this may include; Axon™ Panel cladding, Villaboard® Soffit Lining, ExoTec® Facade Panel, Titan® Facade Panel, HardieFlex™ Sheet cladding, James Hardie™ Weatherboard cladding, Monotek® Sheet, Hardiebacker™, Villaboard® Lining, HardieGroove™ Lining. Refer to James Hardie™ product warranty for details.

15 year: For accessories supplied by James Hardie (refer to James Hardie™ product warranty)

From: Date of purchase

- Provide this warranty on the manufacturer's standard form.

Refer to the general section 1237 WARRANTIES for additional requirements.

Modify or expand the clause to suit project requirements, options include:

1.6 WARRANTY - MANUFACTURER/SUPPLIER

Provide a material manufacturer/supplier warranty:

15 years: For **Silcline® Soffit Lining / Eclipsa® Eaves Lining** base sheet (refer to James Hardie™ product warranty)

10 years: For coating on **Silcline® Soffit Lining / Eclipsa® Eaves Lining** (refer to James Hardie™ product warranty)

15 year: For accessories supplied by James Hardie (refer to James Hardie™ product warranty)

From: Date of purchase

- Provide this warranty on the manufacturer's standard form.

Refer to the general section 1237 WARRANTIES for additional requirements.

Modify, delete or expand the clause to suit project requirements, options include:

Requirements

1.7 NO SUBSTITUTIONS

Substitutions are not permitted to any specified system, or associated components and products.

1.8 MAINTENANCE REQUIREMENTS

Provide relevant James Hardie maintenance requirements at completion of the work.

Refer to James Hardie Technical Specification for maintenance guidance:

Performance

The next two mutually exclusive clauses, set the wind design parameters which have been used, which in turn affect the use of James Hardie standard details. Delete the clause which does not apply.

1.9 PERFORMANCE, WIND

The design wind pressures are to [NZS 3604](#), up to and including Very High Wind Zone. James Hardie Technical Specifications are suitable for these conditions.

Do not use this clause for greater than Very High Wind Zones or specific design tall buildings. Delete this clause if using the SPECIFIC DESIGN, WIND clause below.

- 1.10 SPECIFIC DESIGN, WIND
The design wind pressures are to AS/NZS 1170.2, for specific design wind zone (beyond Very High Wind Zone). Only specifically designed or approved details included in the Contract Documents can be used.
Do not use this clause when the building is below or within Very High Wind Zone or very high wind areas of tall buildings.
James Hardie Axon™ Panel technical specification do not go beyond Very High Wind Zones. Ensure all specific design details related to James Hardie Axon™ Panel are checked by James Hardie during the design stage. Modify this section to reflect their requirements. Delete this clause if using the PERFORMANCE, WIND clause above.

2. PRODUCTS

Materials

- 2.1 RIGID AIR BARRIERS
Refer to section 4171HR JAMES HARDIE RIGID AIR BARRIERS.
Delete this clause if not required. HomeRAB™ PreClad™ Lining and RAB™ Board are used in instead of wraps, for among other things, earlier enclosure, bracing, for high wind pressures where some building wraps are not suitable and to meet the requirements of NZBC E2/AS1. 9.1.4 b.
- 2.2 BUILDING WRAP
Refer to section 4161 WRAPS, UNDERLAYS AND DPC.
Delete this clause if not required. Some building wraps are only suitable to withstand low wind pressures. Check the design wind pressures for the project and make the appropriate selection.
- 2.3 EXTERIOR CAVITY WALL BATTENS
Radiata pine battens, minimum 45mm wide x 18mm thick, H3.1 treated, height to match timber framing studs. To NZS 3602, Table 1, reference 1D.10, Requirements for wood-based building components to achieve a 50-year durability performance.
Delete if specified elsewhere. Refer to James Hardie technical specifications for further details.
- 2.4 EXTERIOR STRUCTURAL CAVITY BATTENS
James Hardie CLD® Structural Cavity Batten, 2450mm long, 70mm wide and 19mm thick manufactured from treated cellulose fibre, Portland cement, sand and water. Cured by high pressure autoclaving and manufactured to AS/NZS 2908.2. James Hardie Axon™ Panel and CLD® Structural Cavity Batten installed as per the James Hardie technical specification demonstrate compliance with requirements of NZBC Sections B1, B2 and E2. The battens have both faces and all edges presealed.
Select one of the above two clauses.
CLD Structural Cavity Battens are only suitable for installation with Axon™ Facade Panel cladding system for a maximum wind pressure exerted on the building facade of 1.5 kPa.
- 2.5 EXTERIOR CAVITY CLOSER/VERMIN-PROOFING
Perforated uPVC, with upstands.
Vermin-proofing to NZBC E2/AS1: clause 9.1.8.3 and figure 66.
- 2.6 AXON PANEL
James Hardie Axon™ Panel, a face primed shiplap jointed panel, 9.0mm thick, manufactured from cellulose fibre reinforced cement to AS/NZS 2908.2.
- 2.7 FLUSH JOINTED SOFFIT LINING
James Hardie Villaboard® Lining 6mm and 9mm thick manufactured from treated cellulose fibre, Portland cement, sand and water, cured by high pressure autoclaving and manufactured to AS/NZS 2908.2.
Refer to Eaves and Soffit Linings installation manual for further details.
- 2.8 SOFFIT LINING
James Hardie 4.5mm Hardiesoffit™ Lining, HardieFlex™ Eaves Lining, Silkline® Soffit Lining Eclipsa™ Eaves Lining, HardieGroove™ Lining and 6mm HardieFlex™ Lining soffit manufactured from treated cellulose fibre, Portland cement, sand and water and cured by high pressure autoclaving manufactured to AS/NZS 2908.2.
Refer to Eaves and Soffit Linings installation manual for further details.

Components

2.9 FASTENER TYPE

Fasteners to minimum durability requirements of the NZBC. Refer to [NZS 3604](#), section 4 Durability, for requirements for fixing's material to be used in relation to the exposure conditions.

Exposure conditions & nail selection prescribed by [NZS 3604](#), section 4, table 4.3 Steel items such as nails and screws used for framing and cladding.

Zone	Fixings Material
Sea Spray Zones*	Grade 316 Stainless
Zone 1 (outside sea spray zone), Zones 2 - 4 & Geothermal hot spots	Hot-dipped galvanized or 316 stainless
Bracing - All zones	Grade 316 Stainless

* Zone 1 areas where local knowledge dictates that increased durability is required, appropriate selection shall be made

Refer to [NZBC E2/AS1](#), Table 20, Material selection, and Table 21, Compatibility of materials in contact, for selection of suitable fixing materials and their compatibility with other materials.

2.10 NAIL / SCREWS, CLD[®] STRUCTURAL CAVITY BATTEN FIXING

Hot-dip galvanized 65mm x 2.8mm RoundDrive ring shank nail for fixing to timber framing.

2.11 NAIL/SCREWS, AXON PANEL FIXING TO CLD[®] BATTEN

Axon[™] Panel fixing to CLD[®] Structural Cavity Batten.

Stainless Steel C-25 'T' Head brad nail for wind pressure up to 1.5kPa.

Refer to James Hardie Axon Panel technical specification for further details.

2.12 GALVANIZED NAILS

Hot-dip galvanized HardieFlex[™] nails for James Hardie Axon[™] Panel. 60mm x 3.15mm diameter or 40mm x 2.8mm diameter.

Select galvanized or stainless steel depending on exposure conditions.

2.13 STAINLESS STEEL NAILS

316 stainless steel HardieFlex[™] nails for James Hardie Axon[™] Panel fixing. 60mm x 3.15mm diameter or 40mm x 2.8mm diameter.

Select galvanized or stainless steel depending on exposure conditions.

2.14 SOFFIT JOINTERS AND CAPPING MOULDS

Extruded uPVC jointer, 2 way jointer, capping and scotia mould.

Accessories

2.15 FLASHING TAPES

Inseal[®] 3259 black compressible medium density closed cell foam tape, 1.5mm thick x 50mm wide for vertical joints, and 1.5mm thick x 80mm wide for internal corners.

Polypropylene or polyethylene DPC under CLD[®] Structural Cavity Batten internal corners. Refer to James Hardie Axon[™] Panel technical specification for selection of required width.

2.16 ALUMINIUM ACCESSORIES

Extruded aluminium etch primed. External box corners and horizontal 'h' flashing suitable for dark paints.

2.17 UPVC ACCESSORIES

Extruded uPVC. Alternative accessories only suitable for light paints.

2.18 ADHESIVE FOR CLD[®] STRUCTURAL CAVITY BATTEN

Adhesive to be applied continuous 6mm thick bead(s) to the face of CLD[®] Structural Cavity Batten to adhere the Axon[™] Panel.

Refer to James Hardie Axon Panel technical specification for further details.

- 2.19 SEALANT
Flexible sealant. Refer to the sealant manufacturer's technical literature to confirm suitability for the application.

3. EXECUTION

Conditions

- 3.1 STORAGE
Take delivery of products dry and undamaged on pallets, and keep on pallet. Protect edges and corners from damage and covered to keep dry until fixed.
- 3.2 HANDLING
Avoid distortion and contact with potentially damaging shiplap edges and surfaces. Do not drag panels across each other, or across other materials. Protect edges, corner and surface finish from damage.
- 3.3 SUBSTRATE
Do not commence work until the substrate is of the standard required for the specified finish; plumb, level and in true alignment. Moisture content of timber framing must not exceed the requirements specified by [NZS 3602](#) to minimise shrinkage and movement after panels are fixed.
- Confirm that 70mm framing for vertical joints for timber cavity construction has been correctly installed.
- 3.4 SEAL EDGES
Seal site cut sheet edges prior to installation. Seal panel edges around window and door openings, meter boxes and at other penetrations.
- 3.5 SEAL CUT ENDS, CLD[®] STRUCTURAL CAVITY BATTEN
Site cut batten ends to be between 20 - 45 degrees and sealed with Dulux AcraPrime 501/1 sealer prior to installation with the butt joint deflecting moisture to the exterior.

Application - particular installations

- 3.6 FIRE RESISTANCE RATING, FIBRE CEMENT
Install mineral fibre insulation or glass fibre insulation fitted tightly in the timber framing cavity. Apply fire retardant building paper to the exterior face of the framing and fix fibre cement cladding and lining sheets, direct or on cavity. Refer to project drawings for FRR system construction details and James Hardie Fire and Acoustic Design Manuals for further information.
- 3.7 BRACING SYSTEM
Fix panels in accordance with James Hardie Bracing Design Manual.
Refer to the drawings and/or bracing schedules or James Hardie technical specification for further information and guidance.

Application - generally

- 3.8 RIGID AIR BARRIER
Refer to 4171HR JAMES HARDIE RIGID AIR BARRIERS.
Delete this clause if not required..
- 3.9 FIX BUILDING WRAP
Refer to 4161 WRAPS, UNDERLAYS AND DPC.
Delete this clause if not required..
- 3.10 INSTALL TIMBER CAVITY BATTENS
Install 18mm minimum thick cavity battens to [NZBC E2/AS1: 9.0 Wall claddings](#), where required. Fix vertical cavity battens to wall framing studs. The battens are fixed by the cladding fixings which will penetrate the wall framing studs over the building wrap. Seal the top of the cavity and install cavity closer/vermin-proofing at base.

Do not use continuous horizontal cavity battens at nogs or at bottom plate. Use cavity spacers where fixing is required between cavity battens.
Delete this clause if not required. Note that it is important that the openings in the cavity closer/vermin proofing are kept clean and unobstructed in order to maintain drainage and venting of the cavity.

3.11 CLD[®] STRUCTURAL CAVITY BATTEN

Fix battens to all studs over the building wrap or rigid air barrier using 65mm x 2.8mm RounDrive ring shank nails at fixing centres as per James Hardie Axon™ Panel and CLD[®] Structural Cavity Batten technical specification, Table 1: Batten Fixing. Refer to Table 1 notes for durability requirements of fixings.

Delete this clause if not required. Note this option is only suitable for projects complying to NZS 3604.

3.12 PENETRATIONS AND FLASHINGS

Confirm that exterior wall openings have been prepared ready for the installation of all window and door frames and other penetrations through the cladding. Required preparatory work includes the following:

- Building wrap appropriately incorporated with penetration and junction flashings.
- Materials lapped in a way that water tracks down to the exterior face of the building wrap.
- Wall cladding underlay/building wrap to openings finished and dressed off ready for the installation of window and door frames and other penetrations
- Claddings neatly finished off to all sides of openings
- Installation of flashings (those required to be installed prior to installation of penetrating elements).

Refer to James Hardie technical specification for information on window details. Also refer to the Windows Association of New Zealand website (www.wanz.org.nz) for information on the WANZ WIS Window Installation System. This covers the WANZ recommendations on the preparation of window/door openings, minimum clearances between rough openings and the window/door frame, dressing of the wall wrap into the prepared opening, application of flexible flashing tape to the sill and top corners of the opening, installation of window/door frames and flashings, sealing of the window/door frame into the opening to create a pressure equalisation cavity, installation of flashings and the maintenance of appropriate clearances between the frame and the surrounding construction.

Install Axon™ Panel cladding

3.13 PANEL LAYOUT

All panel edges must be supported by the framing. Fix Axon™ Panels vertically.

3.14 VERTICAL JOINT

Joint Axon™ Panels to James Hardie technical specification.

Sheets are jointed by butting together to form a vertical shiplap joint as detailed.

3.15 HORIZONTAL JOINT

Provide a horizontal joint at floor joist levels to accommodate the movement resulting from timber joist shrinkage and settlement. Install a 'z' flashing where drainage is required at floor level.

For Axon™ Panels use a James Hardie aluminium 'h' mould complete with 'h' mould jointer or a purpose made 'z' flashing to form a horizontal joint.

3.16 INTERNAL CORNER JOINT

For direct fix and timber cavity battens, install 50mm x 50mm James Hardie corner underflashing or 80mm wide Inseal[®] tape over continuous building wrap to internal corner. For CLD[®] Structural Cavity Battens there is no requirement for underflashing or Inseal[®] tape. Install Axon™ Panels fixing to corner framing and leaving a 6mm minimum gap between sheets at corner. Fix 14mm minimum from square edge of sheet. Apply approved and compatible sealant to gap to manufacturers specifications. Ensure site cut Axon™ Panel edges are sealed before fixing and sealant is applied. Refer to Axon™ Panel technical specification.

- 3.17 **EXTERNAL CORNER JOINT**
For direct fix, install aluminium external box corner over continuous building wrap to external corner. For cavity construction, with timber battens or CLD[®] Structural Cavity Battens, install aluminium external box corner over battens. Install Axon[™] Panels fixing to corner framing 40mm minimum from corner. Ensure site cut Axon[™] Panel edges are sealed before fixing. Refer to Axon[™] Panel technical specification.
Modify this clause to suit. Aluminium may need separation strips form battens.
- 3.18 **EXTERNAL CORNER JOINT WITH 'H' MOULD**
Fit aluminium horizontal 'h' mould over lower Axon[™] Panel and lap the upstand under upper Axon[™] Panel. Leave 15mm gap maximum between upper and lower Axon[™] Panels at the solid timber floor joist levels.

Fit James Hardie aluminium external box corner under the aluminium 'h' mould with flanges removed locally. Mitre the 'h' mould over box corner flashing to cover it. The upper box corner flashings are to be finished flush with the bottom edge of upper Axon Panel.

An uPVC corner underflashing is required under the aluminium box corner where the box corner is terminated under the 'h' mould. James Hardie aluminium external box corner flanges to be removed locally over the aluminium 'h' mould and corner underflashing to be lapped under the upper box corner flashing. Lap building wrap over aluminium 'h' mould or seal to flashing with a flashing tape. Refer to Axon[™] Panel technical specification.
- 3.19 **FASTENER - SIZE AND LAYOUT**
Fix Axon[™] Panels to framing using the fixings specified in James Hardie Axon[™] Panel technical specification, Table 4 Panel fixing, and in accordance with the following requirements:
- Nails must have a minimum clearance of 18mm from sheet edges and a minimum of 75mm vertically and 150mm horizontally from sheet corners.
- Nails must finish flush with sheet surface.
- 3.20 **FIXING - DIRECT FIXED TO FRAME**
Fix with 40mm x 2.8mm HardieFlex[™] nails. Fix sheet at 200mm centres at all sheet edges as well as all intermediate framing. Alternatively fix with ND50 brad nails at 150mm centres.
Modify this clause depending on the fixing method selected. Special fixing arrangements are required for bracing and fire-resistance rated wall systems. For more information - Ask James Hardie[™] on 0800 808 868
- 3.21 **FIXING - TIMBER CAVITY CONSTRUCTION**
Fix with 60mm x 3.15mm HardieFlex[™] nails. Fix sheet at 200mm centres at all studs and at 150mm centres at top plate and bottom plate.
Special fixing arrangements are required for bracing and fire-resistance rated wall systems. For more information - Ask James Hardie[™] on 0800 808 868.
- 3.22 **FIXING - AXON PANEL OVER CLD[®] STRUCTURAL CAVITY BATTEN**
Apply continuous 6mm thick bead(s) of adhesive to the face of CLD[®] Structural Cavity Batten to adhere the Axon[™] Panel, and fix with C-25 brad nails at 150mm centres. Refer to Axon[™] Panel technical specification.
- 3.23 **GUN NAILING**
Axon[™] Panels can be fixed using nail guns. The gun nails used must have a full round head to provide the required holding power. The length and gauge of nails must at a minimum be as specified in the James Hardie Axon[™] Panel technical specification.
Check with nail gun manufacturer for more information. Note: Do not use D Head nails. Do not use gun nailing for bracing applications.
- 3.24 **SEALANTS**
Apply and use of sealants to manufacturer's instructions. Check with sealant manufacturer prior to coating over sealants.
Some sealants are not suitable for coating.

3.25 PAINTING

Refer to painting section/s for protective coating system.

Painting of Axon™ Panels is required in order to meet the durability requirements of the NZBC and product warranties. Axon™ Panels must be dry and free from dirt before painting. Coating must be completed within 90 days of sheet erection.

When using uPVC flashings, the LRV (light reflective value) of the colour used must be more than 40% as required under 'E2/AS1'. Dark coloured paints can be used with aluminium flashings.

Soffits

3.26 INSTALL SOFFIT SHEETS

Cut sheets dry and ensure all edges and joints are fully supported. Nail and insert uPVC fasteners to James Hardie requirements. Fit complete with jointers and capping moulds. Refer to Eaves and Soffit Linings installation manual.

For narrow soffit edge support refer installation manual.

3.27 INSTALL FLUSH JOINTED SOFFIT SHEETS

Cut sheets dry and ensure all edges and joints are fully supported. Fit expansion joints to limit finished areas to 9 metre x 6 metres for large soffits or 7.2 metres for narrow soffits.

Flush joints with James Hardie Base Coat, paper reinforcing tape and James Hardie Top Coat to flush width of 180mm. Refer to Eaves and Soffit Linings installation manual.

Control joints for skillion roofs need more consideration. Refer to Eaves and Soffit Linings installation manual.

Completion

3.28 REPLACE

Replace all damaged or marked elements.

3.29 LEAVE

Leave work to the standard required for following procedures.

3.30 REMOVE

Remove debris, unused materials and elements from the site.

4. SELECTIONS

4.1 CAVITY BATTENS

Timber species: Radiata pine
Treatment: H3.1

4.2 CLD® STRUCTURAL CAVITY BATTENS

Brand/type: James Hardie CLD® Structural Cavity batten
Thickness: 19mm
Fastener type: 65mm x 2.8mm RoundDrive ring shank nails
Fastener finish: ~
Adhesive: ~
*Fastener finish: Hot-dipped galvanised
Stainless Steel
Adhesive: Bostik 'Seal N Flex - 1'
Sika Sikaflex 11FC*

4.3 SHEET CLADDING PANELS

Brand/type: James Hardie Axon™ Panels
Thickness: 9mm
Fastener type: ~
Fastener finish: ~
*Fastener type: To CLD® Structural Cavity Batten
Stainless Steel C-25 'T' Head brad nail for wind pressure up to 1.5kPa
To timber cavity batten
60mm x 3.15mm HardieFlex™ nail
To timber, direct fix
40mm x 2.8mm HardieFlex™ nail*

Fastener finish: Hot-dipped galvanised
316 Stainless Steel

4.4 FLUSH JOINTED SOFFIT SHEETS

Brand/type: James Hardie Villaboard® Lining soffit system
Thickness: ~mm
Nails: 40 x 2.8mm Hardieflex™ Nails
Thickness options: 6mm, 9mm.

4.5 SOFFIT SHEETS

Brand/type: James Hardie ~
Thickness: ~mm
Jointer: ~
Nails: ~
Type options: Hardiesoffit™ Lining
HardieFlex™ Eaves Lining
Silkline® Soffit Lining (prepainted)
Villaboard® Lining
Eclipsa® Eaves Lining (prepainted)
HardieGroove™ Lining
Also available in 6mm HardieFlex™ Sheet.
Nail options: 40 x 2.8mm HardieFlex™ Nails
38 x 12mm Fastfix nylon fasteners

Finishing

4.6 PAINTING

Refer to painting section/s for details.