

4201HA 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™ Sheet 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.

While flush jointing is included here, cross-reference to either PAINTING or to DECORATIVE COATINGS, when joint finishing is being applied as part of an exterior coating system.

1.1 DOCUMENTS REFERRED TO

Documents referred to in this section are:

| | |
|---------------|---|
| NZBC E2/AS1 | External moisture, 9.0 Wall claddings |
| AS/NZS 1170.2 | Structural design actions - Wind actions |
| 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 |
| NZS 4203 | General structural design and design loadings for buildings |
| AS/NZS 4284 | Testing of building facades |

Documents listed above and cited in the clauses that follow are part of this specification. However, this specification takes precedence in the event of it being at variance with the cited document.

Delete from the DOCUMENTS clause any document not cited. List any additional cited documents.

RELATED DOCUMENTS:

Refer to the following related documents when preparing this section:

| | |
|---------------------------|---|
| <i>NZBC E2/AS1</i> | <i>External moisture</i> |
| <i>NZS 3640</i> | <i>Chemical preservation of round and sawn timber</i> |
| <i>BRANZ Bulletin 353</i> | <i>Ground clearances</i> |
| <i>BRANZ Bulletin 424</i> | <i>Measuring moisture on building sites</i> |
| <i>BRANZ Bulletin 448</i> | <i>Domestic flashing installation</i> |
| <i>BRANZ Bulletin 449</i> | <i>Keeping water out – Timber-framed walls</i> |
| <i>BRANZ Bulletin 453</i> | <i>Fasteners selection</i> |
| <i>BRANZ Bulletin 467</i> | <i>Principles of flashing design</i> |
| <i>BRANZ publication</i> | <i>Selecting wall claddings</i> |

1.2 MANUFACTURER'S DOCUMENTS

James Hardie documents relating to work in this section are:

- Axon™ Panel technical specification
- HardiFlex® Sheet technical specification
- Eaves and Soffit Linings technical specification
- James Hardie Fire and Acoustic technical specification

Copies of the above literature are available at

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.

1.3 ABBREVIATIONS

The following abbreviations are used throughout this part of the specification:

LRV Light reflective value
RAB Rigid Air Barrier

Refer general section INTERPRETATION & DEFINITIONS for abbreviations used throughout the specification.

1.4 NO SUBSTITUTIONS

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

Performance

Note that in using the next clause you are setting a standard of performance for the contractor to meet. Specifiers should therefore consider adding some means of confirming (say by testing or certification) that the performance criteria will be or have been met.

1.5 FIXINGS, WIND

Design and use the fixings appropriate for the wind zone (R) and topographical classification (T) of this site and building height; as required by NZS 3604 and the wind loads on various wall areas to NZS 4203 or AS/NZS 1170.

Modify this clause depending on whether NZS 3604 AS/NZS 1170 or NZS 4203 is being used as a design basis for the project.

2. PRODUCTS

Materials

2.1 RIGID AIR BARRIER

James Hardie RAB board 5.5 mm thick, manufactured from treated cellulose fibre, Portland cement, sand and water, cured by high pressure autoclaving manufactured to AS/NZS 2908.2 and face sealed.

RAB Board is used to with stand high wind pressures where the building wraps are not suitable.

2.2 BUILDING WRAP

Breather type to NZBC E2/AS1, Table 23: Properties of roof underlays and building wraps.

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 45 mm wide x 18 mm 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.

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.

2.5 EXTERIOR CAVITY 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, 9.0 mm thick, manufactured from cellulose fibre reinforced cement to AS/NZS 2908.2.

2.7 FLUSH JOINTED SOFFIT LINING

James Hardie Villaboard[®] Lining 6 mm and 9 mm 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 Soffits technical specification for further details.

- 2.8 SOFFIT LINING
James Hardie 4.5 mm Hardisoffit[®] Lining, HardiFlex[®] Eaves Lining , Silcline[®] Soffit Lining Eclipsa[™] Eaves Lining and 6mm HardiFlex[®] 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 technical specification 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.

| | | |
|---------------------|--|---------------------|
| Sea Spray Zones* | Zone 1 outside sea spray zone and Zones 2 - 4 & Geothermal hot spots | Bracing - All zones |
| Grade 316 Stainless | Hot-dipped galvanized or 316 stainless | 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 GALVANIZED NAILS
Hot dip galvanized HardiFlex[®] nails for James Hardie Axon[™] Panel.
60 mm x 3.15 mm diameter or 40 mm x 2.8 mm diameter.
Select galvanized or stainless steel depending on exposure conditions.

- 2.11 STAINLESS STEEL NAILS
316 stainless steel HardiFlex[®] nails for James Hardie Axon[™] Panel fixing.
60 mm x 3.15 mm diameter or 40 mm x 2.8 mm diameter.
Select galvanized or stainless steel depending on exposure conditions.

- 2.12 BRAD NAILS
C25 stainless steel brad nails for Axon[™] Panel fixing to CLD[®] Structural Cavity Batten.

- 2.13 SOFFIT JOINTERS AND CAPPING MOULDS
Extruded PVC jointer, 2 way jointer, capping and scotia mould.

Accessories

- 2.14 FLASHING TAPES
Inseal[®] 3259, 1.5 mm thick x 50 mm wide and 1.5 mm thick x 80 mm wide black compressible medium density closed cell foam tape.

50 mm wide for vertical joints and 80 mm wide for internal corners. Refer to James Hardie Axon[™] Panel technical specification for selection of required width.

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

- 2.16 UPVC ACCESSORIES
Extruded uPVC. Alternative accessories only suitable for light paints.

- 2.17 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 panels dry and undamaged in pallets and lay horizontally on a smooth level surface. Protect edges and corners from damage and cover 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 70 mm framing for vertical joints for cavity construction when using timber cavity battens 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.

Application - particular installations

- 3.5 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 panels, direct or on cavity. Refer to James Hardie Fire and Acoustic technical specification.

- 3.6 BRACING SYSTEM
Fix panels in accordance with James Hardie technical specification.
Refer to the drawings and/or bracing schedules or James Hardie technical specification for further information and guidance.

Application - generally

- 3.7 FIX BUILDING WRAP
Run and fix building wrap in full height rolls to wall framing, with fixing and end laps to NZS 3604 and the wrap manufacturer's requirements and with the wrap not damaged in any way.

- 3.8 INSTALL CAVITY BATTENS
Install 18 mm minimum thick timber 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 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.
Note that it is important that the openings in the vermin proofing are kept clean and unobstructed in order to maintain drainage and venting of the cavity.

- 3.9 CLD[®] STRUCTURAL CAVITY BATTEN
Fix battens to all studs over the building wrap or RAB Board using 65 mm x 2.8 mm 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.

Note this option is only suitable for projects complying to NZS 3604.

3.10 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

3.11 PANEL LAYOUT

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

3.12 VERTICAL JOINT

Joint Axon™ Panels to James Hardie technical specification.

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

3.13 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 or uPVC 'h' mould complete with 'h' mould jointer or a 'z' flashing to form a horizontal joint.

3.14 INTERNAL CORNER JOINT

Install 50 mm x 50 mm James Hardie corner under flashing or 80 mm wide 3259 Inseal® tape over continuous building wrap to internal corner. Install Axon™ Panels fixing to corner framing and leaving a 6 mm minimum gap between sheets at corner. Fix 14 mm 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.

3.15 EXTERNAL CORNER JOINT

Install aluminium external boxed corner over continuous building wrap to external corner. Install Axon™ Panels fixing to corner framing 40 mm minimum from corner. Ensure site cut Axon™ Panel edges are sealed before fixing. Refer to Axon™ Panel technical specification.

3.16 EXTERNAL CORNER JOINT WITH 'H' MOULD

Fit aluminium horizontal 'h' mould over lower Axon™ Panel and lap the upstand under upper Axon™ Panel. Leave 15 mm 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 flashing 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 under flashing 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.

3.17 FASTENER - SIZE AND LAYOUT

Fix Axon™ Panels to framing using the fixings specified in James Hardie Axon™ Panel technical specification, Table 3 Panel fixing, and in accordance with the following requirements: -

- Nails must have a minimum clearance of 18 mm from sheet edges and a minimum of 75 mm vertically and 150 mm horizontally from sheet corners.
- Nails must finish flush with sheet surface.

3.18 FIXING - DIRECT FIXED TO FRAME

Fix with 40 mm x 2.8 mm HardiFlex® nails. Fix sheet at 200 mm centres at all sheet edges as well as all intermediate framing

Special fixing arrangements are required for bracing and fire-resistance rated wall systems. For more information - Ask James Hardie™ on 0800 808 868

3.19 FIXING - CAVITY CONSTRUCTION

Fix with 60 mm x 3.15 mm HardiFlex® nails. Fix sheet at 200 mm 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.

3.20 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.

3.21 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.

3.22 PAINTING

Refer to PAINTING 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 3 months 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

3.23 INSTALL SOFFIT SHEETS

Cut sheets dry and scribe fit to fully support all edges and joints. Nail and insert PVC fasteners to James Hardie requirements. Fit complete with jointers and capping moulds. Refer to Eaves and Soffits technical specification.

3.24 INSTALL FLUSH JOINTED SOFFIT SHEETS

Cut sheets dry, and scribe fit to fully support all edges and joints. 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 150 mm. Refer to Eaves and Soffit Linings technical specification.

Completion

- 3.25 REPLACE
Replace all damaged or marked elements.
- 3.26 LEAVE
Leave work to the standard required for following procedures.
- 3.27 REMOVE
Remove debris, unused materials and elements from the site.

4. SELECTIONS

- 4.1 RAB BOARD
Brand/type: James Hardie RAB board
Flashing tape: ~
- 4.2 BUILDING WRAP
Brand/type: ~
Flashing tape: ~
- 4.3 CAVITY BATTENS
Timber species: Radiata pine
Treatment: H3.1
- 4.4 CLD[®] STRUCTURAL CAVITY BATTENS
Brand/type: James Hardie CLD[®] Structural Cavity batten
Thickness: 19 mm
Fastener type: 65 mm x 2.8 mm RounDrive ring shank nails
Fastener finish: ~
*Fastener finish: Hot dipped galvanised
Stainless Steel*
- 4.5 SHEET CLADDING PANELS
Brand/type: James Hardie Axon[™] Panels
Thickness: 9 mm
Fastener type: ~
Fastener finish: ~
- 4.6 FLUSH JOINTED SOFFIT SHEETS
Brand/type: James Hardie Villaboard[®] Lining soffit system
Thickness: ~ mm
Thickness options: 6 mm, 9 mm.
- 4.7 SOFFIT SHEETS
Brand/type: James Hardie ~
Thickness: 4.5 mm
Jointer: PVC ~
*Type options: Hardisoffit[™] Lining
HardiFlex[®] Eaves Lining
Silkline[™] Soffit Lining (pre-painted)
Villaboard[®] Lining
Eclipsa[®] Eaves Lining (pre-painted)*
Also available in 6 mm HardiFlex[®] Lining.

Finishing

- 4.8 PAINTING
Paint system: ~
Refer to PAINTING for details