

4201HH JAMES HARDIE HARDIFLEX® SHEET 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 HardiFlex® sheet cladding systems
- 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>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:

- HardiFlex® Sheet technical specification
- Eaves and Soffit Linings installation manual
- 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 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.

1.4 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.

Building wraps are only suitable to withstand low wind pressures. Check the design wind pressures for the project and make the appropriate selection.

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 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 CAVITY VERMIN-PROOFING

Perforated uPVC, with upstands.

Vermin-proofing to NZBC E2/AS1: clause 9.1.8.3 and figure 66.

2.5 HARDIFLEX® SHEET

James Hardie HardiFlex® sheet, medium density autoclaved sheet, 7.5 mm and 6 mm thick manufactured from treated cellulose fibre, Portland cement, sand and water. Cured by high pressure autoclaving and manufactured to AS/NZS 2908.2.

Standard product for PVC, silicone joint an timber batten application.

2.6 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.

2.7 SOFFIT LINING

James Hardie 4.5 mm Hardisoffit® Lining, HardiFlex® Eaves Lining, Silkline® 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 installation manual for further details.

Components

2.8 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.

2.9 GALVANIZED NAILS

Hot dip galvanized HardiFlex[®] nails for HardiFlex[®] sheet.
60 mm x 3.15 mm diameter or 40 mm x 2.8 mm diameter.

Select galvanized or stainless steel depending on exposure conditions.

2.10 STAINLESS STEEL NAILS

316 Stainless steel HardiFlex[®] nails for HardiFlex[®] sheet 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.

2.11 SOFFIT JOINTERS AND CAPPING MOULDS

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

Accessories

2.12 FLASHING TAPES

Inseal[®] 3259, 1.5 mm thick x 50 mm wide black compressible medium density closed cell foam tape.

2.13 SEALANT

Fosroc MS sealant or similar. Refer to the sheet manufacturer's technical literature for selection and use requirements.

3. EXECUTION

Conditions

3.1 STORAGE

Take delivery of sheets 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 surfaces. Do not drag sheets 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 sheets are fixed.

3.4 SEAL EDGES

Seal site cut sheet edges prior to installation. Seal sheet 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 sheets, direct or on cavity. Refer to James Hardie Fire and Acoustic technical specification.

3.6 BRACING SYSTEM
Fix sheets in accordance with James Hardie technical specification.
Refer to James Hardie technical specification for further information and guidance. Refer also to any bracing schedules or drawings.

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 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 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 HardiFlex® Sheets

3.10 SHEET LAYOUT
All sheet edges must be supported by the framing. Fix HardiFlex® Sheet vertically.

3.11 VERTICAL JOINT
Joint HardiFlex® Sheets to James Hardie technical specification.
Butt sheets together to form vertical joints as detailed.

3.12 HORIZONTAL JOINT
Provide a horizontal joint at floor joist levels to accommodate the movement resulting from timber joist shrinkage and settlement.

For HardiFlex® Sheet 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.

3.13 INTERNAL CORNER JOINT

Internal corner mould

Install James Hardie two piece internal corner mould for 7.5 mm thick sheet or one piece mould for 6 mm thick HardiFlex® Sheet. Fix sheets and mould to corner framing 12 mm minimum from edge of HardiFlex® Sheet with HardiFlex® nails. Seal HardiFlex® Sheet edges before fixing. Refer to HardiFlex® Sheet technical specification.

Tape/Underflashing

Use 80 mm wide Inseal tape or James Hardie uPVC corner underflashing to form an internal corner. Refer to HardiFlex® Sheet technical specification.

3.14 EXTERNAL CORNER JOINT

External corner mould

Install James Hardie two piece external corner mould for 7.5 mm thick sheet or one piece mould for 6 mm thick HardiFlex® Sheet. Fix sheets to corner framing 35 mm minimum from corner in one direction and 40 mm minimum from corner in the other direction with HardiFlex® nails. Seal HardiFlex® Sheet edges before fixing. Refer to HardiFlex® Sheet technical specification.

Tape/Underflashing

Use 80 mm wide Inseal tape or James Hardie uPVC corner underflashing to form an internal corner. Refer to HardiFlex® Sheet technical specification.

3.15 HORIZONTAL CONTROL JOINT

Install horizontal uPVC 'h' mould control joint flashing to HardiFlex® Sheet technical specification details.

3.16 FASTENER - SIZE AND LAYOUT

Fix HardiFlex® Sheet to framing using the fixings specified in James Hardie HardiFlex® Sheet technical specification, Table 3 Sheet 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.

3.17 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

3.18 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.

3.19 GUN NAILING

HardiFlex® Sheet 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 HardiFlex® Sheet 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.

3.20 SEALANTS

Apply and use of sealants to manufacturer's instructions. Check with sealant manufacturer prior to coating over sealants.

Some sealant manufacturers do not recommend coating over their product.

3.21 PAINTING

Refer to PAINTING for protective coating system.

Painting of HardiFlex® Sheets is required in order to meet the durability requirements of the NZBC and product warranties. HardiFlex® Sheets must be dry and free from dirt before painting. Coating must be completed within 3 months of sheet erection.

When using uPVC flashings, the light reflective value of the colour used must be more than 40% as required under 'E2/AS1'.

Soffits

- 3.22 **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 colour matched jointers and capping moulds. Refer to Eaves and Soffit Linings installation manual.
- 3.23 **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 S Soffit Linings installation manual.

Completion

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

4. SELECTIONS

- 4.1 **BUILDING WRAP**
Brand/type: ~
Flashing tape: ~
- 4.2 **CAVITY BATTENS**
Timber species: Radiata pine
Treatment: H3.1
- 4.3 **SHEET CLADDING PANELS**
Brand/type: James Hardie HardiFlex® Sheet
Thickness: ~ mm
Fastener type: ~
Fastener finish: ~
Thickness options: 6 mm, 7.5 mm
- 4.4 **FLUSH JOINTED SOFFIT SHEETS**
Brand/type: James Hardie Villaboard® Lining soffit system
Thickness: ~ mm
Thickness options: 6 mm, 9 mm.
- 4.5 **SOFFIT SHEETS**
Brand/type: James Hardie ~
Thickness: 4.5 mm
Jointer: PVC ~
*Type options: Hardisoffit™ Lining
HardiFlex® Eaves Lining
Silkline™ Soffit Lining (prepainted)
Villaboard® Lining
Eclipsa® Eaves Lining (prepainted)*
Also available in 6 mm HardiFlex® Lining.

Finishing

4.6

PAINTING

Paint system: ~

Refer to PAINTING for details