



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.



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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.

Technical Specification

- 4.1 This Appraisal covers the fire-rated systems and details in the James Hardie Fire and Acoustic Design Manual only. Refer to the listed system Appraisals for system specific technical specifications.
- 4.2 System components and accessories for the James Hardie Fire and Acoustic Systems supplied by James Hardie New Zealand Limited are.
- **Oblique™ Weatherboards** are 14 mm thick fibre cement rusticated profile weatherboards, available 200 or 300 mm wide and 3,000 or 4,200 mm long. They are factory sealed on all sides and pre-primed with a manila white acrylic primer on the front face. The front edge at the bottom of the board and the board ends are finished square.
 - **Linea™ Weatherboards** are 16 mm thick fibre cement bevel-back weatherboards with a tongue and groove at each end for jointing. The weatherboards are pre-primed with an acrylic primer on the front face and both edges. They are available 150 and 180 mm wide. All boards are supplied 4,200 mm long. After autoclaving, a bevel is cut on the back face of the weatherboards, the front edge at the bottom of the board is chamfered and the ends are tongue and grooved for jointing.
 - **Stria™ Cladding panels** are 14 mm thick fibre cement sheets, available in 325 or 405 mm widths and 3,000 or 4,200 mm long. The panels are factory sealed on the front face and all edges with a manila white colour primer.
 - **Axon™ Panels** are fibre cement sheets available in the following sizes:
 - **Axon™ Panel Grooved 133 mm** is a 9 mm thick shiplap-jointed panel with grooves on the front face nominal 10 mm wide by 2.25 mm deep, spaced at 133 mm centres. It is available 1,200 mm wide and 2,450, 2,750, 3,000 or 3,600 mm long.
 - **Axon™ Panel Grooved Grained 133 mm** is a 9 mm thick shiplap-jointed panel with grooves on the front face nominal 10 mm wide by 2.25 mm deep, spaced at 133 mm centres. Between the grooves is a wood-grain texture. It is available 1,200 mm wide and 3,000 mm long.
 - **Axon™ Panel Grooved 400 mm** is a 9 mm thick shiplap-jointed panel with grooves on the front face nominal 10 mm wide by 2.25 mm deep, spaced at 400 mm centres. It is available 1,200 mm wide and 2,450, 2,750 or 3,000 mm long.
 - **Axon™ Panel Smooth** (formerly known as EasyLap™ Panel) is a 9 mm thick shiplap-jointed panel, available 1,200 mm wide and 2,450 or 3,000 mm long.
 - **Axon™ Panel Brushed Concrete** is a 8.5 mm thick shiplap-jointed panel with an embedded textured surface. It is available 1,200 mm wide and 2,440, 2,750, 3,000 or 3,600 mm long.
 - **Hardie™ Plank Weatherboard** is a 7.5 mm thick fibre cement smooth weatherboard, available 180 or 300 mm wide x 4,200 mm long.
 - **Hardie™ Flex Sheet** is a 6 mm thick fibre cement sheet available 1,200 mm wide x 2,400, 2,700 or 3,000 mm long.
 - **Villaboard™ Lining** is a fibre cement interior lining sheet, available 6 or 9 mm thick, 1,200 mm wide x 2,400, 2,700 or 3,000 mm long.
 - **ExoTec™ Facade Panel** is a fibre cement panel available 9 mm thick x 1,200 mm wide x 2,400 or 3,000 mm long.
 - **RAB™ Board** is a sealed fibre-cement sheet, available 6 or 9 mm thick, 1,200 mm wide x 2,450, 2,750, or 3,000 mm long.
 - **Secura™ Flooring** is a 19 mm thick fibre cement sheet, available 600 mm wide x 2,400 mm long.
 - **Hardie™ Mineral Insulation** is a mineral wool insulation, available 600 x 800 x 90 mm thick with a density of 80 kg/m³ and an R-value of 2.74 m²K/W.
 - **Hardie™ CLD™ Structural Cavity Batten** is a 19 mm thick fibre cement cavity batten, available 70 mm wide x 3,000 mm long.



- 4.3 System components and accessories for the James Hardie Fire and Acoustic Systems supplied by the building contractor are:
- **GIB Fyrelite®** - a paper-bound, gypsum-plaster core sheet lining material with a pink coloured face paper. GIB Fyrelite® is available in thicknesses of 10 and 13 mm with a sheet width of 1,200 mm and standard lengths between 2,400 and 3,600 mm.
 - **R2.2 Glass Wool** - R2.2 glass wool insulation with a weight of 12–18 kg/m³.
 - **Flexible wall underlay** - building paper complying with NZBC Acceptable Solution E2/AS1, Table 23 or a breather-type membrane covered by a valid BRANZ Appraisal for use as a wall underlay, with a flammability index not exceeding 5 when tested to AS 1530.2.

Handling and Storage

- 5.1 Handling and storage of all materials supplied by James Hardie New Zealand Limited or the building contractor, whether on-site or off-site, is under the control of the building contractor. James Hardie™ fibre cement products are packed on pallets and must be kept dry during transport. The products must be horizontally stacked on a flat surface and must always be sufficiently supported so that they do not sag. They must be kept dry at all times, either by storing under cover or providing water covers to the stack, so they are stored in a dry ventilated space.
- 5.2 GIB® plasterboard sheets must be treated as a finishing material and protected from damage. Sheets must be stacked flat and kept dry at all times.
- 5.3 Accessories must be stored so they are kept clean, dry and undamaged. All accessories must be used within the maximum storage period recommended by the manufacturer.

Technical Literature

- 6.1 This Appraisal must be read in conjunction with:
- James Hardie Fire and Acoustic Design Manual, dated May 2025.
- 6.2 All aspects of design, use, installation and maintenance contained in the Technical Literature or Installation Manuals and within the scope of this Appraisal must be followed.

Design Information

Framing

- 7.1 Frame sizes and the spacing specified in the Technical Literature are a minimum requirement. Larger framing sections required to suit a proprietary cladding system, or to suit higher wind pressures or higher loading, does not affect the fire resistance rating (FRR) published.

Timber Treatment

- 7.2 Timber wall framing for James Hardie Fire and Acoustic Systems must be treated as required by NZBC Acceptable Solution B2/AS1.

Timber Framing

- 7.3 Timber framing must comply with NZS 3604 for buildings or parts of a building within the scope limitations of NZS 3604. Buildings or parts of a building outside the scope of NZS 3604 must be to a specific design in accordance with NZS 3603 and AS/NZS 1170. Where specific design is required, the framing must be of at least equivalent stiffness to the framing provisions of NZS 3604.
- 7.4 Timber framing must meet the following minimum requirements:
- For walls:
 - Framing size: 90 x 45 mm minimum.
 - Stud spacing: 600 mm maximum centres.
 - Nog/dwang spacing: 800 mm maximum centres.
 - For floors/ceilings:
 - Floor joists must be minimum 45 mm wide.
 - Strutting of floor joists is required in accordance with NZS 3604.
 - Bottom plate fixing in timber floors must penetrate through floor into joists or solid blocking.



- 7.5 The moisture content of the timber framing must not exceed 24% at the time of the cladding installation. *[Note: If cladding is fixed to framing with a moisture content of greater than 24%, problems may occur at a later date due to excessive timber shrinkage.]*

Steel Framing

- 7.6 Steel framing for fire rated walls must be in accordance with NASH Standard Part 2.
- 7.7 Steel framing must meet the following minimum requirements:
- The minimum framing specification is 'C' section studs with a base metal thickness (BMT) of 0.55 mm minimum for non-load bearing walls and 0.75-1.6 mm for load bearing walls.
 - Steel studs for use in external walls shall be minimum 89 mm deep x 39 mm wide.
 - Stud spacing: 400 mm maximum centres for load-bearing walls and 600 mm centres for non-load bearing walls.
 - Nog/dwang spacing: 800 mm maximum centres.

General

- 8.1 The James Hardie Fire and Acoustic Design Manual describes a range of design options for the construction of fire resistant construction elements. All FRRs are given in minutes for structural adequacy, integrity and insulation up to a maximum of 120 minutes. The following systems are included:
- External Walls - Timber Frame
 - External Walls - Steel Frame
 - Parapet and Wing Walls - Timber Frame
 - Internal Walls - Timber Frame
 - Internal Floors/Ceiling - Timber Frame
- 8.2 Each FRR system is identified by a unique specification code (e.g.JHETLL60) to identify it as a James Hardie™ fire resistance rated wall system. An explanation of the specification codes is given in the Technical Literature.

Thermal Fire Batten

- 8.3 Thermal fire battens are used on all FRR steel systems and must be used between James Hardie™ products and steel framing members. For steel framing in interior/exterior applications, the NZBC also requires additional external insulation to achieve adequate thermal resistance. These insulated battens are assembled on-site by cutting a 100 mm wide strip from 9 mm thick Axon™ Panel Smooth and adhering a 10 mm thick x 100 mm wide XPS [extruded polystyrene] on its face.

Insulation

- 8.4 Hardie™ Mineral Insulation has been tested with James Hardie Fire and Acoustic Systems and where specified as part of a fire-rated system, it cannot be substituted with any other insulation material.
- 8.5 Where generic R2.2 glass wool insulation is specified in a system, any brand of R2.2 glass wool insulation which weighs 12-18 kg/m³ may be used. A higher R-value glass wool insulation can be used to achieve higher insulation requirements.

Structure

- 9.1 This Appraisal covers the fire-rated systems and details included in the James Hardie Fire and Acoustic Design Manual only. Refer to the relevant BRANZ Appraisal listed in Paragraph 2.2 for specific structural information.

Wind Zones

- 9.2 Refer to the relevant BRANZ Appraisal listed in Paragraph 2.2 for the suitability of the James Hardie cladding type in the specified Wind Zone.

Structural Steel Members

- 9.3 When structural steel members are located inside the fire-rated wall cavity such as columns, or beams in a floor/ceiling cavity, these structural members must be independently fire-rated.



Bracing

- 9.4 When fire-rated systems are combined with bracing systems, the durability of the components used in the system must meet a 50 years durability requirement of NZBC Clause B2.

Boundary Walls Post Fire Stability

- 9.5 The Technical Literature provides base connection details for light timber-framed boundary fire-rated walls which can resist a force of 0.5 kPa in any direction, as specified by NZBC Verification Method B1/VM1, Clause 2.2.4 (iii).

Durability

- 10.1 This Appraisal covers the fire-rated systems and details included in the James Hardie Fire and Acoustic Design Manual only. Refer to the relevant BRANZ Appraisal listed in Paragraph 2.2 for specific durability information.

Serviceable Life

- 10.2 The ability of the systems to maintain their FRR for at least 50 years is dependent on their regular maintenance and remaining dry in service.
- 10.3 Framing and cladding systems must have a durability which meets the performance requirements of NZBC B2.

Coatings and Finishes

- 10.4 All James Hardie™ exterior cladding systems require protective coatings to meet the NZBC requirements. Refer to the relevant BRANZ Appraisal and Technical Literature for the product selected.

Maintenance

- 11.1 All claddings must be maintained in accordance with relevant Appraisal and Technical Literature. Any cracks or damage which may occur must be repaired immediately.
- 11.2 Fire-rated sealants must be regularly inspected, at least annually, and maintained in accordance with the instructions of the sealant manufacturer. Sealant joints must be repaired or replaced as necessary.
- 11.3 Lining systems must be protected from internal and external moisture in accordance with NZBC Clauses E2 and E3.

Fire Affecting Areas Beyond the Source

Fire Resistance Ratings

- 12.1 James Hardie Fire and Acoustic Systems can be used for load-bearing and non-load bearing walls to form FRR separations with an FRR ranging from 30/30/30 to 120/120/120, when constructed in accordance with the Technical Literature.

Vertical Fire Spread - Buildings 10 m in height or less

- 12.2 When James Hardie Fire and Acoustic Systems are used in buildings 10 m or less in height, NZBC Functional Requirement C3.2 identifies that external vertical fire spread to upper floors only needs be considered for buildings with a building height greater than 10 m.

Vertical Fire Spread - Buildings greater than 10 m in height

- 12.3 James Hardie Fire and Acoustic Systems can form part of an external wall cladding system designed to meet vertical fire spread requirements. The information in Table 1 is provided to support the specific engineering design.
- 12.4 The James Hardie External Cladding System has been tested to NFPA 285 and has passed the test criteria. The components listed in Table 1 form a part of the James Hardie External Cladding System and have been tested and achieved the listed classifications.

Table 1: Components of the James Hardie External Cladding System

| Component | Test Method | Result |
|--|---|-----------------|
| Linea Weatherboard [16 mm] | AS/NZS 3837:1998 | Pass. Type A |
| Stria Cladding [14 mm] | BRANZ Fire Assessment | Non-combustible |
| Oblique Weatherboard [16 mm] | BRANZ Fire Assessment | Non-combustible |
| Axon Panel [9 mm] | Component of NFPA 285 test | Pass |
| James Hardie Rigid Air Barrier (RAB™ Board) [6 mm] | Component of NFPA 285 test | Pass |
| Hardie™ CLD™ Structural Cavity Battens | Component of NFPA 285 test | Pass |
| 20 x 40 mm treated timber cavity battens | Component of NFPA 285 test | Pass |
| Pink Batts R2.2 glasswool insulation [90 mm] | Component of NFPA 285 test | Pass |
| Joinery and joint flashings and mouldings | Aluminium as defined in C/AS2 definitions | Non-combustible |
| Super Stick Building Tape | Component of NFPA 285 test | Pass |
| Inseal Foam Tape | Component of NFPA 285 test | Pass |
| Fixings | Steel as defined in C/AS2 definitions | Non-combustible |

Horizontal Fire Spread

12.5 Refer to NZBC Acceptable Solutions C/AS1 and C/AS2 for FRR and control of external fire spread requirements for external walls.

Structural Stability During Fire

12.6 For buildings within the scope of NZBC Acceptable Solution C/AS2, Section 4.3 structural stability during fire provides details on the requirements for primary building elements that structurally support a FRR separation. Designers must ensure that fire-rated elements are supported by building elements having at least the same FRR as the fire-rated element they are supporting.

External Moisture

13.1 This Appraisal covers the fire-rated systems and details included in the James Hardie Fire and Acoustic Design Manual only. Refer to the relevant BRANZ Appraisal listed in Paragraph 2.2 for specific weathertightness information.

Internal Moisture

14.1 This Appraisal covers the fire-rated systems and details included in the James Hardie Fire and Acoustic Design Manual only. Refer to the relevant BRANZ Appraisal listed in Paragraph 2.2 for specific internal moisture information.

Airborne and Impact Sound

15.1 James Hardie Fire and Acoustic Systems include systems that meet the provisions of NZBC Clause G6 for the transfer of airborne and structure-borne sound through wall and floor/ceiling elements between occupancies. Also included are systems that do not require compliance with NZBC Clause G6. *[Note: Proprietary floor joist, flooring, suspended ceiling systems, ceiling systems and wall stud systems have not been assessed for anything other than sound and fire properties and are otherwise outside the scope of this Appraisal.]*



- 15.2 The Sound Transmission Class (STC) ratings published in the Technical Literature are specific to the wall/floor build-up as described within each FRR system. The inter-tenancy provisions of NZBC Clause G6 for wall and floor/ceiling elements will be achieved when a James Hardie Fire and Acoustic System with a minimum STC rating of 55 and a minimum Impact Insulation Class (IIC) rating of 55 (for floor/ceilings) is used in accordance with the Technical Literature and this Appraisal.
- 15.3 James Hardie Fire and Acoustic Systems offer a floor/ceiling system based on the use of James Hardie Secura Flooring. The correct floor covering must be selected for the application. The floor finishes used in James Hardie Fire and Acoustic Systems have not been assessed for other properties and are outside the scope of this Appraisal.

Installation Information

Installation Skill Level Requirement

- 16.1 All design and building work must be carried out in accordance with the James Hardie Fire and Acoustic Design Manual, the relevant James Hardie installation manual and the relevant BRANZ Appraisal specified in Paragraph 2.2. All building work must be undertaken by competent and experienced tradespeople conversant with the James Hardie Fire and Acoustic Systems.

General

- 17.1 Construction details for the framing, in particular type, dimensions and spacings, must be strictly in accordance with the specifications outlined in the James Hardie Fire and Acoustic Design Manual and the system specific Technical Literature as listed in the relevant BRANZ Appraisal.
- 17.2 Some James Hardie Fire and Acoustic Systems incorporate Winstone Wallboards Ltd's GIB® Plasterboard. Refer to the Winstone Wallboards Ltd's Technical Literature for the relevant installation information.

Hardie™ Mineral Insulation

- 17.3 Fit the Hardie™ Mineral Insulation tightly in all framing cavities. Hardie™ Mineral Insulation is pre-cut 50 mm bigger in length and width than the cavity size to ensure a tight friction fit in the cavity. If the cavity to be insulated is smaller than the size of insulation supplied, the insulation may be cut on site to fit to size. Ensure that insulation is at least 50 mm bigger in each direction than the size of frame cavity to be filled so that a tight friction fit is achieved.

Health and Safety

- 18.1 Cutting of fibre cement boards must be carried out in well ventilated areas, and a dust mask and eye protection must be worn.
- 18.2 When power tools are used for cutting or forming holes, health and safety measures as set out in the Technical Literature must be observed.
- 18.3 Dust resulting from the sanding of boards, jointing or finishing compounds may be a respiratory irritant, therefore the use of suitable respiratory protection is recommended. Where sealants, insulation and other materials are used, the instructions of the relevant manufacturer must be followed.



Basis of Appraisal

The following is a summary of the technical investigations carried out:

Tests and Opinions

- 19.1 Cone calorimeter testing to determine the peak rate of heat release and total heat release of Linea™ Weatherboard was completed by BRANZ. The testing was carried out in accordance with AS/NZS 3837.
- 19.2 BRANZ expert opinion on NZBC Clause C3 code compliance for James Hardie cladding systems was based on NFPA 285 testing by Intertek Group plc on specimens assembled containing the James Hardie External Cladding System.
- 19.3 The James Hardie Fire and Acoustic Systems Technical Literature has been examined by BRANZ and found to be satisfactory.
- 19.4 An opinion on the fire resistance of the James Hardie Fire and Acoustic Systems covered by the Technical Literature has been given by BRANZ experts.
- 19.5 An opinion on the acoustic performance of the James Hardie Fire and Acoustic Systems in the James Hardie Fire and Acoustic Design Manual has been given by Marshall Day Acoustics Limited.

Quality

- 20.1 James Hardie New Zealand Limited is responsible for the quality of the product supplied.
- 20.2 Designers are responsible for the design of buildings.
- 20.3 Building owners are responsible for the maintenance of the systems in accordance with the instructions of James Hardie New Zealand Limited.

Sources of Information

- AS 1530:2005 Part 4 Fire-resistance tests of elements of building construction.
- AS/NZS 1170:2002 Structural design actions.
- AS/NZS 3837:1998 Method of test for heat and smoke release rates for materials and properties using an oxygen consumption calorimeter.
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.



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03 June 2025

JAMES HARDIE FIRE AND
ACOUSTIC SYSTEMS



In the opinion of BRANZ, **James Hardie Fire and Acoustic Systems** are fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided they are used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to **James Hardie New Zealand Limited**, and is valid until further notice, subject to the Conditions of Appraisal.

Conditions of Appraisal

1. This Appraisal:
 - a) relates only to the product as described herein;
 - b) must be read, considered and used in full together with the Technical Literature;
 - c) does not address any Legislation, Regulations, Codes or Standards, not specifically named herein;
 - d) is copyright of BRANZ.
2. **James Hardie New Zealand Limited:**
 - a) continues to have the product reviewed by BRANZ;
 - b) shall notify BRANZ of any changes in product specification or quality assurance measures prior to the product being marketed;
 - c) abides by the BRANZ Appraisals Services Terms and Conditions;
 - d) warrants that the product and the manufacturing process for the product are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ pursuant to BRANZ's Appraisal of the product.
3. BRANZ makes no representation or warranty as to:
 - a) the nature of individual examples of, batches of, or individual installations of the product, including methods and quality of work;
 - b) the presence or absence of any patent or similar rights subsisting in the product or any other product;
 - c) any guarantee or warranty offered by **James Hardie New Zealand Limited**.
4. Any reference in this Appraisal to any other publication shall be read as a reference to the version of the publication specified in this Appraisal.
5. BRANZ provides no certification, guarantee, indemnity or warranty, to **James Hardie New Zealand Limited** or any third party.

For BRANZ

Claire Falck

Chief Executive

Date of Issue:

03 June 2025