



## BRANZ Appraised

Appraisal No. 466 [2020]

## AXON™ PANEL SMOOTH FOR TEXTURE COATING

Appraisal No. 466 [2020]

Amended 12 August 2024



### BRANZ Appraisals

Technical Assessments of products for building and construction.



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## Product

- 1.1 Axon™ Panel Smooth for Texture Coating is a fibre cement cavity-based substrate for textured coated/plastered monolithic finished cladding systems. It is designed to be used as an external wall cladding system for residential and light commercial type buildings where domestic construction techniques are used.

## Scope

- 2.1 Axon™ Panel Smooth for Texture Coating has been appraised as an external wall cladding system for buildings within the following scope:
  - the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; and,
  - constructed with timber framing complying with the NZBC; 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 Axon™ Panel Smooth for Texture Coating has also been appraised for weathertightness and structural wind loading when used as an external wall cladding for buildings within the following scope:
  - the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regard to building height and floor plan area; 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 2.5 kPa.
- 2.3 Axon™ Panel Smooth for Texture Coating is appraised for use with textured finish systems that comply with NZBC Acceptable Solution E2/AS1, Paragraph 9.7.4 and are covered by a valid BRANZ Appraisal or CodeMark for use as a textured finish system.
- 2.4 Axon™ Panel Smooth for Texture Coating must only be installed on flat vertical surfaces, [except for tops of balustrades, which must have a minimum 10° slope and be waterproofed in accordance with the Technical Literature].
- 2.5 Axon™ Panel Smooth for Texture Coating is appraised for use with aluminium window and door joinery or uPVC joinery with a valid BRANZ Appraisal. In all instances, joinery units must have vertical jambs and horizontal heads and sills. [Note: The Appraisal of Axon™ Panel Smooth for Texture Coating relies on the joinery meeting the requirements of NZS 4211 for the relevant Wind Zone, or pressure.]
- 2.6 Installation of components and accessories supplied by the textured finish system manufacturers must be carried out only by the textured finish system manufacturer's approved applicators.

## Building Regulations

### New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, Axon™ Panel Smooth for Texture Coating, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet the following provisions of the NZBC:

**Clause B1 STRUCTURE:** Performance B1.3.1, B1.3.2 and B1.3.4. Axon™ Panel Smooth for Texture Coating meets the requirements for loads arising from self-weight, wind and impact [i.e. B1.3.3 (a), (h) and (j)]. See Paragraphs 10.1-10.3.

**Clause B2 DURABILITY:** Performance B2.3.1 (b) 15 years and B2.3.2. Axon™ Panel Smooth for Texture Coating meets these requirements. See Paragraphs 11.1 and 11.2.

**Clause E2 EXTERNAL MOISTURE:** Performance E2.3.2. Axon™ Panel Smooth for Texture Coating meets this requirement. See Paragraphs 15.1-15.5.

**Clause F2 HAZARDOUS BUILDING MATERIALS:** Performance F2.3.1. Axon™ Panel Smooth for Texture Coating meets this requirement.

## Technical Specification

4.1 System components and accessories for Axon™ Panel Smooth for Texture Coating, which are supplied by James Hardie New Zealand Limited, are:

- **Axon™ Panel Smooth** [formerly known as EasyLap™ Panel] is a 9 mm thick ship-lap jointed panel, available 1,200 mm wide and 2,450 or 3,000 mm long. Axon™ Panel Smooth is a fibre cement panel manufactured from a water-resistant cellulose cement formulation. It is manufactured to conform to the requirements of AS/NZS 2908.2, in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.7.2. The panels are formed, cut to length and then cured by high-pressure autoclaving. They are branded 'Axon™ Panel' at regular intervals on the back face, and are face and edge sealed.

### Accessories

- **Hardie™ Flex 60 x 3.15 mm Nails** - for fixing panels through timber cavity battens. Hot-dip galvanised or 316 stainless steel.
  - **Hardie™ Flex 75 x 3.15 mm Nails** - for fixing panels through timber cavity battens. Hot-dip galvanised or 316 stainless steel.
  - **Hardie™ 9 mm Panel Aluminium Horizontal 'h' Mould** - a horizontal flashing to flash the horizontal joints, etch-primed and available in 3,000 mm lengths.
  - **Horizontal 180° Flashing Jointer** - aluminium horizontal flashing jointer, 100 mm long.
  - **Hardie™ 9 mm Aluminium 'h' Mould External Corner** - etch-primed, 50 x 50 mm.
  - **uPVC Vent Strip** - available in 3,000 mm lengths.
  - **Corner Underflashing** - uPVC available in 3,000 mm lengths.
  - **Inseal® 3259 tape** - black, compressible, medium density PVC [polyvinyl chloride] closed cell foam. The tape is 1.5 mm thick and is supplied in rolls 48 and 80 mm wide and 50 m long.
- 4.2 Accessories used with Axon™ Panel Smooth for Texture Coating, which are supplied by the building contractor, are:
- **Flexible wall underlay** - building paper complying with NZBC Acceptable Solution E2/AS1, Table 23, or breather-type membranes covered by a valid BRANZ Appraisal or CodeMark for use as wall underlays.
  - **Flexible wall underlay support** - polypropylene strap, 75 mm galvanised mesh, galvanised wire, or additional vertical battens for securing the flexible wall underlay in place and preventing bulging of the bulk insulation into the drainage cavity. [Note: Mesh and wire galvanising must comply with AS/NZS 4534.]
  - **Rigid wall underlay** - HomeRAB™ Pre-Cladding/RAB™ Board, plywood or fibre cement panel complying with NZBC Acceptable Solution E2/AS1, Table 23, or rigid sheathing covered by a valid BRANZ Appraisal or CodeMark for use as rigid air barrier systems.



- **Flexible sill and jamb flashing tape** - flexible flashing tapes complying with NZBC Acceptable Solution E2/AS1, Paragraph 4.3.11, or flexible flashing tapes covered by a valid BRANZ Appraisal for use around window and door joinery openings.
- **Cavity battens** - nominal 50 mm wide by 25 mm thick (minimum finished size of 45 mm wide by 18 mm thick) timber treated to Hazard Class H3.1.
- **Cavity batten temporary fixings** - 40 x 2.8 mm fibre cement, hot-dip galvanised Hardie™ Flex nails.
- **Joinery head flashings** - folded from aluminium or galvanised steel to suit the window or door trim opening. Refer to NZS 3604, Section 4 and NZBC Acceptable Solution E2/AS1, Table 20 for durability requirements.
- **Window and door trim cavity air seal** - air seals complying with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.6, or self-expanding, moisture cure polyurethane foam air seals covered by a valid BRANZ Appraisal suitable for use around window, door and other wall penetration openings.
- **Flexible sealant** - sealant complying with NZBC Acceptable Solution E2/AS1, or sealant covered by a valid BRANZ Appraisal or CodeMark for use as a weather sealing sealant for exterior use.

#### **Textured Finish Systems**

- 4.3 Axon™ Panel Smooth must be finished with a textured finish system that has been tested to BRANZ Evaluation Method No. 4 [BRANZ EM4], and is covered by a valid BRANZ Appraisal or CodeMark for use with Axon™ Panel Smooth.

*[Note: Other textured finish systems that have been tested to BRANZ EM4 with Axon™ Panel Smooth, which are not BRANZ appraised, may be used to finish Axon™ Panel Smooth. These systems have not been assessed by this Appraisal and are outside its scope.]*

## **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. Axon™ Panel Smooth must be stacked flat, off the ground and supported on a level platform. They must be kept dry at all times either by storing under cover or by providing waterproof covers to the stack. Care must be taken to avoid damage to edges, ends and surfaces. The panels must always be carried on edge. uPVC flashings and profiles must be protected from direct sunlight and physical damage, and should be stored flat and under cover.
- 5.2 Cavity battens and other 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:
- Axon™ Panel Smooth for Texture Coating Technical Specification, August 2024.
- 6.2 All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed.

## **Design Information**

### **Framing**

#### **Timber Treatment**

- 7.1 Timber wall framing behind Axon™ Panel Smooth for Texture Coating must be treated as required by NZBC Acceptable Solution B2/AS1.

### Timber Framing

- 7.2 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. Studs must be at maximum 600 mm centres for Low, Medium, High and Very High Wind Zones and maximum 400 mm centres for the NZS 3604 Extra High Wind Zone and specifically designed buildings. Dwargs must be fitted flush between the studs at maximum 800 mm centres [for studs at maximum 600 mm centres] or 1,200 mm maximum centres [for studs at maximum 400 mm centres].
- 7.3 Timber wall framing behind cavity battens where panels are joined must be nominal 50 mm thickness [i.e. 45 mm minimum finished thickness].
- 7.4 For specifically designed timber-framed buildings situated in Wind Zones above NZS 3604 defined Extra High, there must be a minimum timber framing size of 90 x 45 mm, and a minimum timber grade of SG8.
- 7.5 Timber framing must have a maximum moisture content of 24% at the time of the cladding application. *[Note: If Axon™ Panel Smooth is fixed to framing with a moisture content of greater than 24%, problems may occur at a later date due to excessive timber shrinkage.]*
- 7.6 Timber wall framing and cavity battens must have a moisture content of 20% or less at the time of commencement of the textured finish system.

### Axon™ Panel Smooth Set Out

- 7.7 Axon™ Panel Smooth panels must be installed vertically. All vertical Axon™ Panel Smooth edges must be supported and fixed through the cavity battens to the wall framing. Horizontal panel edges must be supported at fixing locations with cavity spacers 100 mm long maximum in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.2 f). At the base of the wall, the panels must hang 50 mm below the supporting framing.
- 7.8 Additional framing may be required at soffits, internal and external corners and window and door openings for the support and fixing of panel edges.

### General

- 8.1 When Axon™ Panel Smooth for Texture Coating is used for specifically designed buildings up to 2.5 kPa ULS wind pressure, only the weathertightness aspects of the cladding and maximum framing centres and panel fixing centres are within the scope of this Appraisal. All other aspects of the building need to be specifically designed and are outside the scope of this Appraisal.
- 8.2 Punchings in the cavity vent strip provide a minimum ventilation opening area of 1,000 mm<sup>2</sup> per lineal metre of wall in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.3 b).
- 8.3 The ground clearance to finished floor levels as set out in NZBC Acceptable Solution E2/AS1 must be adhered to at all times. At ground level, paved surfaces such as footpaths must be kept clear of the bottom edge of the Axon™ Panel Smooth panels by a minimum of 100 mm and unpaved surfaces by 175 mm in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Table 18.
- 8.4 At balcony, deck or low pitch roof/wall junctions, the bottom edge of the Axon™ Panel Smooth panels must be kept clear of any adjacent surface, or above the top surface of any adjacent roof flashing by a minimum of 50 mm in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.3.
- 8.5 All external walls of buildings must have barriers to airflow in the form of interior linings with all joints stopped for Wind Zones up to, and including, Very High, and rigid underlays for buildings in the Extra High Wind Zone and specifically designed buildings up to 2.5 kPa design differential ULS wind pressure. Unlined gables and walls must incorporate a rigid sheathing or an air barrier which meets the requirements of NZBC Acceptable Solution E2/AS1, Table 23. For attached garages, wall underlays must be selected in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.3.4. Where rigid underlays are used, the cavity batten fixing lengths must be increased by a minimum of the thickness of the underlay.

- 8.6 Where penetrations through the Axon™ Panel Smooth panels are wider than the cavity batten spacing, allowance must be made for airflow between adjacent cavities. A minimum 10 mm gap must be left between the bottom of the vertical cavity batten and the flashing to the opening.
- 8.7 Where Axon™ Panel Smooth for Texture Coating abuts other cladding systems, designers must detail the junction to meet their own requirements and the performance requirements of the NZBC. Details not included within the Technical Literature have not been assessed and are outside the scope of this Appraisal.

### Control Joints

- 9.1 Control joints must be constructed in accordance with the Technical Literature, and be provided as follows:
- **Vertical control joints** - at maximum 5.4 m centres; aligned with any control joint in the structural framing, or where the system abuts different cladding types.
  - **Horizontal control joints** - at maximum 5.4 m centres and at inter-storey floor levels.
- [Note: Horizontal and vertical control joints must be located over structural supports. The design of vertical junctions where the system abuts different cladding types is outside the scope of this Appraisal and is the responsibility of the designer - refer to Paragraph 8.7.]*

### Inter-storey Junctions

- 9.2 Inter-storey drained joints must be constructed in accordance with the Technical Literature. Inter-storey joints must be provided to limit continuous cavities to the lesser of 2-storeys or 7 m in height, in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.1.9.4 b).

### Structure

#### Mass

- 10.1 The mass of Axon™ Panel Smooth panel is approximately 14 kg/m<sup>2</sup> at equilibrium moisture content [EMC]. Therefore, Axon™ Panel Smooth for Texture Coating, when finished with a texture coating system, is considered a light wall cladding in terms of NZS 3604.

#### Impact Resistance

- 10.2 Axon™ Panel Smooth for Texture Coating has adequate resistance to impact loads likely to be encountered in normal residential use. The likelihood of impact damage to the system when used in light commercial situations should be considered at the design stage and appropriate protection such as the installation of bollards and barriers provided for vulnerable areas.

#### Wind Zones

- 10.3 Axon™ Panel Smooth for Texture Coating is suitable for use in all Wind Zones of NZS 3604 up to, and including, Extra High where buildings are designed to meet the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 1.1, or up to 2.5 kPa ULS wind pressure where buildings are specifically designed.

#### Axon™ Panel Smooth Panel Fixings

- 10.4 For installations in Wind Zones up to, and including, Very High, Axon™ Panel Smooth panels must be fixed through the cavity battens to the wall framing at maximum 200 mm vertical centres along panel edges and in the body of the panel where the cavity batten is fully supported over framing. The panels must be fixed at maximum 150 mm centres at horizontal panel edges, and where the cavity batten or packer is supported by the horizontal framing members in the body of the panel. The fixings must be positioned a minimum of 12 mm from all panel edges, and a minimum of 75 mm vertically and 150 mm horizontally from panel corners. The fastener heads must finish flush with the panel surface.
- 10.5 For installations in Extra High Wind Zones and specifically designed buildings up to 2.5 kPa ULS wind pressure, the panel fixings must be at maximum 150 mm centres along panel edges and in the body of the panel.

### Durability

- 11.1 Axon™ Panel Smooth for Texture Coating meets the performance requirements of NZBC Clause B2.3.1 (b) 15 years for the Axon™ Panel Smooth panels, fixings and flashings. For Axon™ Panel Smooth for Texture Coating to meet the durability and external moisture requirements of the NZBC, Axon™ Panels Smooth panels must be finished with an appraised textured finish system within three months of fixing.

### Serviceable Life

- 11.2 Axon™ Panel Smooth for Texture Coating installations are expected to have a serviceable life of at least 50 years, provided the textured finish system is maintained in accordance with this Appraisal and any other relevant Appraisal to ensure the Axon™ Panel Smooth panels and fixings remain dry in service.
- 11.3 Coastal locations can be very corrosive to fasteners, especially locations within distances of up to 500 m from the sea including harbours, or 100 m from tidal estuaries and sheltered inlets, and otherwise as shown in NZS 3604, Figure 4.2. These coastal locations are defined in NZS 3604 as Zone D. To achieve a 50 year serviceable life in Zone D, Axon™ Panel Smooth panels must be fixed with stainless steel fasteners. Fasteners outside Zone D may be hot-dip galvanised steel.
- 11.4 Microclimatic conditions, including geothermal hot spots, industrial contamination and corrosive atmospheres, and contamination from agricultural chemicals or fertilisers can convert mildly corrosive atmosphere into aggressive environments for fasteners. The fixing of Axon™ Panel Smooth panels in areas subject to microclimatic conditions requires specific design in accordance with NZS 3604, Paragraph 4.2.4, and is outside the scope of this Appraisal.

### Maintenance

- 12.1 Regular maintenance is essential for Axon™ Panel Smooth for Texture Coating installations to continue to meet the NZBC durability performance provision and to maximise their serviceable life.
- 12.2 Annual inspections must be made to ensure that all aspects of the cladding system, including the textured finish system, flashings and any sealed joints remain in a weatherproof condition. Any damaged areas or areas showing signs of deterioration which would allow water ingress, must be repaired immediately. Sealant, paint coatings, textured finish systems, flashings or the fibre cement panels must be repaired in accordance with the relevant manufacturer's instructions.
- 12.3 Regular cleaning (at least annually) of the textured finish system is recommended to remove grime, dirt and organic growth, to maximise the life and appearance of the coating. Grime may be removed by brushing with a soft brush, warm water and detergent.
- 12.4 Re-coating of the finishing system will be necessary throughout the life of the cladding system. The interval between re-coats depends on the finish colour, orientation and quality of the application, and will be at approximately 5-10 yearly intervals in accordance with the paint manufacturer's instructions.
- 12.5 Minimum ground clearances as set out in this Appraisal must be maintained at all times during the life of the cladding. *[Note: Failure to adhere to the minimum ground clearances given in this Appraisal and the Technical Literature will adversely affect the long term durability of Axon™ Panel Smooth panels.]*

### Prevention of Fire Occurring

- 13.1 Axon™ Panel Smooth panel is considered a non-combustible material and need not be separated from heat sources such as fireplaces, heating appliances, flues and chimneys. However, when used in conjunction with, or attached to heat sensitive materials, the heat sensitive material must be separated from heat sources such as fireplaces, heating appliances and chimneys. Part 7 of NZBC Acceptable Solution C/AS1 and NZBC Acceptable Solution C/AS2 provide methods for separation and protection of combustible materials from heat sources.

## Fire Affecting Areas Beyond the Fire Source

- 14.1 Refer to NZBC Acceptable Solution C/AS1, NZBC Acceptable Solution C/AS2, and NZBC Verification Method C/VM2 for fire resistance rating [FRR] and control of external fire spread requirements for external walls.

### Vertical Fire Spread

- 14.2 This Appraisal only covers 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. Control of external vertical fire spread is therefore outside the scope of this Appraisal.

### Horizontal Fire Spread

- 14.3 Where the external wall is not protected by a sprinkler system or separated from the relevant boundary as required by NZBC Acceptable Solution C/AS1 or NZBC Acceptable Solution C/AS2, the cladding system will need to be installed over a FRR external wall with the required FRR.

### External Cladding System

- 14.4 Axon™ Panel Smooth panel has been tested to AS/NZS 3837 and is classified as non-combustible. Refer to the selected finishing system supplier for confirmation of the peak heat release and total heat released values for the system.

## External Moisture

- 15.1 Axon™ Panel Smooth for Texture Coating, when installed and maintained in accordance with this Appraisal and the Technical Literature prevents the penetration of moisture that could cause undue dampness or damage to building elements.
- 15.2 The cavity must be sealed off from the roof and subfloor space to meet compliance with NZBC Clause E2.3.5.
- 15.3 Axon™ Panel Smooth for Texture Coating allows excess moisture present at the completion of construction to be dissipated without permanent damage to building elements to meet compliance with NZBC Clause E2.3.6.
- 15.4 The details given in the Technical Literature for weather sealing are based on the design principle of having a first and second line of defence against moisture entry for all joints, penetrations and junctions. The ingress of moisture must be excluded by detailing joinery and wall interfaces as shown in the Technical Literature. Weathertightness details that are developed by the designer are outside the scope of this Appraisal and are the responsibility of the designer for compliance with the NZBC.
- 15.5 The use of Axon™ Panel Smooth for Texture Coating where there is a designed cavity drainage path for moisture that penetrates the cladding, does not reduce the requirement for joints, penetrations and junctions to remain weather-resistant.

## Internal Moisture

### Water Vapour

- 16.1 Axon™ Panel Smooth for Texture Coating is not a barrier to the passage of water vapour, and when installed in accordance with this Appraisal will not create or increase the risk of moisture damage resulting from condensation.

## Installation Information

### Installation Skill Level Requirements

- 17.1 All design and building work must be carried out in accordance with the Axon™ Panel Smooth for Texture Coating Technical Literature and this Appraisal by competent and experienced tradespersons conversant with Axon™ Panel Smooth for Texture Coating. Where the work involves Restricted Building Work [RBW] this must be completed by, or under the supervision of, a Licensed Building Practitioner [LBP] with the relevant License Class.

- 17.2 Installation of components and accessories supplied by the textured finish system manufacturers must be completed by trained applicators, approved by the textured finish system manufacturer.

## System Installation

### Wall Underlay and Flexible Sill and Jamb Tape Installation

- 18.1 The selected wall underlay and flexible sill and jamb tape system must be installed by the building contractor in accordance with the underlay and tape manufacturer's instructions prior to the installation of the cavity battens and the rest of the Axon™ Panel Smooth for Texture Coating system. Flexible wall underlay must be installed horizontally and be continuous around corners. Underlay must be lapped 75 mm minimum at horizontal joints and 150 mm minimum over studs at vertical joints. Generic rigid sheathing materials must be installed in accordance with NZBC Acceptable Solution E2/AS1 and be overlaid with a flexible wall underlay. Proprietary systems shall be installed in accordance with the manufacturer's instructions. Particular attention must be paid to the installation of the wall underlay and sill and jamb tapes around window and door openings to ensure a continuous seal is achieved and all exposed wall framing in the opening is protected.
- 18.2 Where studs are at greater than 450 mm centres and a flexible wall underlay is being used, a wall underlay support must be installed over the underlay at maximum 300 mm centres horizontally.

### Cavity Battens

- 18.3 Cavity battens must be installed over the wall underlay to the wall framing at maximum 300 mm centres where the studs are at maximum 600 mm centres or at 400 mm centres where the studs are at 400 mm centres. The battens must be fixed in place with 40 x 2.8 mm hot-dip galvanised Hardie™Flex nails at maximum 800 mm centres.

### Aluminium Joinery Installation

- 18.4 Aluminium joinery and associated head flashings must be installed by the building contractor in accordance with the Technical Literature. An 8 mm nominal gap must be left between the joinery reveal and the wall framing so a PEF rod and air seal can be installed after the joinery has been secured in place.

### Axon™ Panel Smooth Panel Installation

- 18.5 Axon™ Panel Smooth panels are supplied with vertical edges machined/profiled to form a ship-lap joint when installed. Axon™ Panel Smooth panels may be cut by scoring and snapping, hand guillotine, hand or power saw. Any site cut, square panel edges must coincide with an internal or external corner, a control joint or a junction with another cladding. Holes and cut-outs may be formed by drilling a number of holes around the perimeter of the opening required and tapping out the centre with a hammer, or by using a hole saw.
- 18.6 Panels must be dry prior to installation. There is no requirement for panel edges to be pre-painted with a seal coat prior to fixing as required by NZBC Acceptable Solution E2/AS1, Paragraph 9.7.2.1 a). Cut panel edges must however be pre-painted around cut-outs for windows, doors and other penetrations, e.g. meter boxes.
- 18.7 Prior to fixing panels, a check must be made to ensure all panel joints will be supported by framing. Panels must be fixed through the cavity battens and cavity spacers to the timber framing with fixings in accordance with Paragraph 11.3.
- 18.8 Panels at internal corners and vertical control joints must be fixed so that an 8 mm gap is left between the panels for filling with a flexible sealant. Inseal® 3259 tape must be used behind vertical control joints and internal corners. External corner panels must be fixed flush.
- 18.9 Panels must not be fixed to inter-storey joists or blocking, and must have a 15 mm gap between panel edges at this point to allow for shrinkage of the framing. This gap must be flashed with a horizontal control joint flashing to prevent moisture entry, and may be covered with an architectural shape fixed to the upper panel only.



18.10 Vertical control joints may occur at the edge of window and door openings. Horizontal, or vertical ship-lap panel joints must not occur at the edge of window and door openings. Vertical panel ship-lap joints adjacent to openings must be a minimum of 200 mm inside the jamb line of the opening.

#### **Textured Finish System**

18.11 Components and accessories supplied by and textured finish system manufacturer and the approved applicator must be installed in accordance with the textured finish system manufacturer's Technical Literature and the relevant Appraisal by the approved applicator.

#### **Inspections**

18.12 The Technical Literature must be referred to during the inspection of Axon™ Panel Smooth for Texture Coating installations.

#### **Health and Safety**

- 19.1 Safe use and handling procedures for the components that make up Axon™ Panel Smooth for Texture Coating are provided in the relevant manufacturer's Technical Literature.
- 19.2 Cutting of Axon™ Panel Smooth panels must be carried out in well ventilated areas, and a dust mask and eye protection must be worn. When power tools are used for cutting, grinding or forming holes, safety measures as set out in the Technical Literature must be undertaken because of the amount of dust generated.

### **Basis of Appraisal**

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

#### **Tests**

- 20.1 The following testing has been completed by BRANZ:
- BRANZ expert opinion on NZBC Clause E2 code compliance for Axon™ Panel Smooth for Texture Coating was based on testing and evaluation of all details within the scope and as stated within this Appraisal.
- 20.2 Testing has been carried out by James Hardie Building Products to determine the face load pressure resistance of Axon™ Panel Smooth panel. The test method and results have been reviewed by BRANZ and found to be satisfactory.
- 20.3 Testing has been carried out by James Hardie Building Products on the Axon™ Panel Smooth panel to AS/NZS 2908.2.

#### **Other Investigations**

- 21.1 Structural and durability opinions have been given by BRANZ technical experts.
- 21.2 Site inspections have been carried out by BRANZ to assess the practicability of installation, and to examine completed installations.
- 21.3 The Technical Literature for Axon™ Panel Smooth for Texture Coating has been examined by BRANZ and found to be satisfactory.
- 21.4 The details contained within the Technical Literature have been reviewed, and an opinion has been given by BRANZ technical experts that the system will meet the performance levels of NZBC Acceptable Solution E2/AS1 for drained cavity claddings.

#### **Quality**

- 22.1 The manufacture of Axon™ Panel Smooth for Texture Coating has been examined by BRANZ, including methods adopted for quality control. Details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory.
- 22.2 The quality of materials, components and accessories supplied by James Hardie New Zealand Limited is the responsibility of James Hardie New Zealand Limited. The quality control system of James Hardie New Zealand Limited has been assessed and registered as meeting the requirements of ISO 9001.



- 22.3 Quality of installation on-site of components and accessories supplied by James Hardie New Zealand Limited and the building contractor is the responsibility of the installer.
- 22.4 Designers are responsible for the building design, and building contractors are responsible for the quality of installation of framing systems and joinery, wall underlay, flashing tapes, air seals, joinery head flashings, cavity battens and Axon™ Panel Smooth panels in accordance with the instructions of James Hardie New Zealand Limited.
- 22.5 Building owners are responsible for the maintenance of Axon™ Panel Smooth for Texture Coating, in accordance with the instructions of James Hardie New Zealand Limited.

## Sources of Information

- AS/NZS 1170:2002 Structural design actions - General principles.
- AS/NZS 2908.2:2000 Cellulose-cement products - Flat panel.
- BRANZ Evaluation Method No. 4 [2004] Test procedure for coating and jointing systems for flush finished fibre cement panel cladding, June 2005.
- NZS 3602:2003 Timber and wood-based products for use in building.
- NZS 3603:1993 Timber structures standard.
- NZS 3604:2011 Timber-framed buildings.
- NZS 4211:2008 Specification for performance of windows.
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.

## Amendments

### Amendment No. 1, dated 23 September 2021

This Appraisal has been amended to rename Monotek™ Sheet - Cavity Construction to EasyLap™ Panel. Vertical panel joints changed from butted, rebated sheets to a lapped joint profile to both long panel edges.

### Amendment No. 2, dated 12 August 2024

This Appraisal has been amended to rename EasyLap™ Panel to Axon Panel Smooth and to update the Technical Literature.



**BRANZ Appraised**  
Appraisal No. 466 [2020]

**BRANZ Appraisal**  
Appraisal No. 466 [2020]  
04 December 2020

AXON™ PANEL SMOOTH FOR  
TEXTURE COATING



In the opinion of BRANZ, **Axon™ Panel Smooth for Texture Coating** is fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided it is 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.

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For BRANZ

**Chelydra Percy**

Chief Executive

Date of Issue:

04 December 2020