BRANZ Appraised
Appraisal No. 500 [2022]

FIBRE CEMENT SHEET FINISHING SYSTEM

Appraisal No. 500 (2022)

This Appraisal replaces BRANZ Appraisal No. 500 (2007)

Amended 26 July 2024

BRANZ Appraisals

Technical Assessments of products for building and construction.

Resene Construction Systems

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Product

1.1 The Fibre Cement Sheet Finishing System is a cavity-based external wall cladding system for residential and light commercial type buildings where domestic construction techniques are used.

1.2 The Fibre Cement Sheet Finishing System consists of a range of plasters and coating options to provide various textures.

Scope

2.1 The Fibre Cement Sheet Finishing System has been appraised for use as a coating system for Axon™ Panel Smooth on buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; 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 The Fibre Cement Sheet Finishing System has also been appraised for use as a coating system for Axon™ Panel Smooth on buildings subject to specific design up to an ultimate limit state (ULS) wind pressure of 2.5 kPa; and,

- constructed with timber framing complying with the NZBC; and,
- within the scope limitations of BRANZ Appraisal No. 466 Axon™ Panel Smooth for Texture Coating.

2.3 Axon™ Panel Smooth must be used, designed and installed as described in BRANZ Appraisal No. 466 and the Axon™ Panel Smooth for Texture Coating Technical Literature.

2.4 Installation of components and accessories supplied by Resene Construction Systems and its approved applicators must be carried out only by Resene Construction Systems approved applicators.

Building Regulations

New Zealand Building Code (NZBC)

3.1 **In the opinion of BRANZ, the Fibre Cement Sheet Finishing System, 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 B2 DURABILITY: Performance B2.3.1 (b) 15 years and B2.3.1 (c) 5 years. The Fibre Cement Sheet Finishing System meets these requirements. See Paragraphs 10.1 and 10.2.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. The Fibre Cement Sheet Finishing System, when used to finish Axon™ Panel Smooth, meets this requirement. See Paragraphs 8.1-8.3 and 14.1 and 14.2.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. The Fibre Cement Sheet Finishing System meets this requirement.

Technical Specification

4.1 System components supplied by Resene Construction Systems for the Fibre Cement Sheet Finishing System are:

Jointing Plaster

- **Rockcote MultiStop FRP Bedding Compound** is a polymer-modified, portland cement-based thin section jointing plaster supplied in 15 kg bags and mixed on-site with clean drinking water. It is trowel-applied to the joints of the Axon™ Panel Smooth as the bedding compound for the jointing mesh.

Base Plaster

A mesh coat is applied using one of the following coats, followed by a subsequent coat of the same plaster to level the surface:

- **Coarse Mesh Render** is a polymer-modified, portland cement-based plaster supplied in 20 kg bags and mixed on-site with clean drinking water. It is applied as the base coat in a minimum 2 mm layer followed by the embedment of fibreglass mesh reinforcement in the outer surface.
- **Rockcote PM100 Quick Render** is a dry mix, cement-based, polymer-modified plaster supplied in 20 kg bags and mixed on-site with clean water. It is used as a base coat for bonding and bedding the fibreglass mesh and is trowel-applied to an approximate thickness of 4-5 mm.
- **Rockcote Mono5 Render** is a dry mix, cement-based, polymer-modified plaster supplied in 20 kg bags and mixed on-site with clean water. It is used as a base coat for bonding and bedding the fibreglass mesh and is trowel-applied to an approximate thickness of 4-5 mm.
- **Resene Construction Systems RMaxx** is a high-yielding, cement-free dispersion-based base coat plaster supplied in 20 kg pails. It is used as a base coat for bonding and bedding the fibreglass mesh and is trowel-applied to an approximate thickness of 2-3 mm.

Primer

- **Rockcote Render Prime** is a water-borne acrylic, polymer dispersion, tintable coating supplied in 15 L pails. It is brush or roller-applied as a primer between the selected base coat and acrylic texture.
- **Resene Limelock** is a water-borne acrylic, polymer dispersion, tintable coating supplied in 10 L pails. It is brush or roller-applied as a primer between the mineral textures and the finishing system.

Mineral Texture Coating

- **Resene Construction Systems Mineral Textures** are dry mix, cement-based, polymer-modified plasters, supplied in 20 kg bags and mixed on-site with clean water. They are trowel or spray-applied to an approximate thickness of 1–3 mm.

Acrylic Texture Coating

- **Resene Construction Systems Acrylic Texture Coatings** are ready-mixed, tintable, mineral-filled, polymer-based, elastomeric high-build coatings with in-pail and dry film preservatives, supplied in 10 L pails. They are spray or trowel-applied to an approximate thickness of 0.5–2 mm. The selected Resene Construction Systems texture colour must have a minimum light reflectance value (LRV) of 25%.

uPVC Primer, Plaster Modifier and Finishes

- **Multistop Bedding Compound** is used as a uPVC primer when mixed with diluted Acrylbond resin or water.
- **Acrylbond** is a water-based co-polymer resin supplied in 4 and 15 L pails used as a plaster modifier.
- **Resene Lumbersider** is a water-borne 100% acrylic-based protective finish for use over mineral and acrylic textures. It is supplied in 4 and 15 L pails and is brush or roller-applied. The protective finish coat must have a minimum LRV of 25%.
- **Resene X200** is an acrylic waterproofing membrane for use as a protective finish over mineral and acrylic textures. It is supplied in 4 and 10 L pails and is brush, roller or spray-applied. The protective finish coat must have a minimum LRV of 25%.

Accessories

- **Reinforcing mesh** – an alkali-resistant fibreglass with a nominal mesh size of approximately 5 x 4 mm and an approximate weight of 160 g/m^2, or a nominal mesh size of approximately 8 x 9 mm and an approximate weight of 170 g/m^2.
- **Sticky mesh** – alkali-resistant fibreglass, 150 mm wide corner pieces.
- **uPVC components** – starter strip flashing, standard corner flashing, vertical control joint, horizontal control joint, EdgeSeal sill and jamb.

4.2 Accessories used with the system, which are supplied by the Resene Construction Systems approved applicator are:

- **Waterproof membrane tapes** – tapes covered by a valid BRANZ Appraisal for use as waterproof membranes over the tops of plastered parapets, balustrades, fixing blocks and the like.
- **Flexible sealant** – sealant complying with NZBC Acceptable Solution E2/AS1, or sealant covered by a valid BRANZ Appraisal for use as a weather sealing sealant for exterior use.

4.3 Accessories used with the system, which are supplied by the building contractor are:

- **Axon™ Panel Smooth** (formerly known as EasyLap™ panel) fibre cement panel.
- **Joinery head flashings** – as supplied by the joinery manufacturer or contractor.

Handling and Storage

5.1 Handling and storage of all materials supplied by Resene Construction Systems or the approved applicator, whether on-site or off-site, is under the control of Resene Construction Systems approved applicators. Dry storage must be provided on-site for the fibreglass mesh and bags and pails of plaster mix. uPVC flashings and profiles must be protected from direct sunlight and physical damage, and should be stored flat and under cover. Liquid components must be stored in frost-free conditions.

5.2 Handling and storage of all materials supplied by the building contractor, whether on-site or off-site, are under the control of the building contractor. Materials must be handled and stored in accordance with the relevant manufacturer's instructions.

Technical Literature

6.1 This Appraisal must be read in conjunction with:

- Fibre Cement Sheet Finishing System Drawing Register, dated 21 May 2024.
- Fibre Cement Sheet Finishing System – 9 mm Axon™ Panel Smooth – Fully Meshed – Acrylic RenderSpec, May 2024.
- Fibre Cement Sheet Finishing System – 9 mm Axon™ Panel Smooth – Fully Meshed – Mineral RenderSpec, May 2024.
- Fibre Cement Sheet Finishing System – 9 mm Axon™ Panel Smooth – Fully Meshed – RMaxx RenderSpec, May 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

Fibre Cement Substrate

7.1 Axon™ Panel Smooth must be designed and installed in accordance with BRANZ Appraisal No. 466 and the Axon™ Panel Smooth for Texture Coating Technical Literature.

General

8.1 Timber framing must have a maximum moisture content of 24% at the time of the cladding application. *(Note: If Axon™ Panel Smooth panels are fixed to framing with a moisture content of greater than 24%, problems may occur at a later date due to excessive timber shrinkage.)*

8.2 At ground level, the bottom edge of the Fibre Cement Sheet Finishing System must be kept clear of paved surfaces, for example footpaths, by a minimum of 100 mm and unpaved surfaces by 175 mm, in accordance with NZBC Acceptable Solution E2/AS1, Table 18.

8.3 At balcony, deck or roof/wall junctions, the bottom edge of the Fibre Cement Sheet Finishing System must be kept clear of any adjacent surface, or above the top surface of any adjacent roof flashing by a minimum of 35 mm, in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.3.

Control Joints

9.1 Control joints in the Fibre Cement Sheet Finishing System must be set out in accordance with the Axon™ Panel Technical Literature, and be provided as follows:

- **Vertical control joints** - at maximum 5.4 m centres; aligned with any control joint in the fibre cement substrate, or where the cladding system abuts different cladding types.
- **Horizontal control joints** - at maximum 5.4 m centres and at inter-storey floor levels.

Durability

10.1 The Fibre Cement Sheet Finishing System meets code compliance with NZBC Clause B2.3.1 (b) 15 years for the cladding system and plaster finish, and the performance requirements of NZBC Clause B2.3.1 (c) 5 years for the exterior paint system.

Serviceable Life

10.2 Fibre Cement Sheet Finishing System installations are expected to have a serviceable life of at least 30 years, provided the paint finish system is maintained in accordance with this Appraisal.

Maintenance

11.1 Regular maintenance is essential to ensure the performance requirements of the NZBC are continually met and to ensure the maximum serviceability of the system.

11.2 Regular cleaning (at least annually) of the paint coating is required to remove grime, dirt and organic growth and to maximise the life and appearance of the coating. Grime may be removed by brushing with a soft brush, warm water and detergent. Paint systems must be recoated at approximately 8-10 yearly intervals, in accordance with the paint manufacturer's instructions.

11.3 Annual inspections must be made to ensure that all aspects of the cladding system, including the coating system, plasters, flashings and any sealed joints remain in a weatherproof condition. Any cracks, damaged areas or areas showing signs of deterioration which could allow water ingress, must be repaired immediately. The Fibre Cement Sheet Finishing System must be repaired in accordance with the instructions of Resene Construction Systems.

11.4 Minimum ground clearances as set out in this Appraisal and the Technical Literature must be maintained at all times during the life of the system. *[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 the Fibre Cement Sheet Finishing System.]*

Prevention of Fire Occurring

12.1 Separation or protection must be provided to the Fibre Cement Sheet Finishing System 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

Vertical Fire Spread

13.1 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

13.2 The Fibre Cement Sheet Finishing System contains materials not tested or classified as non-combustible and is therefore not suitable for use on external walls where a fire resistance rating (FRR) is required.

External Cladding Systems

13.3 The Fibre Cement Sheet Finishing System contains materials not tested or classified as non-combustible which are suitable for use on external walls in accordance with NZBC Acceptable Solution C/AS1, Table 5.3.1.1 or NZBC Acceptable Solution C/AS2, Section 5.8.

13.4 Refer to NZBC Acceptable Solutions C/AS1, C/AS2 and NZBC Verification Method C/VM2 for FRR and control of external fire spread requirements for external walls.

External Moisture

14.1 The Fibre Cement Sheet Finishing System, when installed and maintained in accordance with this Appraisal and the Technical Literature will meet code compliance with NZBC Clause E2.3.2.

14.2 The detailing of junctions between the Fibre Cement Sheet Finishing System and external joinery, other wall penetrations, e.g. meter boxes, and other cladding and roofing junctions are the responsibility of James Hardie New Zealand Limited for compliance with the NZBC. These details have not been assessed as part of this Appraisal, but are covered by Appraisal No. 466.

Installation Information

Installation Skill Level Requirement

15.1 Installation and finishing of components and accessories supplied by Resene Construction Systems and the approved applicators must be completed by trained applicators, approved by Resene Construction Systems.

15.2 Installation of the accessories supplied by the building contractor must be completed by tradespersons with an understanding of cavity construction, in accordance with instructions given within the Technical Literature and this Appraisal.

System Installation

Fibre Cement Sheet Finishing System

16.1 The Fibre Cement Sheet Finishing System must be installed in accordance with the Technical Literature.

16.2 The Fibre Cement Sheet Finishing System must only be applied when the air and substrate temperature is within the range of 8 to 35°C.

Finishing

16.3 The instructions of Resene Paints Ltd must be followed at all times for application of the paint finish. The plaster must be cured for a minimum of 2-3 days and must be dry before commencing painting.

Inspections

16.4 The Technical Literature must be referred to during the inspection of the Fibre Cement Sheet Finishing System installations.

Health and Safety

17.1 Safe use and handling procedures for the components that make up the Fibre Cement Sheet Finishing System are provided in the relevant manufacturer's Technical Literature.

Basis of Appraisal

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

Tests

18.1 The following testing has been completed by BRANZ:

- The Fibre Cement Sheet Finishing System has been tested to BRANZ Evaluation Method EM4 over Axon™ Panel Smooth (formerly known as EasyLap Panel).
- BRANZ expert opinion on NZBC Clause E2 code compliance for Axon™ Panel Smooth was based on testing and evaluation of all details within the scope of Appraisal No. 466 and as stated within this Appraisal. Axon™ Panel Smooth was tested to NZBC Verification Method E2/VM1. The testing assessed the performance of the foundation detail, window head, jamb and sill details, meter box head, jamb and sill details, vertical and horizontal control joints, internal and external corners and balustrade to wall junction with a plastered cap. In addition to the weathertightness test, the details contained within the Axon™ Panel Smooth for Texture Coating 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.

Other Investigations

19.1 A durability opinion has been given by BRANZ technical experts.

19.2 Site inspections have been carried out by BRANZ to assess the practicability of installation, and to examine completed installations.

19.3 The Technical Literature for the Fibre Cement Sheet Finishing System has been examined by BRANZ and found to be satisfactory.

Quality

20.1 The manufacture of the plasters 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.

20.2 The quality management system of the primer, acrylic textures and Resene X200 paint manufacturer, Resene Paints Ltd, has been assessed and registered as meeting the requirements of ISO 9001.

20.3 The quality of materials, components and accessories supplied by Resene Construction Systems is the responsibility of Resene Construction Systems

20.4 Quality on-site is the responsibility of the Resene Construction Systems approved applicators.

20.5 Designers are responsible for the building design, and building contractors are responsible for the quality of installation of framing systems and joinery, building underlay, flashing tapes, air seals and Axon™ Panel Smooth in accordance with the instructions of James Hardie New Zealand Limited.

20.6 Building owners are responsible for the maintenance of the Fibre Cement Sheet Finishing System installations in accordance with the instructions of Resene Construction Systems.

Sources of Information

- BRANZ Appraisal No. 466 Axon™ Panel Smooth for Texture Coating.
- NZS 3604:2011 Timber-framed buildings.
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.

Amendments

Amendment No. 1, dated 26 July 2024

This Appraisal has been amended to reflect the name change from EasyLap Panel to Axon™ Panel Smooth and to update the Appraisal name.

BRANZ

In the opinion of BRANZ, Fibre Cement Sheet Finishing System 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 Rockcote Resene Ltd T/A Resene Construction Systems, 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. Rockcote Resene Ltd T/A Resene Construction Systems:
   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 workmanship;
   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 Rockcote Resene Ltd T/A Resene Construction Systems.
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 Rockcote Resene Ltd T/A Resene Construction Systems or any third party.

For BRANZ

Chelydra Percy
Chief Executive

Date of Issue:
05 December 2022