



## BRANZ Appraised

Appraisal No. 893 [2020]

## FIRESTONE RUBBERCOVER™ EPDM MEMBRANE

### Appraisal No. 893 [2020]

This Appraisal replaces BRANZ  
Appraisal No. 893 [2015]



### BRANZ Appraisals

Technical Assessments of products  
for building and construction.



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## Product

- 1.1 Firestone RubberCover™ EPDM Membrane is a synthetic rubber waterproofing membrane for roofs, decks, balconies, parapets and gutters.
- 1.2 The product is a single-ply, flexible synthetic rubber sheet in roll form and installed as a single layer system.

## Scope

- 2.1 Firestone RubberCover™ EPDM Membrane has been appraised for use as a deck and roof waterproofing membrane for buildings within the following scope:
  - the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraphs 1.1 and 8.5; or,
  - the scope of limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regards to building height and floor plan area when subject to specific structural design; and,
  - with substrates of plywood or suspended concrete slab; and,
  - with minimum falls for roofs of 1:30 and decks of 1:40; and,
  - with deck size limited to 40 m<sup>2</sup>; and,
  - situated in NZS 3604 Wind Zones up to, and including, Extra High.
- 2.2 This Appraisal is limited to roofs, decks and balconies within the following scope:
  - constructed to suitable falls [refer to Paragraphs 12.1–12.9]; and,
  - with no steps within the deck level, no integral roof gardens and no down pipes discharging directly onto the deck; and,
  - with the deck membrane continually protected from physical damage by a pedestal protection system.
- 2.3 The design and construction of the substrate and movement and control joints is specific to each building, and therefore the responsibility of the building designer and building contractor and is outside the scope of this Appraisal.
- 2.4 The membrane must be installed by Firestone Building Products EMEA approved applicators.



## Building Regulations

### New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, Firestone RubberCover™ EPDM Membrane, 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. Firestone RubberCover™ EPDM Membrane meets this requirement. See Paragraph 9.1.

**Clause E2 EXTERNAL MOISTURE:** Performance E2.3.1 and E2.3.2. Roofs, decks, balconies, parapets and gutters incorporating Firestone RubberCover™ EPDM Membrane meet these requirements. See Paragraphs 12.1-12.9.

**Clause F2 HAZARDOUS BUILDING MATERIALS:** Performance F2.3.1. Firestone RubberCover™ EPDM Membrane meets this requirement.

## Technical Specification

4.1 Materials supplied by Firestone Building Products EMEA are as follows:

- **Firestone RubberCover™ EPDM Membrane** - is a 100% cured, single-ply, black EPDM-based membrane. It is 1.1 mm or 1.5 mm thick and available in rolls 3.05, 4.57, 5.08, 6.10, 7.62 or 9.15 m wide and 7.62 or 30.5 m long.
- **QuickPrime Plus** - is designed to clean and prime the Firestone RubberCover™ EPDM Membrane and/or substrate prior to the application of QuickSeam products. It is supplied in 1 and 1/4 US gallon cans.
- **EPDM Bonding Adhesive BA-2004 [T]** - is a solvent-based contact adhesive designed specifically for bonding Firestone RubberCover™ EPDM Membrane to all approved substrates. It is supplied in 18.9 L or 5 US gallon pails.
- **RubberCover Water Based Bonding Adhesive** - is a water-based contact adhesive designed specifically for bonding Firestone RubberCover™ EPDM Membrane to all approved substrates. It is supplied in 2.5 L, 5 L and 10 L pails.
- **QuickSeam Cover Strip** - is a 152 mm wide semi-cured EPDM strip laminated to a QuickSeam tape. It is used to cover and seal butt-jointed Firestone RubberCover™ EPDM Membrane. It is supplied in rolls 7.62 m long.
- **QuickSeam SA Flashing** - is a 457 mm wide Firestone RubberCover™ EPDM Membrane fully laminated to QuickSeam tape with a polyester release liner. It is used for lining gutters, general roof repairs and general flashing. It is supplied in 15.25 m rolls.
- **QuickSeam Pipe Flashing** - is specifically designed to be used for flashing of rigid round penetrations of 25 mm to 150 mm diameter. It is a prefabricated pipe boot with QuickSeam tape laminated to the bottom of the flange of the boot.
- **QuickSeam Corner Flashing** - is a 216 mm diameter round piece of uncured EPDM FormFlash factory laminated to a QuickSeam tape. It is designed to flash outside corners or to be used as a cover patch where required.

## Handling and Storage

5.1 Handling and storage of all materials whether on-site or off-site is under the control of the Firestone Building Products EMEA approved applicators. Dry storage must be provided for all products.

## Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for the Firestone RubberCover™ EPDM Membrane. The Technical Literature must be read in conjunction with this Appraisal. 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

### General

- 7.1 Firestone RubberCover™ EPDM Membrane is a single layer, fully bonded waterproofing system.
- 7.2 Firestone RubberCover™ EPDM Membrane is for use on roofs and decks where an impervious waterproof membrane is required to prevent damage to building elements and adjoining areas.
- 7.3 The effective control of internal moisture must be considered at the design stage due to the impermeability of the membrane. Refer to the BRANZ Good Practice Guide to Membrane Roofing.
- 7.4 Timber framing systems must comply with NZS 3604, or where specific engineering design is used, the framing shall be of at least equivalent stiffness to the framing provisions of NZS 3604, or comply with the serviceability criteria of AS/NZS 1170. In all cases, framing must be provided so that the maximum span of the substrate as specified by the substrate manufacturer is met and that all sheet edges are fully supported.
- 7.5 Firestone RubberCover™ EPDM Membrane will be suitable for use on roofs, decks and balconies on buildings in NZS 3604 Wind Zones up to, and including, Extra High.
- 7.6 Where the product is used on a deck, a suitable pedestal system or other protection system for foot traffic approved by Firestone Building Products EMEA must be used.
- 7.7 Firestone RubberCover™ EPDM Membrane has adequate resistance to wear caused by foot traffic associated with normal membrane installation and maintenance.

### Substrates

#### Plywood

- 8.1 Plywood must be treated to H3 (CCA treated). LOSP treated plywood must not be used. Plywood must comply with NZBC Acceptable Solution E2/AS1, Paragraph 8.5.3 and 8.5.5.

#### Concrete

- 8.2 Concrete substrates must be to a specific engineering design meeting the requirements of the NZBC, such as concrete construction to NZS 3101.

### Durability

#### Serviceable Life

- 9.1 Firestone RubberCover™ EPDM Membrane, when subjected to normal conditions of environment and use, is expected to have a serviceable life of at least 20 years.

### Maintenance

- 10.1 No maintenance of the membrane is normally required provided significant substrate movement does not occur.
- 10.2 In the event of damage to the membrane, the membrane must be repaired by removing the damaged portion and applying a patch as for new work.
- 10.3 Drainage outlets must be maintained to operate effectively.

### Prevention of Fire Occurring

- 11.1 Separation or protection must be provided to Firestone RubberCover™ EPDM Membrane from heat sources such as fireplaces, heating appliances and chimneys. Part 7 of NZBC Acceptable Solution C/AS1 and C/AS2, and NZBC Verification Method C/VM1 provide methods for separation and protection of combustible materials from heat sources.

## External Moisture

- 12.1 Roofs, decks and balconies must be designed and constructed to shed precipitated moisture. They must also take account of snowfalls in snow prone areas. A means of meeting code compliance with NZBC Clause E2.3.1 is given by the Technical Literature which matches details in NZBC Acceptable Solution E2/AS1.
- 12.2 When installed in accordance with this Appraisal and the Technical Literature, Firestone RubberCover™ EPDM Membrane will prevent the penetration of water and will therefore meet code compliance with NZBC Clause E2.3.2. The membrane is impervious to water and will give a weathertight roof, deck, or balcony.
- 12.3 The minimum fall to roofs is 1 in 30, decks is 1 in 40 and gutters is 1 in 100. All falls must slope to an outlet. Inadequate falls will allow moisture to collect and increase the risk of deterioration of the membrane.
- 12.4 Firestone RubberCover™ EPDM Membrane is impermeable; therefore a means of dissipating construction moisture must be provided in the building design and construction to meet code compliance with NZBC Clause E2.3.6.
- 12.5 Roof and deck falls must be built into the substrate.
- 12.6 Allowance for deflection and settlement of the substrate must be made in the design of the deck to ensure falls are maintained and no ponding of water can occur.
- 12.7 Drainage flanges must be used for any outlet and must be fitted with a grate or cage to reduce potential sources of blockages. An overflow must be provided where the deck or balcony does not drain to an external gutter or spouting.
- 12.8 Penetrations and upstands of the membrane must be raised above the level of any possible flooding caused by blockage of roof or deck drainage.
- 12.9 The design of details not covered by the Technical Literature is subject to specific weathertightness design and is outside the scope of this Appraisal.

## Water Supplies

- 13.1 Firestone RubberCover™ EPDM Membrane has not been appraised for roofs used for the collection of potable water. Firestone Building Products EMEA must be consulted for advice if the roof is intended for the collection of potable water supplies.

## Installation Information

### Installation Skill Level Requirement

- 14.1 All design and building work must be carried out in accordance with the Firestone RubberCover™ EPDM Membrane Technical Literature and this Appraisal. All building work must be undertaken by Firestone Building Products EMEA approved applicators. Where the work involves Restricted Building Work this must also be completed by, or under the supervision of, a Licensed Building Practitioner [LBP] with the relevant License class.

### Preparation of Substrates

- 15.1 Substrates must be dry, clean and stable before installation commences. Surfaces must be smooth and free from nibs, sharp edges, dust, dirt or other materials such as oil, grease or concrete formwork release agents. All surface defects must be filled to achieve an even and uniform surface.
- 15.2 The relative humidity of concrete substrates must be 75% or less before membrane application. The concrete can be checked for dryness by using a hygrometer, as set out in BRANZ Bulletin No. 585.
- 15.3 The moisture content of the plywood and the timber substructure must be a maximum of 20% and plywood sheet must be dry at time of membrane application. This will generally require plywood sheets to be covered until just before the membrane is laid, to prevent rain wetting.



### Membrane Installation

- 16.1 The membrane must be installed in accordance with the Technical Literature.
- 16.2 Plywood joints must be taped with 25 mm wide PVC pressure sensitive tape.
- 16.3 The membrane must be unrolled without tension onto the prepared substrate and allowed to 'relax' for at least 20 minutes prior to installation.
- 16.4 Adhesive must be applied to both the membrane and the substrate, one half at a time. When the adhesive is tack dry, the sheet is rolled onto the substrate. The process is then repeated for the other half of the sheet. All joints require lap bonding using QuickSeam Cover Strip.

### Inspections

- 17.1 Critical areas of inspection for waterproofing systems are:
  - Construction of substrates, including crack control and installation of bond breakers and movement control joints.
  - Moisture content of the substrate prior to the application of the membrane.
  - Acceptance of the substrate by the membrane installer prior to application of the membrane.
  - Installation of the membrane to the manufacturer's instructions.

### Health and Safety

- 18.1 Safe use and handling procedures for the membrane systems are provided in the Technical Literature. The product must be used in conjunction with the relevant Material Safety Data Sheet for each membrane.

### Basis of Appraisal

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

#### Tests

- 19.1 Tests have been carried out on Firestone RubberCover™ EPDM Membrane for mass per unit area, water vapour permeability, water vapour resistance, water absorption, tensile strength, heat aged tensile strength, ultraviolet (UV) aged tensile strength, resistance to tear propagation, heat aged and resistance to tear propagation, modulus at 100% strain, heat aged and modulus at 100% strain, UV aged modulus at 100% strain, elongation, heat aged elongation, UV aged elongation, bitumen compatibility, static indentation on a concrete substrate, resistance to water pressure, resistance to sliding, fatigue cycling and heat aged fatigue cycling.  
Results and test methods have been reviewed by BRANZ and found to be satisfactory.
- 19.2 The adhesives, primers and seam tapes used with Firestone RubberCover™ EPDM Membrane met the performance requirements of NZBC Acceptable Solution E2/AS1 Paragraph 8.5.4 c) during testing by BRANZ.

#### Other Investigations

- 20.1 Site inspections have been carried out by BRANZ to assess the practicability of installation.
- 20.2 The Technical Literature has been examined by BRANZ and found to be satisfactory.
- 20.3 Reported information on the performance of EPDM rubber and its resistance to accelerated and natural weathering, and the long-term field experience with EPDM rubber roof membranes in New Zealand and overseas has been examined.



### Quality

- 21.1 The manufacture of the Firestone RubberCover™ EPDM Membrane has not been inspected by BRANZ, but details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory. BRANZ has also taken note of various overseas certifications.
- 21.2 The quality of supply of the product to the market is the responsibility of Firestone Building Products EMEA.
- 21.3 Quality on site is the responsibility of the Firestone Building Products EMEA approved applicators.
- 21.4 Designers are responsible for the substrate design, and building contractors are responsible for the quality of construction of substrate systems in accordance with the instructions of the substrate manufacturer, Firestone Building Products EMEA and this Appraisal.

### Sources of Information

- AS/NZS 1170: 2002 Structural design actions.
- AS/NZS 2269.0: 2012 Plywood - Structural.
- BRANZ Bulletin No. 585 Measuring Moisture in Timber and Concrete, June 2015.
- BRANZ Good Practice Guide - Membrane Roofing, Second Edition, October 2015.
- NZS 3101: 2006 Concrete structures standard.
- 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.



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17 December 2020

FIRESTONE RUBBERCOVER™  
EPDM MEMBRANE



In the opinion of BRANZ, **Firestone RubberCover™ EPDM Membrane** 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 **Firestone Building Products EMEA**, 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. **Firestone Building Products EMEA:**
  - 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 **Firestone Building Products EMEA**.
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 **Firestone Building Products EMEA** or any third party.

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For BRANZ

**Chelydra Percy**

Chief Executive

Date of Issue:

17 December 2020