



## BRANZ Appraised

Appraisal No. 1246 [2023]

## FLEXITRAY 102 EXTERIOR WATERPROOFING MEMBRANE



Appraisal No. 1246 [2023]

### BRANZ Appraisals

Technical Assessments of products  
for building and construction.



#### The Trustee for B & C Crommelin Family Trust

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## BRANZ

### BRANZ

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## Product

- 1.1 Flexitray 102 is a liquid-applied waterproofing membrane for use under ceramic or stone tile finishes on external decks and balconies.

## Scope

- 2.1 Flexitray 102 has been appraised for use as a waterproofing membrane for pedestrian decks and balconies within the following scope:
- on substrates of plywood or fibre cement compressed sheet on timber frame construction; or,
  - on substrates of concrete; and,
  - when protected from ultraviolet (UV) exposure and physical damage by ceramic or stone tiles; and,
  - where decks and balconies are designed and constructed such that deflections do not exceed 1/360<sup>th</sup> of the span.
- 2.2 The structural and weathertightness design for each specific structure is the responsibility of the building designer.
- 2.3 The ceramic or stone tile finishes are outside the scope of this Appraisal.
- 2.4 Installation of Flexitray 102 and accessories must be carried out by trained installers, approved by The Trustee for B & C Crommelin Family Trust.

## Building Regulations

### National Construction Code (NCC)

- 3.1 In the opinion of BRANZ, Flexitray 102, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet the following provisions of the NCC:

#### NCC 2022 Volume One - Building Code of Australia

**Part F3 ROOF AND WALL CLADDING:** Performance F3P1. Flexitray 102 meets this requirement. See Paragraphs 13.1–13.7.

#### NCC 2022 Volume Two - Building Code of Australia

**Part H2 DAMP AND WEATHERPROOFING:** Performance H2P2. Flexitray 102 meets this requirement. See Paragraphs 13.1–13.7.

## Technical Specification

- 4.1 Materials supplied by The Trustee for B & C Crommelin Family Trust are as follows:
- **Flexitray 102** is a ready-mixed, waterborne flexible SBR waterproofing membrane for use under ceramic or stone tile finishes in internal wet areas. It is coloured sandstone and is supplied in 15 L plastic pails.

## Handling and Storage

- 5.1 All materials must be stored inside, up off concrete floors, in dry conditions, out of direct sunlight and freezing conditions. The membrane product has a shelf life of 12 months from the date of manufacture in the original unopened packaging. Once opened, the product must be used within 3 months.

## Technical Literature

- 6.1 This Appraisal must be read in conjunction with:
- Flexitray 102 Technical Data Sheet - January 2022.
- 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

### General

- 7.1 Flexitray 102 is for use where an impervious waterproof membrane is required on decks and balconies to prevent damage to building elements and adjoining areas.
- 7.2 The membrane must be covered with ceramic or stone tile finishes within seven days. The finishes must protect the membrane from exposure to UV light and physical damage.
- 7.3 Movement and control joints may be required depending on the shape and size of the deck and the tiling finish. Design guidance can be found in the BRANZ Good Practice Guide: Tiling.
- 7.4 Effective control of moisture in the structure and from within the building must be considered due to the impermeability of the membrane.
- 7.5 Where the system abuts cladding systems, designers must detail the junction to meet their own requirements and the performance requirements of the NCC. Details not included within the Technical Literature have not been assessed and are outside the scope of this Appraisal.

### Substrates

#### Fibre Cement Compressed Sheet

- 8.1 Fibre cement compressed sheet must be manufactured to comply with the requirements of AS/NZS 2908.2 and must be specified by the manufacturer as being suitable for use as an external decking substrate. The fibre cement sheet must be of a thickness to meet specific structural design requirements and must be secured to the structure to resist wind uplift and all other forces acting on the deck or balcony, such as deflection from gravity and live loads. Installation must be in accordance with the instructions of the manufacturer.

#### Concrete

- 8.2 Concrete substrates must be to a specific engineering design meeting the requirements of the NCC.

### Durability

#### Serviceable Life

- 9.1 Flexitray 102, when subjected to normal conditions of environment and use, is expected to have a serviceable life of at least 15 years and be compatible with ceramic or stone tile finishes with a design service life of 15–25 years.

## Maintenance

- 10.1 No maintenance of the membrane will be required provided significant substrate movement does not occur and the tiling finish remains intact. Regular checks must be made of tiled areas to ensure they are sound and will not allow moisture to penetrate. Any cracks or damage must be repaired immediately by repairing the tiles, grout and sealants.
- 10.2 In the event of damage to the waterproofing membrane, the tiling must be removed. Repair can be carried out by applying a patch of suitable membrane.
- 10.3 Drains and outlets must be maintained to operate effectively, and tiling finishes must remain clean.

## Outbreak of Fire

- 11.1 Flexitray 102 must be protected or separated from fireplaces, heating appliances, chimneys and flues in accordance with the requirements of NCC Volume One, Part G2, Performance G2P1, and NCC Volume Two, Part H7, Performance H7P3.

## Spread of Fire

- 12.1 Flexitray 102 is considered an exempt building material, in accordance with NCC Volume One Deemed-to-Satisfy Provision C2D11 [3].

## External Moisture

- 13.1 Decks and balconies must be designed and constructed to meet code compliance with NCC Volume One, Part F3 Roof and wall cladding, Performance F3P1 or NCC Volume Two, Part H2 Damp and weatherproofing, Performance H2P2. They must also take account of snowfalls in snow prone areas.
- 13.2 When installed in accordance with this Appraisal and the manufacturer's Technical Literature, Flexitray 102 will prevent the penetration of water and will therefore meet code compliance with NCC Volume One, Part F3 Roof and wall cladding, Performance F3P1 and NCC Volume Two, Part H2 Damp and Weatherproofing, Performance H2P2. The membrane is impervious to water and will give a weathertight deck or balcony capable of accepting minor structural movements.
- 13.3 Flexitray 102 is impermeable, therefore a means of dissipating construction moisture must be provided in the building design and construction to meet code compliance with NCC Volume One, Part F3 Roof and wall cladding, Performance F3P1 and NCC Volume Two, Part H2 Damp and Weatherproofing, Performance H2P2.
- 13.4 BRANZ recommends a minimum fall to decks and balconies of 1:40 and that all falls must slope to an outlet. Inadequate falls will allow moisture to collect and increase the risk of deterioration of the membrane and tile finish.
- 13.5 Deck and balcony falls must be built into the substrate and not created with mortar screeds applied over the membranes.
- 13.6 Allowance for deflection and settlement of the substrate must be made in the design of the deck or balcony.
- 13.7 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.

## Installation Information

### Installation Skill Level Requirement

- 14.1 Installation of the membrane must be completed by trained installers, approved by The Trustee for B & C Crommelin Family Trust, that have experience in the application of waterproofing membrane and understand waterproofing principles.
- 14.2 Installation of substrates must be completed by tradespersons with a thorough understanding of deck and balcony construction, in accordance with instructions given within the substrate manufacturers Technical Literature and this Appraisal.

### 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 timber substructure must be a maximum of 20% and fibre cement sheets must be dry at the time of membrane application. This will generally require the fibre cement sheets to be covered until just before the membrane is applied, to prevent rain wetting.
- 15.4 Substrates must be primed with a primer as specified by The Trustee for B & C Crommelin Family Trust, and allowed to dry fully before the membrane is installed.

### Membrane Installation

- 16.1 Installation must not be undertaken where the substrate surface temperature is below 5°C or above 35°C.
- 16.2 Flexitray 102 must be applied in a minimum of two coats at the rates set out in the Technical Literature. Subsequent coats must be applied in a different direction to the previous coat. Subsequent coats must be applied in a different direction to the previous coat.
- 16.3 Membrane application can be made by roller [medium/long nap] or brush [long bristle].
- 16.4 The installation and use of a reinforcement or bond breaker must comply with the instructions in the Technical Literature.
- 16.5 Clean up may be undertaken with water.

### Tiling

- 17.1 The membrane must be fully cured before tiling. The cured membrane must be protected at all times to prevent mechanical damage, so may require temporary protection until the finishing is completed.
- 17.2 Tiling must be undertaken in accordance with AS 3958.1 and the BRANZ Good Practice Guide: Tiling. The compatibility of the tile adhesive must be confirmed with the adhesive manufacturer or The Trustee for B & C Crommelin Family Trust.

### Inspections

- 18.1 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, particularly installation to the correct thickness and use of reinforcement.
  - Membrane curing and integrity prior to the installation of tiles, including protection from moisture, frost and mechanical damage during curing.

### Health and Safety

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

## Basis of Appraisal

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

### Tests

- 20.1 The following testing of Flexitray 102 has been undertaken by the following organisations:
- CSIRO, Australia – tensile strength and elongation at break; tensile strength and elongation at break after UV exposure, including immersion in water, bleach and detergent; heat aging; moving joint test and cyclic movement.
- 20.2 Test methods and results have been reviewed by BRANZ and found to be satisfactory.

### Other Investigations

- 21.1 An assessment was made of the durability of Flexitray 102 by BRANZ technical experts.
- 21.2 Site inspections were carried out by BRANZ to examine the practicability of installation.
- 21.3 The Technical Literature has been examined by BRANZ and found to be satisfactory.

### Quality

- 22.1 The manufacture of the membrane has been examined by BRANZ, and details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory.
- 22.2 The quality of supply to the market is the responsibility of The Trustee for B & C Crommelin Family Trust.
- 22.3 Designers are responsible for the building design, and building contractors are responsible for the quality of installation of the framing system and substrate.
- 22.4 Quality on-site is the responsibility of the trained installers, approved by The Trustee for B & C Crommelin Family Trust.
- 22.5 Building owners are responsible for the maintenance of the ceramic or stone tiles in accordance with the instructions of the ceramic or stone tile supplier.

## Sources of Information

- ANSI 118.10:1999 Load bearing, bonded, waterproof membranes for thin-set ceramic tile and dimension stone installations.
- AS 3958.1:2007 Ceramic Tiles - Guide to the installation of ceramic tiles.
- AS/NZS 2269:2012 Plywood – structural.
- AS/NZS 2908.2:2000 Cellulose-cement products – Flat sheet.
- AS/NZS 4858:2004 Wet area membranes.
- BRANZ Bulletin 585 – Measuring moisture in timber and concrete.
- BRANZ Good Practice Guide: Tiling, April 2015.
- National Construction Code 2022, Australian Building Codes Board.



In the opinion of BRANZ, **Flexitray 102 Exterior Waterproofing 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 **The Trustee for B & C Crommelin Family Trust**, 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. **The Trustee for B & C Crommelin Family Trust:**
  - 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 **The Trustee for B & C Crommelin Family Trust**.
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 **The Trustee for B & C Crommelin Family Trust** or any third party.

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**For BRANZ**



**Claire Falck**

Acting Chief Executive

Date of Issue:

19 May 2023