



**BRANZ Appraised**  
Appraisal No. 723 [2023]

## AQUABLOK EXTERIOR WATERPROOFING MEMBRANES

**Appraisal No. 723 [2023]**

This Appraisal replaces BRANZ  
Appraisal No. 723 [2017]

**CTA<sup>TM</sup>** CONSTRUCTION  
TECHNOLOGIES  
AUSTRALIA



### BRANZ Appraisals

Technical Assessments of  
products for building and  
construction.



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### Product

- 1.1 AquaBlok Exterior Waterproofing Membranes are single and two-part waterproofing membranes for use under trafficable floor finishes on external decks and balconies.

### Scope

- 2.1 AquaBlok Exterior Waterproofing Membranes have been appraised for use as deck and balcony waterproofing membranes for buildings within the following scope:
- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; or,
  - the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regard to building height and floor plan area when subject to specific engineering design; and,
  - with substrates of plywood, fibre cement compressed sheet, or suspended concrete slab; and,
  - with minimum falls for decks and balconies of 1:40; and,
  - with deck and balcony size limited to 40 m<sup>2</sup>; and,
  - situated in NZS 3604 Wind Zones up to, and including, Extra High.
- 2.2 Decks and balconies must be designed and constructed in accordance with the following limitations:
- with the membranes continually protected from exposure to ultraviolet (UV) light and from physical damage by trafficable floor finishes; and,
  - with no steps within the deck level and no downpipes discharging directly onto the deck.
- 2.3 Movement and control joints in the substrate must be carried through the membranes and trafficable floor finish. The design and construction of the substrate and movement and control joints is specific to each building, and is therefore the responsibility of the building designer and building contractor and is outside the scope of this Appraisal.
- 2.4 The trafficable floor finishes are outside the scope of this Appraisal.
- 2.5 The membranes must be installed by trained installers, approved by Sika [NZ] Ltd.

## Building Regulations

### New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, AquaBlok Exterior Waterproofing Membranes, 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 B2.3.2. AquaBlok Exterior Waterproofing Membranes meet these requirements. See Paragraph 9.1.

**Clause E2 EXTERNAL MOISTURE:** Performance E2.3.1 and E2.3.2. Decks and balconies incorporating AquaBlok Exterior Waterproofing Membranes meet these requirements. See Paragraphs 12.1–12.9.

**Clause F2 HAZARDOUS BUILDING MATERIALS:** Performance F2.3.1. AquaBlok Exterior Waterproofing Membranes meet this requirement.

## Technical Specification

4.1 Materials supplied by Sika [NZ] Ltd are as follows:

- **AquaBlok SBR** is a styrene-butadiene copolymer-based, one-part, ready-to-use, liquid-applied membrane supplied as a thixotropic paste in 4 and 15 L pails.
- **AquaBlok 2 Part** is a quick drying, latex-based, two-part, flexible, cementitious-based, liquid-applied membrane. It is supplied as AquaBlok Part A liquid in 10 L pails and AquaBlok Part B powder in 15 kg bags. When dry, the membrane is light grey in colour.
- **AquaBlok WPU** is a one-part, water-based, micro-fibre reinforced elastomeric waterproofing membrane. It is supplied in 15 L pails.
- **Eco Prime WB Primer** is a synthetic, latex-based liquid, which is used for priming a variety of substrates prior to the application of the AquaBlok Waterproofing Membranes. It is supplied in 5 L and 20 L containers.
- **Eco Prep N Prime** is suitable for the priming of non-porous substrates prior to the application of Aquablok waterproofing membranes. It is supplied in 1 and 4 L containers.
- **Sika SealTape** is a reinforcement tape with a woven bonding mesh and an expansion zone in the middle, to be used to reinforce all changes of direction. It comes as preformed corners, wall flashings, floor flashings and rolls. It is 0.6 mm thick and coloured yellow/white.

## 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 materials in the original unopened packaging have a shelf life of 12 months from the date of manufacture. Once opened, the materials must be used within 3 months.

## Technical Literature

6.1 This Appraisal must be read in conjunction with:

- Technical Data Sheet Aqua Blok SBR, Issue 1.
- Technical Data Sheet AquaBlok WPU, Issue 6/11/2017.

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 AquaBlok Exterior Waterproofing Membranes are for use on decks and balconies where an impervious waterproof membrane is required to prevent damage to building elements and adjoining areas.
- 7.2 The AquaBlok 2 Part product is designed to be used where a quicker curing time is required, such as in cool or humid conditions.
- 7.3 The membranes must be protected from exposure to UV light and from physical damage by trafficable floor finishes within seven days.
- 7.4 The effective control of internal moisture must be considered at the design stage due to the impermeability of the membranes. Refer to the BRANZ Good Practice Guide: Membrane Roofing.
- 7.5 Movement and control joints may be required depending on the shape and size of the deck, and the finish specified. Design guidelines for control joints for tiles can be found in the BRANZ Good Practice Guide: Tiling.
- 7.6 Timber framing 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.
- 7.7 Timber framing supporting the substrates must be constructed such that deflections do not exceed 1/360<sup>th</sup> of the span. Where NZS 3604 is used, the allowable joist spans given in Table 7.1 must be reduced by 20%.

### 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.

#### Fibre Cement Compressed Sheet

- 8.2 Fibre cement compressed sheet must be manufactured to comply with the requirements of AS 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 instructions of the manufacturer.

#### Concrete

- 8.3 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 AquaBlok Exterior Waterproofing Membranes, when subjected to normal conditions of environment and use, are expected to have a serviceable life of at least 15 years and be compatible with trafficable floor finishes with a design serviceable 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 floor finish remains intact. Regular checks must be made of the floor finish to ensure it is sound and will not allow moisture to penetrate. Any cracks or damage must be repaired immediately.
- 10.2 In the event of damage to the membrane, the trafficable floor finish must be removed and the membrane repaired by removing the damaged portion and applying a patch as for new work.
- 10.3 Drainage outlets must be maintained to operate effectively, and floor finishes must be kept clean. Cleaning materials that may affect polymer-based membranes must not be used.

## Prevention of Fire Occurring

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

## External Moisture

- 12.1 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 provided by the Technical Literature which gives details aligned with NZBC Acceptable Solution E2/AS1.
- 12.2 When installed in accordance with this Appraisal and the Technical Literature, AquaBlok Exterior Waterproofing Membranes will prevent the penetration of water and will therefore meet code compliance with NZBC Clause E2.3.2. The membranes are impervious to water and will give a weathertight deck or balcony.
- 12.3 AquaBlok Exterior Waterproofing Membranes are 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.
- 12.4 The minimum fall to decks and balconies is 1 in 40. The minimum fall to gutters is 1 in 100, and all falls must slope to an outlet. Inadequate falls will allow moisture to collect and increase the risk of deterioration of the membrane and floor finish.
- 12.5 Deck and balcony falls must be built into the substrate and not created with mortar screeds applied over the membrane.
- 12.6 Allowance for deflection and settlement of the substrate must be made in the design of the deck or balcony 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 deck and balcony 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.

## Installation Information

### Installation Skill Level Requirement

- 13.1 Installation of the membranes must be completed by trained installers, approved by Sika [NZ] Ltd that have experience in the application of waterproofing membranes and understand waterproofing principles.
- 13.2 Installation of substrates must always be carried out in accordance with the AquaBlok Exterior Waterproofing Membranes Technical Literature and this Appraisal by, or under the supervision of, a Licensed Building Practitioner [LBP] with the relevant Licence Class.

### Preparation of Substrates

- 14.1 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.
- 14.2 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.
- 14.3 The moisture content of the timber substructure and plywood must be a maximum of 20% and fibre cement and plywood sheets must be dry at time of membrane application. This will generally require plywood and fibre cement sheets to be covered until just before the membrane is applied, to prevent rain wetting.
- 14.4 Porous substrates must be primed with Eco Prime WB Primer and allowed to dry fully before the membranes are applied.

### Membrane Installation

- 15.1 Installation must not be undertaken where the substrate surface temperature is below 5°C or above 35°C.
- 15.2 AquaBlok Part B liquid and AquaBlok Part A powder must be mixed and left to stand for 5 minutes before re-mixing, then applying. AquaBlok SBR and WPU must be thoroughly stirred before application.
- 15.3 The membrane must be applied in a minimum of two coats at the rates set out in the Technical Literature. Subsequent coats must be applied in an opposite direction to the previous coat. The total finished system thickness of the membrane must be a minimum of 2 mm.
- 15.4 Application can be made by roller [medium/long nap], brush [long bristle], or a non-edge serrated flat steel trowel.
- 15.5 In all situations, reinforcement provisions as set out in this Appraisal and the Technical Literature apply.
- 15.6 It is strongly recommended that the membrane is protected with temporary covers until it is fully cured in case of mechanical damage or rain wetting.
- 15.7 Clean up may be undertaken with water.

### Floor Finishes

- 16.1 The membrane must be fully cured before applying or installing the floor finish. The cured membrane must be protected at all times to prevent mechanical damage, so may require temporary covers until the finishing is completed.
- 16.2 Any 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 Sika [NZ] Ltd.

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

## Health and Safety

- 18.1 Safe use and handling procedures for the membrane systems are provided in the Technical Literature. The products must be used in conjunction with the relevant materials safety data Sheet for each membrane.

## Basis of Appraisal

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

### Tests

- 19.1 The following testing of AquaBlok Exterior Waterproofing Membranes has been undertaken by the following organisations:
- Amdel Limited, Australia – water absorption; tensile strength and elongation; shore A hardness; water vapour transmission; accelerated weathering and low temperature flexibility.
  - CSIRO, Australia – mass per unit area and gravimetric thickness; tensile strength and elongation at break; tensile strength and elongation at break after UV exposure, including immersion in water, bleach and detergent; loss on heating; moving joint test and cyclic strain.
- 19.2 The following testing of AquaBlok Exterior Waterproofing Membranes has been undertaken by Amdel Limited, Australia – wet area durability testing in accordance with AS/NZS 4858 covering immersion in water, bleach, detergent, and heat ageing; UV ageing; water absorption; low temperature flexibility and water vapour transmission.
- 19.3 The above test methods and results have been reviewed by BRANZ and found to be satisfactory.

### Other Investigations

- 20.1 An assessment was made of the durability of AquaBlok Exterior Waterproofing Membranes by BRANZ technical experts.
- 20.2 Site inspections were carried out by BRANZ to examine the practicability of installation.
- 20.3 The Technical Literature has been examined by BRANZ and found to be satisfactory.

### Quality

- 21.1 The manufacture of the membranes 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.
- 21.2 The quality management system of the membranes' manufacturer has been assessed by BRANZ and found to be satisfactory.
- 21.3 The quality of supply to the market is the responsibility of Sika [NZ] Ltd.
- 21.4 Designers are responsible for the building design, and building contractors are responsible for the quality of installation of the framing system and the substrates.
- 21.5 Quality on-site is the responsibility of trained applicators, approved by Sika [NZ] Ltd.
- 21.6 Building owners are responsible for the maintenance of the floor finishes, in accordance with the instructions of Sika [NZ] Ltd.



## Sources of Information

- AS 2908.2:2000 Cellulose-cement products – Flat sheet.
- AS 3958.1:2007 Guide to the installation of ceramic tiles.
- AS/NZS 1170:2002 Structural design actions.
- AS/NZS 2269:2012 Plywood – Structural.
- AS/NZS 4858:2004 Wet area membranes.
- BRANZ Bulletin 585. Measuring Moisture in Timber and Concrete, June 2015.
- BRANZ Good Practice Guide: Tiling, Third Edition, April 2015.
- BRANZ Good Practice Guide: Membrane Roofing, Second Edition, October 2015.
- NZS 3101:2006 The design of concrete structures.
- 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.



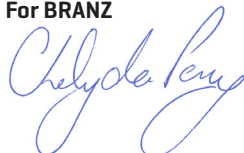
In the opinion of BRANZ, **AquaBlok Exterior Waterproofing Membranes** are fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided they are used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to **Sika [NZ] Ltd**, 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. **Sika [NZ] Ltd**:
  - 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 **Sika [NZ] Ltd**.
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 **Sika [NZ] Ltd** or any third party.

For BRANZ



**Chelydra Percy**

Chief Executive

Date of Issue:

08 February 2023