



BRANZ Appraised

Appraisal No.519 [2014]

BRANZ Appraisals

Technical Assessments of products
for building and construction

**BRANZ
APPRAISAL
No. 519 (2014)**

This Appraisal replaces BRANZ
Appraisal No. 519 (2006).

**STRATAFLEX WET AREA
WATERPROOFING
MEMBRANE**

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Product

1.1 Strataflex Wet Area Waterproofing Membrane is a self adhesive sheet waterproofing/anti-fracture membrane for use under ceramic or stone tile finishes in internal wet areas.



Scope

2.1 Strataflex Wet Area Waterproofing Membrane has been appraised for use as waterproofing membranes for internal wet areas of buildings, within the following scope:

- on floor substrates of concrete, flooring grade particleboard, plywood, compressed fibre cement sheet and fibre cement sheet tile underlay, and on wall substrates of concrete, concrete masonry, wet area fibre cement sheet lining systems and wet area plasterboard lining systems; and,
- when protected from physical damage by ceramic or stone tile finishes; and,
- where floors are designed and constructed such that deflections do not exceed 1/360th of the span.

2.2 The use of Strataflex Wet Area Waterproofing Membrane on concrete slabs where hydrostatic or vapour pressure is present is outside the scope of this Appraisal.

2.3 Building structural movement and control joints in the substrate must be carried through to the tile finish. 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 Ceramic or stone tile finishes are outside the scope of this Appraisal.

2.5 The membranes must be installed by Technokolla NZ Trained and Approved Applicators.

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, Strataflex Wet Area Waterproofing 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. Strataflex Wet Area Waterproofing Membrane meets this requirement. See Paragraph 9.1.

Clause E3 INTERNAL MOISTURE: Performance E3.3.6. Interior wet area floors and walls incorporating Strataflex Wet Area Waterproofing Membrane will meet this requirement. See Paragraphs 11.1.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Strataflex Wet Area Waterproofing Membrane meets this requirement and will not present a health hazard to people.

3.2 This is an Appraisal of an **Alternative Solution** in terms of New Zealand Building Code compliance.

Technical Specification

4.1 Materials supplied by Technokolla NZ are as follows:

Strataflex Wet Area Waterproofing Membrane

- Strataflex Wet Area Waterproofing Membrane is a 1.5 mm thick, self adhesive, polymer modified bitumen, sheet waterproofing membrane. It is supplied in a 914 mm x 15.3 m roll.

Seam and Corner Tape

- Seam and Corner tape is a 150 mm wide, flexible, self adhesive tape used to seal and waterproof inside and outside corners, drains, protrusions and end seams. It is supplied in 16 m rolls.

Bostik Triple 5 BSR Adhesive

- Bostik Triple 5 BSR adhesive is a high strength laminating adhesive used to prime plywood, galvanized and other metals and concrete to assist with the bonding of the membrane. It is supplied in 4, 20 and 210 litre containers.

NAC TAC Primer

- NAC TAC Primer is a safe, non-flammable, neoprene-based primer for all substrates for interior applications only. It is supplied in 1 and 4 US Gallon containers.

Sonolastic® NP1

- Sonolastic® NP1 is a one component, moisture-curing polyurethane sealant for sealing expansion and soft joints, inside/outside corners and all cut and perimeter edges. It is supplied in 300 ml cartridges or 590 ml sausages.

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 has a shelf life of 24 months from date of manufacture in the original unopened packaging. Once opened, the membrane must be used within 3 months.

Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for the Strataflex Wet Area Waterproofing 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 Strataflex Wet Area Waterproofing Membrane is for use in buildings where an impervious waterproof membrane is required to floors and walls to prevent damage to building elements and adjoining areas.

7.2 The membrane must be protected from physical damage by the application of ceramic or stone tile finishes.

7.3 Movement and control joints may be required depending on the shape and size of the building or room, and the tile finish specified. Design guidelines can be found in the BRANZ "Good Practice Guide Tiling".

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 all sheet edges are fully supported. Timber floor framing systems supporting the substrates must be constructed such that deflections do not exceed 1/360th of the span. Where NZS 3604 is used, the allowable joist spans given in Table 7.1 shall be reduced by 20%.

7.5 The Strataflex Wet Area Waterproofing Membrane has been tested to ANSI A118.12-2005 and has met the requirements for a crack isolation membrane with a performance rating of "High". This enables, in a concrete substrate, the tiles to be laid without the tile control joints needing to line up with the shrinkage control cuts or any cracks in the substrate. This is providing the stated maximum crack movement tested to in the ANSI standard is not exceeded, i.e. 3 mm of horizontal movement.

Substrates

Plywood

8.1 Plywood must be a minimum of 17mm thick complying with AS/NZS 2269, CD Grade Structural with sanded C face upwards and treated to H3.2 (CCA treated). **LOSP treated plywood must not be used.** The plywood must be supported with dwangs or framing with a maximum span of 400 mm in each direction, fixed with 10g x 50 mm stainless steel countersunk head screws at 150 mm centres on the edges and 200 mm through the body of the sheets.

Fibre Cement Compressed Sheet/Fibre Cement Sheet Tile Underlay

8.2 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 a wet area substrate. Fibre cement sheet tile underlay must be covered by a valid BRANZ Appraisal for use in internal wet areas. Installation must be in accordance with the instructions of the manufacturer.

Particleboard

8.3 Particleboard must be suitable for wet areas and specified for the end use in accordance with NZS 3602.

Concrete and Concrete Masonry

8.4 Concrete and concrete masonry substrates must be to a specific engineering design meeting the requirements of the NZBC, such as concrete construction to NZS 3101 and NZS 3604 Concrete Slab-On-Ground Floors and Concrete masonry to NZS 4229 and NZS 4230.

Wet Area Wall Linings

8.5 Plasterboard wall linings must be manufactured to comply with AS/NZS 2588, and be covered by a valid BRANZ Appraisal for use in internal wet areas.

8.6 Fibre cement compressed sheet must be manufactured to comply with the requirements of AS/NZS 2908.2 for use in wet areas.

Durability

Serviceable Life

9.1 The Strataflex Wet Area Waterproofing Membrane, 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 tile finish remains intact. Regular checks must be made of the tiled areas to ensure they are sound and will not allow moisture to penetrate. Any cracks or damage must be repaired immediately by repairing or replacing the tiles, grouts and sealants.

10.2 In the event of damage to the membrane, the tiling 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 ceramic or stone tile finishes must be kept clean.

Internal Moisture

11.1 Strataflex Wet Area Waterproofing Membrane is impervious to water and when appropriately designed and installed will avoid the likelihood of water penetrating behind linings or entering concealed spaces.

11.2 Strataflex Wet Area Waterproofing Membrane is suitable for use to contain accidental overflow to meet NZBC Clause E3.3.2. A means of Code Compliance for overflow is given in NZBC Acceptable Solution E3/AS1 Paragraph 2.

11.3 Surfaces must be finished with ceramic or stone tile finishes. A means of Code Compliance to NZBC Clause E3.3.3 is given in NZBC Acceptable Solution E3/AS1 Paragraph 3.1.1 (b) and 3.1.2 (b).

11.4 Falls in showers and shower areas must be a minimum of 1 in 50. In unenclosed showers, falls must extend a minimum of 1500 mm out from the shower rose. Floor wastes must be provided and the floor must fall to the outlet.

11.5 The waterproofing membrane must completely cover shower bases, and for unenclosed showers it must extend a minimum of 1500 mm out from the shower rose. Further design guidance on waterproofing wet areas, including waterproofing walls and junctions can be obtained from AS 3740, BRANZ "Good Practice Guide Tiling", and flooring and wallboard manufacturers.

11.6 Where water resistant wall finishes such as prefinished sheet materials are used, they must flash over the membrane a minimum of 30 mm.

11.7 BRANZ recommends the entire floor be covered by a waterproof membrane for bath, shower and spa rooms where plywood or particleboard floors are used. This is also a requirement of particleboard manufacturers.

Installation Information

Installation Skill Level Requirement

12.1 Installation of the membrane must be completed by Technokolla NZ Trained and Approved Applicators.

12.2 Installation of substrates must be completed by tradespersons with an understanding of internal wet area construction, in accordance with instructions given within the Technokolla NZ Technical Literature and this Appraisal.

Preparation of Substrates

13.1 Substrates must be dry, clean and stable before installation commences with surfaces that are even and free from nibs, sharp edges, dust, dirt or other materials such as oil, grease or concrete formwork release agents.

13.2 The relative humidity of the concrete must be 75% or less before membrane application. Concrete substrates can be checked for dryness by using a hygrometer as set out in BRANZ Bulletin No. 515.

13.3 All voids, cracks, holes, joints and excessively rough areas must be filled to achieve an even and uniform surface. Junctions of substrate abutments, such as at wall/floor and wall/wall junctions must have Seam and Corner tape installed as set out in the Technical Literature.

13.4 Substrates must be primed with Bostik Triple 5 BSR adhesive and allowed to cure before the membrane is installed.

Membrane Installation

14.1 Installation must not be undertaken where the substrate surface temperature is below 10°C or above 35°C.

14.2 The membrane must be applied to a primed substrate. The primer application rate is set out in the Technical Literature.

14.3 The membrane is then laid onto the primed surface after removal of the backing paper. The joints are self adhesive as well but require rolling with a heavy roller to ensure full waterproofing integrity.

14.4 All detailing is carried out with the Seam and Corner tape or Sonolastic NP1.

14.5 It is strongly recommended that the membrane is protected with temporary covers until it is covered by the ceramic or stone tile finish.

Tiling

15.1 The installed membrane must be protected at all times to prevent mechanical damage, so may require temporary covers until the finishing is completed.

15.2 Tiling must be undertaken in accordance with AS 3958.1 and BRANZ "Good Practice Guide Tiling". The compatibility of the tile adhesive must be confirmed with the adhesive manufacturer or Technokolla NZ.

Inspections

16.1 Critical areas of inspection 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.
- Membrane integrity prior to the installation of tiles including protection from mechanical damage prior to tile installation.

Health and Safety

17.1 Safe use and handling procedures for the membranes are provided in the Technical Literature. The materials 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

18.1 The following testing of Strataflex Wet Area Waterproofing System has been undertaken by BRANZ:

- Testing to AS/NZS 4858 Table 8.1 (a) to (d), Tile shear adhesion strength to AS 4992.2 Part 4.3, Static water head, UV exposure, Temperature & humidity cycling - adhesion as per BRANZ EM 4 section 5.3, Low temperature flexibility to ICBO AC 148 section 4.6.

18.2 Test reports were also supplied to BRANZ from the following organisations:

- Akron Rubber Development Laboratory for Hydrostatic pressure test.
- Twinning Laboratories Inc. for Bond shear testing.

The above test methods and results have been reviewed by BRANZ and found to be satisfactory.

Other Investigations

19.1 An assessment was made of the durability of the Strataflex Wet Area Waterproofing Membrane by BRANZ technical experts.

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

19.3 The Technical Literature has been examined by BRANZ and found to be satisfactory.

Quality

20.1 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.

20.2 The quality management system of the membrane manufacturer has been assessed and found to be satisfactory.

20.3 The quality of supply of the membrane system materials to the market is the responsibility of Technokolla NZ.

20.4 Quality on site is the responsibility of the Technokolla NZ Approved Trained Applicators.

20.5 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, Technokolla NZ and this Appraisal.

20.6 Building owners are responsible for the maintenance of the tiling or stone finishing systems in accordance with the instructions of Technokolla NZ.

Sources of Information

- ANSI A118.12-2005 American National Standard specification for crack isolation membranes for thin-set ceramic tile and dimensional stone installation.
- AS 3740: 2010 Waterproofing of wet areas within residential buildings.
- AS 3958.1: 2007 Ceramic tiles - Guide to the installation of ceramic tiles.
- AS/NZS 2908.2: 2000 Cellulose-cement products - flat sheet.
- AS/NZS 1170: 2002 Structural design actions.
- AS/NZS 2269: 2008 Plywood - Structural.
- AS/NZS 4858: 2004 Wet area membranes.
- NZS 3101: 2006 The design of concrete structures.
- NZS 3602: 2003 Timber and wood-based products for use in buildings.
- NZS 3604: 2011 Timber-framed buildings.
- NZS 4229: 1999 Concrete masonry buildings not requiring specific engineering design.
- NZS 4230: 1990 Code of practice for the design of masonry structures.
- Ministry of Business, Innovation and Employment Record of Amendments for Compliance Documents and Handbooks.
- Good Practice Guide Tiling, BRANZ, March 2004.



BRANZ

In the opinion of BRANZ, **Strataflex Wet Area 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 **Tiling Trade Supplies Ltd T/A Technokolla NZ**, 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. **Tiling Trade Supplies Ltd T/A Technokolla NZ**:
 - 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 **Tiling Trade Supplies Ltd T/A Technokolla NZ**.
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 **Tiling Trade Supplies Ltd Technokolla NZ** or any third party.

For BRANZ

C Percy
Chief Executive

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