



BRANZ Appraised

Appraisal No.581 [2007]

BRANZ Appraisals

Technical Assessments of products
for building and construction

**BRANZ
APPRAISAL
No. 581 (2007)**

Amended 22 December 2010

**DAMPFIX 2 AND
DAMPFIX 3 WET
AREA MEMBRANES**

Bostik New Zealand Limited

P O Box 35 093

Naenae

Wellington

Tel: 04 567 5119

Fax: 04 577 3776



BRANZ Limited
Private Bag 50 908
Porirua City
New Zealand
Tel: +64 4 237 1170
Fax: +64 4 237 1171
www.branz.co.nz



Product

1.1 Dampfix 2 and Dampfix 3 Wet Area Membranes are liquid-applied waterproofing membranes for use under ceramic or stone tile finishes in internal wet areas.



Scope

2.1 Dampfix 2 and Dampfix 3 Wet Area Membranes have been appraised for use as waterproofing membranes for internal wet areas of buildings, within the following scope:

- on floor substrates of concrete, flooring grade particle board, 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 Dampfix 2 and Dampfix 3 Wet Area Membranes on concrete slabs where hydrostatic or vapour pressure is present is outside the scope of this Appraisal.

2.3 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 Bostik New Zealand Limited Trained and Approved Applicators.

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, Dampfix 2 and Dampfix 3 Wet Area Membranes if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet or contribute to meeting the following provisions of the NZBC:

Clause B2 DURABILITY: Performance B2.3.1 (b) 15 years. Dampfix 2 and Dampfix 3 Wet Area Membranes meet this requirement. See Paragraph 9.1.

Clause E3 INTERNAL MOISTURE: Performance E3.3.6. Interior wet area floors and walls incorporating Dampfix 2 and Dampfix 3 Wet Area Membranes will meet this requirement. See Paragraphs 11.1 to 11.4.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Dampfix 2 and Dampfix 3 Wet Area Membranes meet this requirement and will not present a health hazard to people.

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

Technical Specification

4.1 Materials supplied by Bostik New Zealand Limited are as follows:

Dampfix 2

- A single component, acrylic, fibre reinforced, ready-to-use, liquid applied membrane. It is supplied as a white paste in 4, 10 and 20 litre pails.

Dampfix 3

- A two-component, cementitious, acrylic modified, fibre reinforced waterproofing membrane. It is supplied as a powder in 10kg multi-wall bags and a liquid in 10kg plastic pails. When dry, the membrane is grey in colour.

ASA Multiprime

- A synthetic latex based primer for a variety of porous substrates. It is supplied as an opaque pink liquid in 1, 5 and 20 litre cans.

Bostik N40 Primer

- A solvent based etching primer for priming PVC wastes. It is available in 1 litre cans.

Dampfix Moisture Seal

- A two part water based epoxy for sealing against rising damp, seepage, grease, oil, detergent and mild chemicals. It is supplied as 4, 8, 20 and 40 litre kits.

ASA Neutral Cure Silicone

- A flexible, neutral cure silicone for use as expansion joint filler and bond breaker for wall/wall and wall/floor junctions. It is supplied as a white or coloured paste in 300 ml cartridges.

ASA Epoxy Prime

- A 2 component water based epoxy primer for non porous substrates. It is available in 4 and 8 litre kits.

Handling and Storage

5.1 All materials must be stored inside, up off concrete floors, in dry conditions, out of direct sunlight and out of freezing conditions. The membrane products have a shelf life of 24 months from date of manufacture in the original unopened packaging. Once opened, the products 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 Dampfix 2 and Dampfix 3 Wet Area Membranes. 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 Dampfix 2 and Dampfix 3 Wet Area Membranes are 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 Dampfix 3 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 physical damage by the application of ceramic or stone tile finishes.

7.4 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 to Tiling.

7.5 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 NZS 4203 (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 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%.

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 400mm in each direction, fixed with 10g x 50mm stainless steel countersunk head screws at 150mm centres on the edges and 200mm through the body of the sheets.

Fibre Cement Compressed Sheet/ Fibre Cement Sheet Tile Underlay

8.2 Fibre cement compressed sheet and tile underlay 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 a wet area substrate.

Concrete and Concrete Masonry

8.3 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

8.4 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.

8.5 The Fibre Cement Compressed Sheet must be of a thickness to meet specific structural design requirements.

Durability

Serviceable Life

9.1 The Dampfix 2 and Dampfix 3 Wet Area 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 ceramic or stone tile finishes with a design service life of 15-25 years.

Maintenance

10.1 No maintenance of the membranes 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 the tiles, grouts and sealants.

10.2 In the event of damage to the membranes, 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 Dampfix 2 and Dampfix 3 Wet Area Membranes are impervious to water and when appropriately designed and installed will avoid the likelihood of water penetrating behind linings or entering concealed spaces.

11.2 Dampfix 2 and Dampfix 3 Wet Area Membranes are 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, the 'BRANZ Good Practice Guide to 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 30mm.

11.7 BRANZ recommends the entire floor be covered by a waterproof membrane for bath, shower and spa rooms where timber and plywood floors are used.

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 Bostik New Zealand Limited Technical Literature and this Appraisal.

Preparation of Substrates

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

13.2 Concrete substrates can be checked for dryness by using a hygrometer as set out in BRANZ Bulletin No. 424. The relative humidity of the concrete must be 75% or less before membrane application.

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 a bond breaker joint system or reinforced underflashing installed as set out in the Technical Literature.

13.4 Substrates must be primed 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 Dampfix 3 powder and liquid must be mixed and left to stand for 5 minutes before re-mixing, then applying. Dampfix 2 must be thoroughly stirred before application.

14.3 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 Dampfix 2 membrane must be a minimum of 1.0 mm and the Dampfix 3 Membrane must be a minimum of 1.2 mm.

14.4 Application can be made by roller (medium/long nap), brush (long bristle), or a notched steel trowel (finished with a flat steel trowel).

14.5 A reinforcement fabric may be embedded into the wet 2nd coat to provide movement protection at wall/wall and wall/floor junctions, or any other areas such as joints in the flooring substrate, floor cracks, or around penetrations in the membrane. In all other situations, reinforcement provisions as set out in this Appraisal and the Technical Literature apply.

14.6 Clean up may be undertaken with water.

Tiling

15.1 The membranes must be fully cured before tiling. The cured membranes 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 the 'BRANZ Good Tiling Practice Guide'. The compatibility of the tile adhesive must be confirmed with the adhesive manufacturer or Bostik New Zealand Limited.

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 Information

Installation Skill Level Requirement

12.1 Installation of the membranes must be completed by Bostik New Zealand Limited Trained and Approved Applicators.

- 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 mechanical damage during curing and 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.

Sources of Information

- AS 2908.2: 2000 Cellulose-cement products – Flat sheet.
- AS/NZS 2269: 1994 Plywood-Structural.
- AS 3958.1 Guide to the installation of ceramic tiles.
- AS/NZS 4858: 2004 Wet area membranes.
- NZS 3101: 1995 The design of concrete structures.
- NZS 3604: 1999 Timber framed buildings.
- New Zealand Building Code Handbook Department of Building and Housing, Third Edition May 2007.
- The Building Regulations 1992, up to, and including June 2007 Amendment.
- Good Practice Guide to Tiling, BRANZ, March 2004.

Basis of Appraisal

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

Tests

18.1 The testing on Dampfix 2 and 3 has been undertaken by various organisations:

- Testing to AS/NZS 4858, Water Vapour Transmission to ASTM E96-92 and Water absorption.
- Adhesion to various substrates, low temperature flexibility to AC148: 2001 and cyclic movement.

Test methods and results were reviewed by BRANZ and found to be satisfactory.

Other Investigations

19.1 An assessment was made of the durability of the Dampfix 2 and Dampfix 3 Wet Area Membranes 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 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.

20.2 The quality management system of the membranes 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 Bostik New Zealand Limited.

20.4 Quality on site is the responsibility of the Bostik New Zealand Limited Trained and Approved 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, Bostik New Zealand Limited 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 Bostik New Zealand Limited.



BRANZ

In the opinion of BRANZ, **Dampfix 2 and Dampfix 3 Wet Area 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 **Bostik New Zealand Limited**, 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. **Bostik New Zealand Limited**:
 - 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.
3. 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.
4. 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 **Bostik New Zealand Limited**.
5. 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.
6. BRANZ provides no certification, guarantee, indemnity or warranty, to **Bostik New Zealand Limited** or any third party.

For BRANZ

C Preston
Chief Executive

Amendment No. 1, dated 22 December 2010.

This Appraisal has been amended to update the Appraisal Holder details.

Date of issue: 17 December 2007