



**BRANZ Appraised**  
Appraisal No. 1107 [2020]

## KEMSEAL PU INTERNAL MEMBRANE

**Appraisal No. 1107 (2020)**  
Amended 12 December 2024



### BRANZ Appraisals

Technical Assessments of  
products for building and  
construction.



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### Product

- 1.1 Kemseal PU Internal Membrane is a liquid-applied waterproofing membrane for use under ceramic or stone tile finishes in internal wet areas.

### Scope

- 2.1 Kemseal PU Membrane has been appraised for use as a waterproofing membrane for internal wet areas of buildings, within the following scope:
- on floor substrates of concrete, plywood, fibre cement compressed sheet and fibre cement sheet tile underlay, and on wall substrates of concrete, concrete masonry, cement render, 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 1/360<sup>th</sup> of the span.
- 2.2 The use of Kemseal PU Membrane on concrete slabs where a 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 movement and control joints is specific to the building and therefore is the responsibility of the building designer and building contractor and is outside the scope of this Appraisal.
- 2.4 The ceramic or stone tile finishes are outside the scope of this Appraisal.
- 2.5 Installation of the Kemseal PU Membrane must be carried out by trained installers, approved by Kemforte Systems.

### Building Regulations

#### National Construction Code (NCC)

- 3.1 In the opinion of BRANZ, Kemseal PU Membrane, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal will meet the following performance requirements of the NCC:

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

**Part F2 WET AREAS AND OVERFLOW PROTECTION:** Performance F2P1 and F2P2. Kemseal PU Membrane meets this requirement. See Paragraphs 13.1–13.6.

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

**Part H4 HEALTH AND AMENITY:** Performance H4P1. Kemseal PU Membrane meets this requirement. See Paragraphs 13.1–13.6.

## Technical Specification

4.1 Materials supplied by Kemforte Systems are as follows:

- **Kemseal PU Membrane:** a fast cure, liquid-applied, polyurethane elastomeric waterproofing membrane. It is supplied as a grey liquid paste in 15 L containers.

## 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 materials in the original unopened packaging have a shelf life of 12 months from 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:

- KEMSEAL PU Membrane Internal wet area application PDS - Version 20-08/01.

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 Kemseal PU Membrane is for use 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 floor and the tiling finish. Design guidance can be found in the BRANZ Good Practice Guide: Tiling.
- 7.4 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 1/360<sup>th</sup> of the span.

### Substrates

#### Plywood

- 8.1 Structural plywood must be a minimum of 17 mm thick complying with AS/NZS 2269. LOSP treated plywood must not be used. The structural plywood must be supported with joists at a maximum spacing as detailed in AS 1684.3, Table 3.2. The plywood must be fixed with either 2.8 mm diameter flat head or bullet head hand-driven nails, or 2.5 mm diameter gun-driven nails with a length not less than 2.5 times the thickness of the plywood sheet. The plywood must be fixed at 150 mm centres along the sheet ends and 300 mm centres at intermediate joists and along noggings.

#### 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/NZS 2908.2 and must be specified by the manufacturer as being suitable for use as a wet area membrane substrate. Installation must be carried out in accordance with the instructions of the manufacturer.

#### Concrete and Concrete Masonry

- 8.3 Concrete and concrete masonry substrates must be to a specific engineering design meeting the requirements of the NCC.

### **Wet Area Wall Linings**

- 8.4 Plasterboard wall linings must be manufactured to comply with AS/NZS 2588 and be suitable for use in internal wet areas.
- 8.5 Fibre cement sheet must be suitable for use in wet areas and comply with AS/NZS 2908.2.
- 8.6 Installation of plasterboard or fibre cement wall linings must be carried out in accordance with the instructions of the manufacturer.

### **Durability**

#### **Serviceable Life**

- 9.1 Kemseal PU 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 ceramic or stone tile 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, grouts and sealants.
- 10.2 In the event of damage to the membrane, the tiles 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.

### **Outbreak of Fire**

- 11.1 Kemseal PU Membrane 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 Kemseal PU Membrane is considered an exempt building material, in accordance with NCC Volume One, Deemed-to-Satisfy Provision C2D11 [3].

### **Internal Moisture**

- 13.1 Kemseal PU Membrane can be used to prevent water from penetrating behind fittings and linings or into concealed spaces and therefore meets NCC Volume One, Part F2 Wet Areas and Overflow Protection, Performance F2P1 and F2P2, and NCC Volume Two, Part H4 Health and Amenity, Performance H4P1.
- 13.2 Floor surfaces must be finished with ceramic or stone tiles.
- 13.3 Design guidance on waterproofing membranes can be obtained from AS 3740, the BRANZ Good Practice Guide: Tiling, and flooring and wallboard manufacturers.
- 13.4 Falls within shower areas must be between 1:60 and 1:80 and other wet areas between 1:80 to 1:100. In unenclosed showers, falls must extend 1,500 mm from the shower rose. Floor wastes and drainage flanges must be provided and must fall to an outlet.
- 13.5 The Kemseal PU Membrane must completely cover shower bases and extend 1,500 mm out from the shower rose for unenclosed showers. The membrane must extend a minimum of 150 mm above the shower floor and over any nib. Water resistant wall finishes must flash over the membrane.
- 13.6 BRANZ recommends the entire floor be covered by Kemseal PU Membrane in bath, shower and spa rooms where timber is used.

## Installation Information

### Installation Skill Level Requirement

- 14.1 Installation and finishing of materials supplied by Kemforte Systems must be completed in accordance with the Technical Literature, by trained installers, approved by Kemforte Systems.
- 14.2 Installation of substrates must be completed by tradespeople with an understanding of internal wet area construction, in accordance with instructions given within the Technical Literature and this Appraisal.

### Preparation of substrates

- 15.1 Substrates must be dry and sound before installation proceeds. Concrete slabs can be checked for dryness by using a hygrometer. The relative humidity of the concrete surface must be 75% or less, and the moisture content for plywood must be a maximum of 20% before laying the membrane.
- 15.2 The ambient and substrate temperatures must be between 5°C and 35°C before laying the membrane.
- 15.3 Surfaces must be smooth and free from sharp edges, dust, dirt or other materials such as oil, grease or concrete formwork release agents. All surface defects must be filled to achieve a smooth and uniform surface.
- 15.4 Sheet materials must be installed in accordance with the relevant manufacturer's instructions. All sheet edges must be supported by framing.
- 15.5 Plywood must be installed in accordance with the NCC and the relevant manufacturer's instructions.
- 15.6 Substrates must be primed with a primer as specified by Kemforte Systems and allowed to dry fully before the membrane is installed.

### Membrane Installation

- 16.1 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 a different direction to the previous coat.
- 16.2 Application can be made by roller [medium/long nap] or brush [long bristle].
- 16.3 In all situations, reinforcement provisions as set out in this Appraisal and the Technical Literature apply.
- 16.4 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 covers 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 Kemforte Systems.

### Inspections

- 18.1 Critical areas of inspection are:
  - Construction of substrates, including crack control and installation of under flashings 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 mechanical damage during curing and prior to tile installation.

## Basis of Appraisal

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

### Tests

- 19.1 The following testing on Kemseal PU Membrane has been undertaken by BRANZ:
- Testing to AS/NZS 4858 Appendix A including effect of heat aging, bleach, detergent, tensile strength and elongation, water resistance, temperature resistance, thickness, water vapour transmission, abrasion resistance and cyclic movement.
  - Adhesion to various substrates and low temperature flexibility.
- 19.2 All testing has been reviewed by BRANZ and found to be satisfactory for its application.

### Other Investigations

- 20.1 An assessment was made of the durability of Kemseal PU Membrane 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 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.
- 21.2 The quality of supply to the market is the responsibility of Kemforte Systems.
- 21.3 Designers are responsible for the building design, and building contractors are responsible for the quality of installation of the framing systems and the substrates.
- 21.4 Quality on-site is the responsibility of the trained installers, approved by Kemforte Systems.
- 21.5 Building owners are responsible for the maintenance of the ceramic tiles in accordance with the instructions of Kemforte Systems.

## Sources of Information

- ANSI 118.10: 1999 Load bearing, bonded, waterproof membranes for thin-set ceramic tile and dimension stone installations.
- AC 115 Interim Criteria for Waterproof Membranes for Flooring and Shower Liners.
- AS 1860-1998 Installation of Particle Board.
- AS 3740-2004 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 2269:2012 Plywood - structural.
- AS/NZS 4858:2004 Wet area membranes.
- BRANZ Good Practice Guide: Tiling, April 2015.
- National Construction Code 2022, Australian Building Codes Board.

## Amendments

### Amendment No. 1, dated 12 December 2024

This Appraisal has been amended to update references to NCC 2022.



In the opinion of BRANZ, **Kemseal PU Internal 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 **Kemforte Systems**, 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. **Kemforte Systems**:
  - 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 **Kemforte Systems**.
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 **Kemforte Systems** or any third party.

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**For BRANZ**



**Chelydra Percy**

Chief Executive

Date of Issue:

19 October 2020