



BRANZ Appraised

Appraisal No. 1108 [2020]

KEMSEAL PU EXTERNAL MEMBRANE

Appraisal No. 1108 [2020]

Amended 12 December 2024



BRANZ Appraisals

Technical Assessments of
products for building and
construction.



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Product

- 1.1 Kemseal PU External Membrane is a liquid-applied waterproofing membrane for use under ceramic or stone tile finishes on external decks and balconies.

Scope

- 2.1 Kemseal PU Membrane has been appraised for use as 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 1/360th 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 the Kemseal PU Membrane and accessories 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 provisions of the NCC:

NCC 2022 Volume One - Building Code of Australia

Part F3 ROOF AND WALL CLADDING: Performance F3P1. Kemseal PU Membrane meets this requirement. See Paragraphs 13.1–13.7.

NCC 2022 Volume Two - Building Code of Australia

Part H2 DAMP AND WEATHERPROOFING: Performance H2P2. Kemseal PU Membrane meets this requirement. See Paragraphs 13.1–13.7.

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 External membrane 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 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 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 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 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 and Performance G2P1, and NCC Volume Two, Part H7 and Performance H7D5.

Spread of Fire

- 12.1 Kemseal PU Membrane is considered an exempt building material, as listed in NCC 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, Kemseal PU Membrane 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 capable of accepting minor structural movements.
- 13.3 Kemseal PU Membrane 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 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 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 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 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 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.
- 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 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 tile adhesive must be confirmed with the adhesive manufacturer or Kemforte Systems.

Inspections

- 18.1 Critical areas of inspection for waterproofing systems 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 moisture, frost and mechanical damage during curing.

Health and Safety

- 19.1 Additional information on Kemseal PU Membrane and accessories is available in the Material Safety Data Sheets available from Kemforte Systems.

Basis of Appraisal

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

Tests

- 20.1 The following testing on Kemfseal PU Membrane has been undertaken by BRANZ:
- Testing to AS 4654.1:2012 including effect of heat aging, detergent, tensile strength and elongation, temperature resistance, thickness, water vapour transmission, abrasion resistance, bond strength and cyclic movement.
 - Adhesion to various substrates and low temperature flexibility.
- 20.2 All testing has been reviewed by BRANZ and found to be satisfactory for its application.

Other Investigations

- 21.1 An assessment was made of the durability of Kemseal PU Membrane 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 Kemforte Systems.
- 22.3 Designers are responsible for the building design, and building contractors are responsible for the quality of installation of the framing system and the substrates.
- 22.4 Quality on-site is the responsibility of the trained installers, approved by Kemforte Systems.
- 22.5 Building owners are responsible for the maintenance of the ceramic or stone tiles in accordance with the instructions of Kemforte Systems.

Sources of Information

- AS 3958.1:2007 Ceramic Tiles - Guide to the installation of ceramic tiles.
- AS 4654.1:2012 Waterproofing Membranes for External Above ground use, Part 1 Materials.
- AS/NZS 2908.2:2000 Cellulose-cement products – Flat sheet.
- 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.



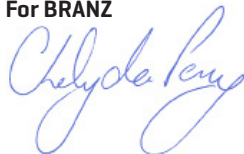
In the opinion of BRANZ, **Kemseal PU External Membrane** is fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided it is used, designed, installed and maintained as set out in this Appraisal.

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.

For BRANZ



Chelydra Percy

Chief Executive

Date of Issue:

19 October 2020