BRANZ Appraised

Appraisal No.474 (2025)

FLEXI-SEAL® INTERIOR WATERPROOFING SYSTEM

Appraisal No. 474 (2025)

This Appraisal replaces BRANZ Appraisal No. 474 (2019)

BRANZ Appraisals

Technical Assessments of products for building and construction.

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Product

1.1 Flexi-Seal® Interior Waterproofing System is a liquid-applied waterproofing membrane system for use under trafficable floor finishes in internal wet areas.

Scope

2.1 Flexi-Seal® Interior Waterproofing System has been appraised for use as a waterproofing membrane for the internal wet areas of buildings, within the following scope:

- on floor substrates of concrete, flooring grade particleboard, plywood, fibre cement compressed sheet, fibre cement sheet tile underlay and Strandfloor H3.1®, and on wall substrates of wet area fibre cement sheet lining systems and wet area plasterboard lining systems; and,
- when protected from physical damage by trafficable floor finishes; and,
- where floors are designed and constructed such that deflections do not exceed 1/360th of the span.

2.2 The use of Flexi-Seal® Interior Waterproofing System on concrete slabs where hydrostatic or vapour pressure is present from below is outside the scope of this Appraisal.

2.3 Movement and control joints in the substrate must be carried through the membrane 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 membrane must be installed by trained installers, approved by DGL Bondlast.

Building Regulations

New Zealand Building Code (NZBC)

3.1 **In the opinion of BRANZ, Flexi-Seal® Interior Waterproofing System, 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. Flexi-Seal® Interior Waterproofing System meets these requirements. See Paragraph 9.1.

Clause E3 INTERNAL MOISTURE: Performance E3.3.6. Internal wet area floors and walls incorporating Flexi-Seal® Interior Waterproofing System meet this requirement. See Paragraphs 11.1–11.7.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Flexi-Seal® Interior Waterproofing System meets this requirement.

Technical Specification

4.1 Materials supplied by DGL Bondlast are as follows:

- **Flexi-Seal® PUD** is a single-part, water-based polyurethane modified, flexible waterproofing membrane. It is coloured blue and supplied in 4 and 15 L pails. *(Note: Flexi-Seal® PUD is Class III as per AS/NZS 4858.)*
- **Universal Primer** is a green liquid concentrated primer for concrete and wet area plasterboard substrates.
- **RL20 Grey** is a two-part epoxy primer used to spot prime galvanised nails and screw heads, as well as PVC and steel waste traps, and to prime plywood and particle board substrates prior to the application of the Flexi-Seal® membrane.
- **Flexi-Seal® Reinforcing Bandage** is a polyester, woven bandage used in conjunction with Universal Primer as a bond breaking mechanism to reinforce wall/wall and wall/floor junctions in non-wet and semi-wet areas. For all other applications use Butylseal Tape.
- **Butylseal Tape** is a butyl rubber tape used to detail/reinforce wall/wall and wall/floor joints and all internal and external joints. It is available in a roll of 80 or 150 mm wide and 15 m long.
- **Aftek FlexPro50FC or NPT U-Seal 500** are polyurethane compounds designed to fill control joints such as in concrete floors.

Handling and Storage

5.1 All materials must be stored inside, away from direct sunlight, heat and flame, in a dry space, at temperatures between 6°C and 32°C. Materials must not be removed from their containers until ready to use. The membrane products have a shelf life of 12 months from the date of manufacture in the original unopened packaging. Once opened, the products must be used within 3 months.

Technical Literature

6.1 This Appraisal must be read in conjunction with:

- Flexi-SEAL PUD, V1, dated 8 August 2023.

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 Flexi-Seal® Interior Waterproofing System 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 trafficable floor finishes.

7.3 Movement and control joints may be required depending on the shape and size of the building or room, and the trafficable floor finish specified.

7.4 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. Timber framing 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 17 mm thick complying with AS/NZS 2269, CD Grade Structural with sanded C face upwards and treated to H3 (CCA treated). LOSP treated plywood must not be used.

8.2 The plywood must be laid with the face grain at right angles to the floor joists. The plywood must be supported with dwangs or framing with a maximum span of 400 mm in each direction, fixed with 10 g 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

8.3 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 substrate. Installation must be carried out in accordance with the manufacturer's instructions.

Particleboard

8.4 Particleboard must be specified for the end use in accordance with NZS 3602.

Strandfloor H3.1®

8.5 The installation of Strandfloor H3.1® in wet areas must be undertaken in conjunction with the Technical Literature, NZS 3604, Paragraph 4.3.4; and NZS 3602, Table 1. Strandfloor H3.1® must be installed with centres no greater than 450 mm. Refer to the Technical Literature and BRANZ Appraisal No. 677 for more information.

Concrete and Concrete Masonry

8.6 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

8.7 Plasterboard wall linings must be manufactured to comply with AS/NZS 2588 and be suitable for use in internal wet areas.

8.8 Fibre cement sheet must be suitable for use in wet areas and comply with AS/NZS 2908.2.

8.9 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 Flexi-Seal® Interior Waterproofing System, 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 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 trafficable floor finish remains intact. Regular checks must be made of floor finishes to ensure they are 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 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 trafficable floor finishes must be kept clean.

Internal Moisture

11.1 Flexi-Seal® Interior Waterproofing System 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 Flexi-Seal® Interior Waterproofing System 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 trafficable floor finishes. A means of code compliance to NZBC Clause E3.3.3 is given in NZBC Acceptable Solution E3/AS1, Paragraphs 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 1,500 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 1,500 mm out from the shower rose. Further design guidance on waterproofing wet areas, including waterproofing walls and junctions can be obtained from AS 3740 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 timber, 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 approved and trained applicators that have completed the DGL Bondlast training programme.

12.2 Installation of substrates must be completed by tradespeople with an understanding of internal wet area construction, in accordance with instructions given within the Flexi-Seal® Interior Waterproofing System 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. 585. 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 or wall/wall junctions and control joints must use installed as set out in the Technical Literature.

13.4 Cement sheet substrates must be primed with Universal Primer diluted 1:1 with water and allowed to cure before the membrane is installed.

13.5 Universal Primer must be used to prime all plastic waste traps, plywood substrates and nail heads.

Membrane Installation

14.1 Installation must not be undertaken where the substrate surface temperature is below 6°C or above 35°C.

14.2 Flexi-Seal® PUD must be thoroughly stirred before application.

14.3 The membrane must be applied in a minimum of two coats at the coverage rates set out in the Technical Literature. Subsequent coats must be applied in the opposite direction to the previous coat.

14.4 Application can be made by roller (medium/long nap), brush (long bristle), or on floors with a rubber grouting blade.

14.5 Reinforcement at wall/wall and wall/floor junctions is made with Butylseal Tape bedded into the wet layer. Butylseal Tape is also used for joints in flooring systems and crack suppression on concrete floors.

14.6 Clean up may be undertaken with water.

Tiling

15.1 The membrane must be cured for at least 24 hours in summer and 48 hours in winter 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.

15.2 Tiling must be undertaken in accordance with AS 3958.1. The compatibility of the tile adhesive must be confirmed with DGL Bondlast.

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 membranes to the manufacturer's instructions, particularly installation to the correct thickness and use of reinforcement.
- Membranes curing and integrity prior to the installation of trafficable floor finishes including protection from mechanical damage during curing and prior to floor finish installation.

Health and Safety

17.1 Safe use and handling procedures for the membrane 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 Testing has been carried out by BRANZ covering durability, water absorption, thermal stability, shear, adhesion, static water head resistance, water vapour transmission and suitability over particle board. The test results were reviewed by BRANZ experts and found to be satisfactory.

18.2 Testing has carried out by CSIRO to AS/NZS 4858, results of this testing has been reviewed by BRANZ technical experts and is found to be satisfactory.

Other Investigations

19.1 An assessment was made of the durability of the Flexi-Seal® Interior Waterproofing System by BRANZ technical experts.

19.2 Site inspections were carried out by BRANZ to examine the practicability of installation.

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

Quality

20.1 The manufacture of the Flexi-Seal® Interior Waterproofing System has been examined by BRANZ and found to be satisfactory.

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

20.3 The quality of supply to the market is the responsibility of DGL Bondlast.

20.4 Designers are responsible for the building design, and building contractors are responsible for the quality of installation of the framing and substrates systems in accordance with the instructions of the substrate manufacturer, DGL Bondlast and this Appraisal.

20.5 The quality of installation on-site is the responsibility of the DGL Bondlast approved and trained applicator.

Sources of Information

- AS 3740:2021 Waterproofing of domestic wet areas.
- AS 3958.1:2007 Ceramic tiles - Guide to the installation of ceramic tiles.
- AS/NZS 1170:2002 Structural design actions.
- AS/NZS 2269:2012 Plywood – structural.
- BRANZ Appraisal No. 677 Strandfloor® H3.1 Flooring.
- BRANZ Bulletin 585 - Measuring moisture in timber and concrete.
- NZS 3101:2006 Concrete structures.
- NZS 3109:1997 Concrete construction.
- NZS 3602:2003 Timber and wood-based products for use in buildings.
- NZS 3603:1994 Timber structures standard.
- 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.

BRANZ

In the opinion of BRANZ, Flexi-Seal® Interior Waterproofing System 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 DGL Operations Ltd t/a DGL Bondlast, 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. DGL Operations Ltd t/a DGL Bondlast:
   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 quality of work;
   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 DGL Operations Ltd t/a DGL Bondlast.
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 DGL Operations Ltd t/a DGL Bondlast or any third party.

For BRANZ

Claire Falck
Chief Executive

Date of Issue:
15 May 2025