



BRANZ Appraised

Appraisal No. 1272 [2024]

RLA WPU AND WPM EXTERIOR WATERPROOFING MEMBRANES

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BRANZ Appraisals

Technical Assessments of products for building and construction.



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Product

- 1.1 RLA WPU and WPM Exterior Waterproofing Membranes are liquid-applied waterproofing membranes for use under ceramic or stone tile finishes on external decks and balconies.

Scope

- 2.1 RLA WPU and WPM Exterior Waterproofing Membranes have been appraised as deck and balcony waterproofing membranes on buildings within the following scope:
 - the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; or,
 - the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regard to building height and floor plan area when subject to specific engineering design; and,
 - with substrates of plywood, fibre cement compressed sheet, or suspended concrete slab; and,
 - with minimum falls for decks and balconies of 1:40; and,
 - with deck and balcony size limited to 40 m²; and,
 - situated in NZS 3604 Wind Zones up to, and including, Extra High.
- 2.2 Decks and balconies must be designed and constructed in accordance with the following limitations:
 - with the membranes continually protected from exposure to ultraviolet (UV) light and from physical damage by ceramic or stone tile finishes; and,
 - with no steps within the deck level and no down pipes discharging directly onto the deck.
- 2.3 Movement and control joints in the substrate must be carried through the membrane and tile 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 Ceramic or stone tile finishes are outside the scope of this Appraisal.
- 2.5 The membranes must be installed by trained applicators, approved by RLA Polymers Pty Ltd.

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, RLA WPU and WPM Exterior Waterproofing Membranes, 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. RLA WPU and WPM Exterior Waterproofing Membranes meet these requirements. See Paragraph 9.1.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.1 and E2.3.2. Decks and balconies incorporating RLA WPU and WPM Exterior Waterproofing Membranes meet these requirements. See Paragraphs 12.1-12.9.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. RLA WPU and WPM Exterior Waterproofing Membranes meet this requirement.

Technical Specification

4.1 Materials supplied by RLA Polymers Pty Ltd are as follows:

- **RLA WPU** - an elastomeric, one-part, polyurethane/acrylic, fibre reinforced, water-based waterproofing membrane. It is a grey coloured liquid and supplied in 15 L pails.
- **RLA WPM** - an elastomeric, one-part, latex, fibre reinforced, water-based waterproofing membrane. It is a grey coloured liquid and supplied in 15 L pails.

Accessories

- **RLA BRW PF Tape** - a butyl rubber self-adhesive sealing tape used behind the membranes over all joints and transitions. It has a white face and a grey butyl backing and is available 80 mm wide in a 5 m long roll and 150 mm wide in a 10 m long roll.
- **RLA Elastoproof Joint Band System** - a detailing and bond-breaker system designed for sealing joints, junctions and corners. The joint band is available 120 mm wide in 10 or 50 m lengths. The internal and external prefabricated corners are 200 x 200 mm.
- **RLA MoistureSeal** - a two-component water-based epoxy for use as a primer and protective coating to prevent moisture penetration and rising damp through mineral surfaces. It is white and light grey in colour and supplied in 4, 8 or 20 L kits.
- **RLA Non Porous Primer** - a solvent-free primer, blue in colour and supplied in 1, 5 and 20 L pails.
- **RLA Porous Primer** - a water-based acrylic primer. It is milky-white in colour and is supplied in 5 and 20 L pails.
- **RLA Max SMP 25** - a one-component adhesive/sealant free of isocyanate, solvents and halogens. It is white in colour and supplied in 600 ml sausages.
- **RLA Plastinex** - an acrylic polymer concentrate specifically formulated for use in cement-based compounds. It is white in colour and is supplied in 5 and 20 L pails.
- **RLA UniLite** - a cementitious tile adhesive for commercial applications. It is white in colour and supplied in 12.5 kg bags.
- **RLA Mastik** - a polymer-modified tile adhesive for commercial applications. It is white in colour and supplied in 20 kg bags.
- **RLA AddFlextra** - a rubber-filled polymer-modified tile adhesive designed for use over a variety of substrates. It is off-white in colour and supplied in 20 kg bags.
- **RLA StoneSet** - a fast-set polymer-modified tile adhesive, designed for use with Class (A) moisture sensitive stone. It is white in colour and supplied in 20 kg bags.
- **RLA MoreFlex** - a flexible rubber-modified tile adhesive. It is off-white in colour and supplied in 20 kg bags.
- **RLA TileFlex** - a flexible rubber-modified tile adhesive. It is off-white in colour and supplied in 20 kg bags.

- **RLA TradeMastik** - a polymer-modified, cement-based tile adhesive. It is off-white in colour and supplied in 20 kg bags.
- **RLA Luminous Grout** - a rapid-setting, efflorescence-free ceramic tile grout. It is available in various colours in 4 kg bags.

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:
- RLA WPM TDS, Version 01 NZ, Issue date 01 December 2024.
 - RLA WPU TDS, Version 01 NZ, Issue date 01 December 2024.
- 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 RLA WPU and WPM Exterior Waterproofing Membranes are for use on decks and balconies where an impervious waterproof membrane is required to prevent damage to building elements and adjoining areas.
- 7.2 The membranes must be protected from exposure to UV light and from physical damage by ceramic or stone tile finishes.
- 7.3 The effective control of internal moisture must be considered at the design stage due to the impermeability of the membranes. Refer to the BRANZ Good Practice Guide: Membrane Roofing.
- 7.4 Movement and control joints may be required depending on the shape and size of the deck, and the finish specified.
- 7.5 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 and that all sheet edges are fully supported.
- 7.6 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 treated to H3.2 [CCA treated]. LOSP treated plywood must not be used. Plywood must comply with NZBC Acceptable Solution E2/AS1, Paragraphs 8.5.3 and 8.5.5. Where specific design is used [i.e. outside the scope of NZBC Acceptable Solution E2/AS1] the plywood thickness and fixing size may increase and centres may decrease to meet specific wind loadings.

Fibre Cement Compressed Sheet

- 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 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 instructions of the manufacturer.

Concrete

- 8.3 Concrete substrates must be to a specific engineering design meeting the requirements of the NZBC, such as concrete construction to NZS 3101.

Durability

Serviceable Life

- 9.1 RLA WPU and WPM Exterior Waterproofing 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 tiling 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 tiling to ensure it is sound and will not allow moisture to penetrate. Any cracks or damage must be repaired immediately by repairing the tiling and any grout or sealant.
- 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 as for new work.
- 10.3 Drainage outlets must be maintained to operate effectively, and tile finishes must be kept clean. Cleaning materials that may affect polymer-based membranes must not be used.

Prevention of Fire Occurring

- 11.1 Separation or protection must be provided to the RLA WPU and WPM Exterior Waterproofing Membranes from heat sources such as fireplaces, heating appliances and chimneys. Part 7 of NZBC Acceptable Solution C/AS1 and NZBC Acceptable Solution C/AS2 provide methods for separation and protection of combustible materials from heat sources.

External Moisture

- 12.1 Decks and balconies must be designed and constructed to shed precipitated moisture. They must also take account of snowfalls in snow prone areas. A means of meeting code compliance with NZBC Clause E2.3.1 is provided by the Technical Literature which gives details aligned with NZBC Acceptable Solution E2/AS1.
- 12.2 When installed in accordance with this Appraisal and the Technical Literature, RLA WPU and WPM Exterior Waterproofing Membranes will prevent the penetration of water and will therefore meet code compliance with NZBC Clause E2.3.2. The membranes are impervious to water and will give a weathertight deck or balcony.
- 12.3 RLA WPU and WPM Exterior Waterproofing Membranes are impermeable, therefore a means of dissipating construction moisture must be provided in the building design and construction to meet code compliance with NZBC Clause E2.3.6.
- 12.4 The minimum fall to decks and balconies is 1 in 40. The minimum fall to gutters is 1 in 60 and all falls must slope to an outlet. Inadequate falls will allow moisture to collect and increase the risk of deterioration of the membrane and tiling finish.
- 12.5 Deck and balcony falls must be built into the substrate and not created with mortar screeds applied over the membrane.
- 12.6 Allowance for deflection and settlement of the substrate must be made in the design of the deck or balcony to ensure falls are maintained and no ponding of water can occur.
- 12.7 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 or spouting.
- 12.8 Penetrations and upstands of the membrane must be raised above the level of any possible flooding caused by blockage of deck and balcony drainage.
- 12.9 The design of details not covered by the Technical Literature is subject to specific weathertightness design and is outside the scope of this Appraisal.

Installation Information

Installation Skill Level Requirement

- 13.1 Installation of substrates must always be carried out in accordance with the RLA WPU and WPM Exterior Waterproofing Membranes Technical Literature and this Appraisal by, or under the supervision of, a Licensed Building Practitioner (LBP) with the relevant Licence Class.
- 13.2 Installation and finishing of components and accessories supplied by RLA Polymers Pty Ltd and its approved applicators must be completed by trained applicators, approved by RLA Polymers Pty Ltd.

Preparation of Substrates

- 14.1 Substrates must be dry, clean and stable before installation commences. Surfaces must be smooth and free from nibs, sharp edges, dust, dirt or other materials such as oil, grease or concrete formwork release agents. All surface defects must be filled to achieve an even and uniform surface.
- 14.2 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. 585.
- 14.3 The moisture content of the timber substructure must be a maximum of 20% and fibre cement or plywood sheets must be dry with no ponding water at the time of membrane application. This will generally require the plywood or fibre cement sheets to be covered until just before the membrane is laid, to prevent rain wetting.
- 14.4 All substrates must be primed and the primer allowed to cure before the membrane is installed. Refer to the membrane supplier for primer specification.

Membrane Installation

- 15.1 Installation must not be undertaken where the substrate surface temperature is below 10°C or above 35°C.
- 15.2 All joints, cracks and changes of plane in the membranes must be underlaid with RLA BRW PF Tape if installed where temperatures of 0° C or less are possible.
- 15.3 RLA WPU and WPM Exterior Waterproofing Membranes must be thoroughly stirred before application.
- 15.4 The membranes must be applied in a minimum of two coats at the rates set out in the Technical Literature to give a total dry film thickness of 0.9 mm. Subsequent coats must be applied in an opposite direction to the previous coat.
- 15.5 Application can be made by roller (medium/long nap), brush (long bristle), or rubber or plastic floats.
- 15.6 The installation and use of a reinforcement or bond breaker must comply with the instructions in the Technical Literature.
- 15.7 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.
- 15.8 Clean up may be undertaken with water.

Tiling

- 16.1 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.
- 16.2 Tiling must be undertaken in accordance with AS 3958.1. The compatibility of the tile adhesive must be confirmed with the adhesive manufacturer and RLA Polymers Pty Ltd.

Inspections

- 17.1 Critical areas of inspection for waterproofing systems 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, particularly installation to the correct thickness.
 - Membrane curing and integrity prior to the installation of tiles, including protection from moisture, frost and mechanical damage during curing.

Health and Safety

- 18.1 Safe use and handling procedures for the membrane system are provided in the Technical Literature. The products must be used in conjunction with the relevant Materials Safety Data Sheet.

Basis of Appraisal

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

Tests

- 19.1 The following testing of RLA WPU and WPM Exterior Waterproofing Membranes has been undertaken by BRANZ: testing to AS 4654 including bond strength, cyclic movement, elongation at break, heat ageing, temperature resistance, tensile strength and durability, water vapour transmission rate.
- 19.2 RLA BRW PF Tape was tested to the requirements of AS/NZS 4858 and AS 4654.1 by XTecGen Material Testing Laboratory, Adelaide.

Other Investigations

- 20.1 An assessment was made of the durability of the RLA WPU and WPM Exterior Waterproofing Membranes by BRANZ technical experts.
- 20.2 Site inspections have been carried out by BRANZ to assess the practicability of installation, and to examine completed installations.
- 20.3 The Technical Literature has been examined by BRANZ and found to be satisfactory.

Quality

- 21.1 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.
- 21.2 The quality management system of the membrane's manufacturer has been assessed by BRANZ and found to be satisfactory.
- 21.3 The quality of supply of the membrane system materials to the market is the responsibility of RLA Polymers Pty Ltd.
- 21.4 Quality on-site is the responsibility of the RLA Polymers Pty Ltd trained and approved applicators.
- 21.5 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, RLA Polymers Pty Ltd and this Appraisal.
- 21.6 Building owners are responsible for the maintenance of the tiling systems in accordance with the instructions of RLA Polymers Pty Ltd.



Sources of Information

- AS 2908.2:2000 Cellulose-cement products - Flat sheet.
- AS 3958.1:2007 Guide to the installation of ceramic tiles.
- AS 4654.1:2012 Waterproofing membranes for external above-ground use.
- AS/NZS 1170:2002 Structural design actions
- AS/NZS 2908.2:2000 Cellulose-cement products - Flat sheet.
- AS/NZS 2269:2012 Plywood - Structural.
- AS/NZS 4858:2004 Wet area membranes.
- BRANZ Bulletin 585 - Measuring moisture in timber and concrete.
- BRANZ Good Practice Guide: Membrane Roofing (Second Edition), October 2015.
- NZS 3101:2006 The design of concrete structures.
- 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.



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23 December 2024

RLA WPU AND WPM EXTERIOR
WATERPROOFING MEMBRANES



In the opinion of BRANZ, **RLA WPU and WPM Exterior Waterproofing 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 **RLA Polymers Pty Ltd**, 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. **RLA Polymers Pty Ltd**:
 - 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 **RLA Polymers Pty Ltd**.
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 **RLA Polymers Pty Ltd** or any third party.

For BRANZ

Claire Falck

Chief Executive

Date of Issue:

23 December 2024