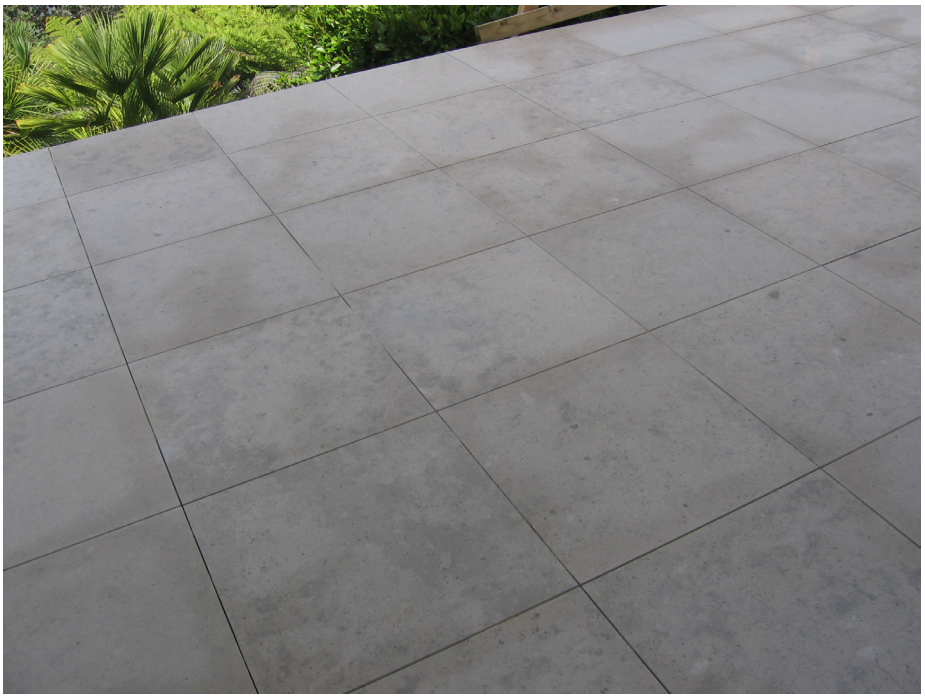
BRANZ Appraised
Appraisal No. 541 [2019]

TECHNOKOLLA RASOLASTIK EXTERIOR WATERPROOFING MEMBRANES

Appraisal No. 541 (2019)

This Appraisal replaces BRANZ Appraisal No. 541 (2013)



BRANZ Appraisals

Technical Assessments of products for building and construction.

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Product

1.1 TECHNOKOLLA Rasolastik Waterproofing Membranes (Rasolastik ADV and Rasolastik EVO) are liquid applied waterproofing membranes for use under ceramic or stone tile finishes on external decks and balconies.

Scope

2.1 Rasolastik Waterproofing Membranes have been appraised for use as waterproofing membranes for buildings within the following scope:

- scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; and,
- with timber supporting structures designed and constructed in accordance with the NZBC; and,
- with substrates of plywood and fibre cement compressed sheet; and,
- with decks that have a maximum size of 40 m^2.

2.2 Rasolastik Waterproofing Membranes have also been appraised for use as waterproofing membranes for external reinforced concrete pedestrian decks and balconies for buildings within the following scope:

- up to 3 storeys with a maximum height from ground to eaves of 10 m and with a floor plan area limited only by seismic and structural control joints; and,
- with the reinforced concrete structure designed and constructed in accordance with the NZBC.

2.3 This Appraisal is limited to decks and balconies within the following scope:

- constructed to suitable falls (Refer Paragraph 12.3); and,
- with the membrane continually protected from exposure to UV (ultra violet) light and from physical damage by ceramic or stone tile finishes; and,
- with decks and balconies designed and constructed such that deflections do not exceed 1/360th of the span; and,
- with no steps within the deck level, no integral roof gardens and no down pipes discharging directly onto the deck.

2.4 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. These joints have not been assessed and are outside the scope of this Appraisal.

2.5 Ceramic or stone tile finishes are outside the scope of this Appraisal.

2.6 The membranes must be installed by Tiling Trade Supplies Ltd T/A Technokolla NZ Approved and Trained Applicators.

Building Regulations

New Zealand Building Code (NZBC)

3.1 **In the opinion of BRANZ, Rasolastik 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. Rasolastik Waterproofing Membranes meet this requirement. See Paragraph 9.1.

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

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Rasolastik Waterproofing Membranes meet this requirement and will not present a health hazard to people.

Technical Specification

4.1 Materials supplied by Tiling Trade Supplies Ltd T/A Technokolla NZ are as follows:

- **Rasolastik ADV** - A two-part, highly elastic, cementitious, liquid applied membrane. It is supplied as a Part A, grey-blue powder in 21 kg multi-wall bags and a Part B, white latex liquid in 7.45 lt plastic containers.
- **Rasolastik EVO** - A single component, highly elastic, cementitious, liquid applied membrane. It is supplied as a grey powder in 20 kg multi-wall bags to which water is added at the correct ratio.
- **Strip RL 80 S** - A cold adhesive strip made from a viscoelastic layer covered with a non woven fabric made from 30 g/m^2 polypropylene. This strip is used for reinforcing all floor/wall joints, wall/wall joints, fractionizing joints and floor joints. It is available as a roll 80 mm wide and 15 m long.
- **Fibre Glass Netting** - A 100% glass fibre netting used for extra strength in an exterior application and as a thickness gauge to ensure the correct thickness is applied in both interior and exterior applications. It is supplied as a 50 m^2 roll with a glass weight of 92 g/m^2.

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 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for the Rasolastik Waterproofing 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 Rasolastik 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 membrane. Refer to the BRANZ publication 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. Design guidelines for control joints for tiles can be found in the BRANZ publication Good Practice Guide: 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 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. 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 comply with NZBC Acceptable Solution E2/AS1, Paragraphs 8.5.3 and 8.5.5 and must be treated to H3.2 (CCA treated). LOSP treated plywood must not be used.

Fibre Cement Compressed Sheet

8.2 Fibre cement compressed sheet 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 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

8.3 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 Rasolastik Waterproofing Membranes, 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 tiling 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 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 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 tile finishes must be kept clean. Cleaning materials that may affect polymer based membranes must not be used.

Outbreak of Fire

11.1 Separation or protection must be provided to Rasolastik Waterproofing Membranes from heat sources such as fire places, heating appliances and chimneys. Part 7 of NZBC Acceptable Solutions C/AS1 – C/AS6 and NZBC Verification Method C/VM1 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 given 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, Rasolastik Membranes will prevent the penetration of water and will therefore meet code compliance with Clause E2.3.2. The membranes are impervious to water and will give a weathertight deck or balcony.

12.3 The minimum fall to decks and balconies must be 1 in 40 and gutters must be 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.

12.4 Rasolastik 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 Clause E2.3.6.

12.5 Deck and balcony falls must be built into the substrate and not created with mortar screeds applied over the membranes.

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 must always be carried out in accordance with the Rasolastik 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 Tiling Trade Supplies Ltd T/A Technokolla NZ and its approved applicators must be completed by trained applicators, approved by Tiling Trade Supplies Ltd T/A Technokolla NZ.

13.3 Installation of the accessories supplied by the building contractor must be carried out in accordance with the Rasolastik Waterproofing Membranes Technical Literature and this Appraisal by, or under the supervision of, a Licensed Building Practitioner (LBP) with the relevant Licence Class.

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 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.

14.3 The moisture content of a timber substructure must be a maximum of 20% and fibre cement and plywood sheet substrates must be dry to touch at the time of membrane application. This will generally require plywood and fibre cement sheets to be covered until just before the membrane is laid to prevent rain wetting.

14.4 Substrates must be primed and allowed to cure before the membrane is installed.

Membranes Installation

15.1 Installation must not be undertaken where the substrate surface temperature is below 5°C or above 35°C.

15.2 Rasolastik ADV requires that the powder [Part A] and liquid [Part B] are mixed and left to stand for 5 minutes before re-mixing, then applying. Rasolastik EVO requires that the powder is mixed with water and left to stand for 5 minutes before re-mixing, then applying.

15.3 The membranes 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 Rasolastik membranes must be a minimum of 2 mm.

15.4 Application can be made by roller [medium/long nap], brush [long bristle], or a notched steel trowel [finished with a flat steel trowel].

15.5 Strip RL 80 S reinforcement is laid onto the substrate before the first coat is applied 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.

15.6 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.

15.7 Clean up may be undertaken with water.

Tiling

16.1 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.

16.2 The membranes must not be left exposed to ultra-violet [UV] for any longer than two months prior to tile application.

16.3 Tiling must be undertaken in accordance with AS 3958.1 and the BRANZ publication Good Practice Guide: Tiling. The compatibility of the tile adhesive must be confirmed with the adhesive manufacturer or Tiling Trade Supplies Ltd T/A Technokolla NZ.

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 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

18.1 Safe use and handling procedures for the membrane system is provided in the Technical Literature. The products 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

19.1 Testing has been undertaken by various organisations on the Rasolastik Waterproofing Membranes:

- Rasolastik ADV and EVO in accordance with EN 14891 for tensile adhesion, tensile adhesion after water contact (20 days immersion), tensile adhesion after heat aging (14 days at 70°C), tensile adhesion after lime water contact (7 days at pH>12), waterproofing (7 days at 150 KPa), crack bridging ability (23°C and -20°C), tensile adhesion after freeze-thaw cycles (25 cycles from 15°C to -15°C) and tensile adhesion after chlorinated water contact (7 days)

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

Other Investigations

20.1 An assessment was made of the durability of the Rasolastik Waterproofing Membranes by BRANZ technical experts.

20.2 Site visits 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 not been examined by BRANZ, but 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 manufacturer has been assessed by BRANZ and found to be satisfactory.

21.3 The quality of manufacture of the membranes is the responsibility of the manufacturer.

21.4 The quality of supply of the membrane systems to the market is the responsibility of Tiling Trade Supplies Ltd.

21.5 Quality on site is the responsibility of the Tiling Trade Supplies Ltd T/A Technokolla NZ Approved and Trained Applicators.

21.6 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, Tiling Trade Supplies Ltd T/A Technokolla NZ and this Appraisal.

21.7 Building owners are responsible for the maintenance of the tiling systems in accordance with the instructions of Tiling Trade Supplies Ltd T/A Technokolla NZ.

Sources of Information

- AS/NZS 1170: 2002 Structural design actions.
- AS 2908.2: 2000 Cellulose-cement products - Flat sheet.
- AS/NZS 2269: 2012 Plywood-Structural
- AS 3958.1-2007 Guide to the installation of ceramic tiles.
- EN 14891 March 2003 Liquid applied waterproofing membranes for use beneath ceramic tiling - Definitions, specifications and test methods.
- NZS 3101: 2006 The design of concrete structures.
- NZS 3604: 2011 Timber-framed buildings.
- Acceptable Solutions and Verification Methods for New Zealand Building Code External Moisture Clause E2, Ministry of Business, Innovation and Employment, Third Edition July 2005 (Amendment 8, 30 November 2018).
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.
- Good Practice Guide: Tiling, BRANZ, 2015.

In the opinion of BRANZ, TECHNOKOLLA Rasolastik 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 Tiling Trade Supplies Ltd T/A Technokolla NZ, 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. Tiling Trade Supplies Ltd T/A Technokolla NZ:
   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 Tiling Trade Supplies Ltd T/A Technokolla NZ.
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 Tiling Trade Supplies Ltd T/A Technokolla NZ or any third party.

For BRANZ

Chelydra Percy
Chief Executive

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14 June 2019