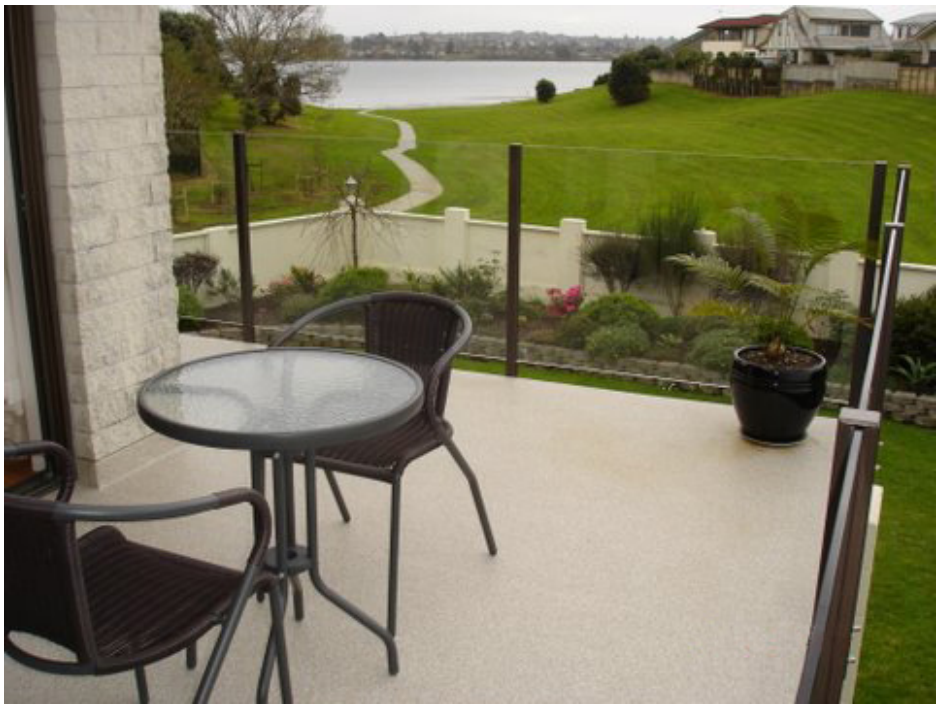
BRANZ Appraised

Appraisal No. 671 [2022]

WEATHERDEK PVC DECK AND ROOF DECK WATERPROOFING MEMBRANES

Appraisal No. 671 (2022)

This Appraisal replaces BRANZ Appraisal No. 671 [2017]



BRANZ Appraisals

Technical Assessments of products for building and construction.

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Product

1.1 Weatherdek PVC Deck and Roof Deck Waterproofing Membranes are reinforced polyvinyl chloride (PVC), adhesive-fixed sheet waterproofing membranes designed to be used on pedestrian decks and balconies.

1.2 The products are laminated, multi-layered, flexible PVC sheets in roll form. The products are installed as single layer systems.

Scope

2.1 Weatherdek PVC Deck and Roof Deck Waterproofing Membranes have been appraised for use as deck and balcony waterproofing membranes for 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 regards to building height and floor plan area when subject to specific engineering design; and,
- with substrates of plywood sheet, compressed fibre cement 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 m^2; 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:

- constructed to suitable falls (refer to Paragraphs 12.1–12.8); and,
- with no steps within the deck level, no integral roof gardens and no downpipes discharging directly onto the deck.

2.3 The design and construction of the substrate and movement and control joints are specific to each building, and are therefore the responsibility of the building designer and building contractor, and are outside the scope of this Appraisal.

2.4 The membranes must be installed by EzyDeck Ltd approved and trained applicators.

Building Regulations

New Zealand Building Code (NZBC)

3.1 **In the opinion of BRANZ, Weatherdek PVC Deck and Roof Deck 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. Weatherdek PVC Deck and Roof Deck 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 Weatherdek PVC Deck and Roof Deck Waterproofing Membranes meet these requirements. See Paragraphs 12.1–12.8.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1 Weatherdek PVC Deck and Roof Deck Waterproofing Membranes meet this requirement.

Technical Specification

4.1 Materials supplied by ADS Weatherdek Canada Ltd and EzyDeck Ltd are as follows:

- **Weatherdek Plus** - PVC vinyl waterproofing sheet membranes with Messina grain embossing and non-woven polyester backing, available in various colours and designs. The membranes are 1.5 mm thick and are supplied in rolls 1.8 m wide x 18 m long.
- **Bostik 1181** - a solvent neoprene rubber-based contact adhesive. It has an extended tack time, excellent heat resistance and is non-staining. It is used to bond the Weatherdek Plus to all substrates. It is an amber or blue coloured liquid and is supplied in 1, 4 and 20 L containers.
- **Aluminium L-Trim - Large** - an aluminium L-shaped trim, 38 mm high and 3 m long. It is polyester powder coated in colours sandalwood, almond, steel, clay, white and green.
- **Aluminium L-Trim - Small** - as above, but only 19 mm high.
- **Tremco 440 Tape™** - a 100% solid, polyisobutylene-cross linked butyl tape used under the wall and edge fasteners prior to them being screwed on, as extra water protection. The tape is 1.6 mm thick and is supplied in rolls 13 mm wide x 15 m long.
- **Vinyl/Membrane Finish Floor Wastes** - three-part system comprising of a PVC base flange designed to receive vinyl floor materials and membranes, a clamp ring and grate. The flange size options fit into PVC discharge pipe nominal sizes of 50, 80 and 100 mm. The grate and ring clamp options are round chrome on brass, polished brass, stainless steel or white ABS plastic.

Handling and Storage

5.1 Handling and storage of all materials, whether on-site or off-site, is under the control of the EzyDeck Ltd approved and trained applicators. Dry storage must be provided for all products.

Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for the Weatherdek PVC Deck and Roof Deck 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 Weatherdek PVC Deck and Roof Deck Waterproofing Membranes are for use on pedestrian decks and balconies where an impervious waterproof membrane is required to prevent damage to building elements and adjoining areas.

7.2 The effective control of internal moisture must be considered at the design stage due to the impermeability of the membrane. Refer to the BRANZ Good Practice Guide: Membrane Roofing.

7.3 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.

7.4 The fully adhered membranes are suitable for use on decks and balconies of buildings within all NZS 3604 Wind Zones up to, and including, Extra High.

7.5 The membranes are designed for use on trafficable decks and balcony areas; however, contact with sharp objects that may damage the membrane surface should be avoided.

7.6 The membranes have a coefficient of friction (μ) of less than 0.4, therefore they do not meet the requirements of NZBC Verification Method D1/VM1 for use in areas which are access routes and accessible routes as defined by NZBC Clause D1.

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 deck 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.

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 Weatherdek PVC Deck and Roof Deck Waterproofing Membranes, when subjected to normal conditions of environment and use, are expected to have a serviceable life of at least 15 years.

Maintenance

10.1 No maintenance of the membranes is normally required, provided significant substrate movement does not occur.

10.2 In the event of damage to the membrane, the membrane must be repaired by removing the damaged portion and applying a patch as for new work.

10.3 Drainage outlets must be maintained to operate effectively.

Prevention of Fire Occurring

11.1 Separation or protection must be provided to the Weatherdek PVC Deck and Roof Deck Waterproofing Membranes from heat sources such as fireplaces, heating appliances and chimneys. Part 7 of NZBC Verification Method C/VM1 and 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 Pedestrian 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 is aligned with details in NZBC Acceptable Solution E2/AS1.

12.2 When installed in accordance with this Appraisal and the Technical Literature, Weatherdek PVC Deck and Roof Deck 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 Weatherdek PVC Deck and Roof Deck 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.

12.5 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.

12.6 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.

12.7 Penetrations and upstands of the membranes must be raised above the level of any possible flooding caused by blockage of deck and balcony drainage.

12.8 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 the membranes must be completed by approved and trained applicators, approved by EzyDeck Ltd.

13.2 Installation of substrates must always be carried out in accordance with the Weatherdek PVC Deck and Roof Deck 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 The moisture content of timber substructure must be a maximum of 20% and plywood and compressed fibre cement sheet must be dry at time of membrane application. This will generally require plywood and compressed fibre cement sheets to be covered until just before the membrane is laid, to prevent rain wetting.

14.3 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.

Membrane Installation

15.1 The membranes must be installed in accordance with the Technical Literature.

15.2 The membranes should be unrolled without tension onto the prepared substrate. On plywood substrates, the seams can be stapled to temporarily hold the membrane in place. These staples are removed later when the seams are welded.

15.3 Joints must be overlapped a minimum 20 mm at ends and sides, with side overlapping in the direction of the fall. A minimum allowance of approximately 100 mm of membrane is required at deck edges, and 150 mm to turn up walls or upstands.

15.4 Adhesion of the membranes to the substrate is carried out by using a contact adhesive. The contact adhesive may be used in temperatures as low as 0°C.

15.5 Installation of the membranes is carried out by folding back half of the sheet at a time. The adhesive is applied to both the membrane and the substrate before folding the sheet back to adhere it to the deck surface.

15.6 After all detailing work such as internal and external corners, deck edges and flashings have been completed, the joint seams can be welded using a hot air welder.

Inspections

16.1 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.

Health and Safety

17.1 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 Materials Safety Data Sheet for each membrane.

Basis of Appraisal

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

Tests

18.1 Tests have been carried out on the membranes in Canada by Intertek ETL SEMKO for compliance with CAN/CGSB 37.54-95 Test Standard for Polyvinyl Chloride Roofing and Waterproofing Membrane.

18.2 The CAN/CGSB 37.54-95 testing covered elongation, shrinkage, low temperature flexibility, low temperature impact resistance, puncture resistance, seam strength, heat aging, aging in the presence of water, artificial weathering (5,000 hours) then tensile strength, elongation and low temperature flex retention, water absorption and water vapour transmission.

18.3 BRANZ completed testing for colour and tensile/elongation after exposure for 7,000 hours in a Q-Lab QUV, adhesion testing to plywood and concrete, and slip resistance.

18.4 The above test methods and results have been reviewed by BRANZ and found to be satisfactory.

Other Investigations

19.1 An assessment was made of the durability of the Weatherdek PVC Deck and Roof Deck Waterproofing Membranes by BRANZ technical experts.

19.2 Site inspections have been carried out by BRANZ to assess the practicability of installation, and to examine completed installations.

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

Quality

20.1 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. BRANZ undertakes an ongoing review of product quality on an inwards good basis.

20.2 The quality of supply of the product to the market is the responsibility of ADS Weatherdek Canada Ltd and EzyDeck Ltd.

20.3 Quality on-site is the responsibility of the EzyDeck Ltd approved and trained applicators.

20.4 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 ADS Weatherdek Canada Ltd, EzyDeck Ltd and this Appraisal.

Sources of Information

- AS/NZS 2908.2:2000 Cellulose-cement products – Flat sheet.
- AS/NZS 1170:2002 Structural design actions.
- AS/NZS 2269:2012 Plywood - Structural.
- AS/NZS 2455.1:2007 Textile floor covering-Installation practice.
- BRANZ Bulletin 585 - Measuring moisture in timber and concrete.
- BRANZ Good Practice Guide: Membrane Roofing, [Second Edition], October 2015.
- NZS AS 1884:2013 Floor coverings - Resilient sheet and tiles-Installation practices.
- NZS 3101:2006 Concrete structures standard.
- NZS 3109:1997 Concrete construction.
- 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, Weatherdek PVC Deck and Roof Deck 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 ADS Weatherdek Canada 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. ADS Weatherdek Canada 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 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 ADS Weatherdek Canada 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 ADS Weatherdek Canada Ltd or any third party.

For BRANZ

Chelydra Percy
Chief Executive

Date of Issue:
08 April 2022