



BRANZ Appraised
Appraisal No. 1057 [2019]

ROOFLOGIC ULTRAFLEX TPO MEMBRANES

Appraisal No. 1057 [2019]
Amended 12 May 2022



BRANZ Appraisals

Technical Assessments of products for building and construction.



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Product

- 1.1 Rooflogic Ultraflex TPO Membranes are single ply, polyester fabric reinforced, thermoplastic polyolefin [TPO/FTO] fully bonded and mechanically fastened waterproofing sheet membranes for roofs and decks.

Scope

- 2.1 Rooflogic Ultraflex TPO Membranes have been appraised as roof and deck 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 regards to building height and floor plan area when subject to specific structural design; and,
 - with substrates of plywood, or suspended concrete slab; and,
 - with minimum falls for roofs of 1:30 and decks of 1:40; and,
 - with deck size limited to 40 m²; and,
 - situated in NZS 3604 Wind Zones up to, and including, Extra High.
- 2.2 Rooflogic Ultraflex TPO Membranes have also been appraised as roof and deck waterproofing membranes on buildings within the following scope:
 - subject to specific structural and weathertightness design and,
 - with substrates of plywood, or suspended concrete slab; and,
 - situated in specific design wind pressures up to a maximum design differential ultimate limit state [ULS] of 3 kPa; and,
 - with the weathertightness design of junctions for each specific structure being the responsibility of the building designer.
- 2.3 Roofs and decks waterproofed with Rooflogic Ultraflex TPO Membranes must be designed and constructed in accordance with the following limitations:
 - nominally flat roofs and decks and pitched roofs constructed to drain water to gutters and drainage outlets complying with the NZBC; and,
 - with no steps within the deck level, no integral roof gardens and no downpipes directly discharging to decks; and,
 - with the deck membrane continually protected from physical damage by a pedestal protection.
- 2.4 The design and construction of the substrate and movement and control joints is specific to each building, and therefore is the responsibility of the building designer and building contractor and is outside the scope of this Appraisal.
- 2.5 The membranes must be installed by Rooflogic Limited approved applicators.

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, Rooflogic Ultraflex TPO 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. Rooflogic Ultraflex TPO Membranes meet this requirement. See Paragraph 9.1.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.1, E2.3.2 and E2.3.6. Roofs incorporating Rooflogic Ultraflex TPO Membranes meet these requirements. See Paragraphs 12.1-12.8.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Rooflogic Ultraflex TPO Membranes meet this requirement.

Technical Specification

4.1 Materials supplied by Rooflogic Limited are as follows:

- **Rooflogic Ultraflex TPO ST Membrane** - a mechanically fastened or ballasted, unreinforced, synthetic roof waterproofing sheet, based on thermoplastic polyolefin and flexible polypropylene [TPO/FPA]. It is supplied in grey/black rolls, 1.5 mm thick, 2.1 m wide and 25 m long.
- **Rooflogic Ultraflex TPO FB Membrane** - a fully-adhered, mechanically fastened or ballasted, reinforced, synthetic roof waterproofing sheet, based on TPO/FPA with a fleece backing on the underside of the membrane. It is supplied in grey/black rolls, 1.2 or 1.5 mm thick, 2.1 m wide and 25 m long.
- **Rooflogic Ultraflex TPO RG Membrane** - a mechanically fastened or ballasted, reinforced, synthetic roof waterproofing sheet, based on TPO/FPA. It is supplied in grey/black or with a Reflecta White treatment, in rolls 1.5 mm thick, 2.1 m wide and 25 m long.
- **Rooflogic Ultraflex TPO RT Membrane** - a mechanically fastened or ballasted, reinforced, synthetic roof waterproofing sheet, based on TPO/FPA. It is supplied in grey/black or with a Reflecta White treatment, in rolls 1.5 mm thick, 2.1 m wide and 25 m long.
- **Fuse Prep Cleaner** - a cleaner designed for cleaning aged, dirty or weathered membranes.
- **FB - SF Substrate Adhesive** - a solvent-free, polyurethane-based adhesive for bonding Rooflogic Ultraflex FB to various porous or non-porous substrates.
- **Flashing adhesive** - an elastomer-based contact adhesive for bonding membranes (without fabric backing) to various porous or non-porous substrates.
- **Fuse Activator K** - an adhesion activator, used to promote or improve bonding of sealants, adhesives and coatings to Rooflogic Ultraflex TPO Membranes.
- **Rubber sealant** - a quick setting, neutral, elastomeric sealant for sealing between membranes and end strip, vents, drains etc.
- **Waterstop mastic** - a plastomeric sealing mastic, used in compression between waterproofing membranes and mechanical terminals [piping, plates, fixing profiles].
- **Prefabricated accessories** - prefabricated accessories to various areas.
- **Rooflogic Ultraflex Walkways** - prefabricated structural elements constructed to provide a walkable wear layer to protect the membranes in heavy traffic areas.
- **L-Shaped Perimeter Strip** - an L-shaped plasticised panel mechanically fixed with a weldable upper surface for edge detailing.
- **Laminated Sheet** - a 0.6 mm steel sheet with a top face laminated with 0.6 mm Rooflogic Ultraflex ST Membrane. It is ready to be cut and formed into various profiles to complete the transition between membrane and flashing around upstands, turnups and finishing to edges.
- **Rooflogic Ultraflex TPO Mechanical Fastening System** - a mechanical fastening system for Rooflogic Ultraflex TPO Membranes comprising various washers and screw types depending on the final roof design performance requirements.



Handling and Storage

- 5.1 Handling and storage of all materials, whether on-site or off-site, is under the control of the Rooflogic Limited approved applicators. Dry storage must be provided for all products and the rolls of membrane must be lying down on pallets and protected.

Technical Literature

- 6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for the Rooflogic Ultraflex TPO 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 Rooflogic Ultraflex TPO Membranes are for use on roofs, decks, balconies, gutters and parapets where an impervious waterproof membrane is required to prevent damage to building elements and adjoining areas.
- 7.2 Rooflogic Ultraflex TPO Membranes can be adversely affected by contact with bituminous substances. The membrane supplier should be contact for advice in this situation.
- 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 Good Practice Guide: Membrane Roofing.
- 7.4 Where regular foot traffic on the roof is envisaged i.e. maintenance of lift equipment, a walkway should be installed to ensure the membranes are protected. The Rooflogic Ultraflex TPO Membranes are designed for limited, irregular pedestrian access only.
- 7.5 Rooflogic Ultraflex TPO Membranes, when used on decks, require a pedestal protection. Rooflogic Limited should be contacted for the best system to meet design requirements.
- 7.6 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.
- 7.7 Rooflogic Ultraflex TPO Membranes, fully bonded or mechanically fastened, are suitable for use in areas subject to maximum wind pressure of 3 kPa ULS subject to the limitations of the substrate.

Substrates

Plywood

- 8.1 Plywood must be treated to H3 [CCA treated]. LOSP treated plywood must not be used. 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.

Concrete

- 8.2 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 Rooflogic Ultraflex TPO Membranes, when subjected to normal conditions of environment and with proper maintenance, can expect to have a serviceable life of at least 15 years.

Maintenance

- 10.1 Maintenance requirements of the membranes are provided by the membrane supplier.
- 10.2 In the event of damage to the membranes, it 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 Rooflogic Ultraflex TPO 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 Roofs and decks 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.
- 12.2 When installed in accordance with this Appraisal and the Technical Literature, Rooflogic Ultraflex TPO 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 roof or deck.
- 12.3 The minimum fall for roofs is 1 in 30, for decks 1 in 40 and for gutters is 1 in 100. All falls must slope to an outlet. Inadequate falls will allow moisture to collect and increase the risk of deterioration of the membrane. *[Note: Where possible, BRANZ recommend a fall of 1:60 for gutters].*
- 12.4 Rooflogic Ultraflex TPO 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.
- 12.5 Roof and deck falls must be built into the substrate.
- 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 roof does not drain to an external gutter or spouting.
- 12.7 Penetrations and upstands of the membrane must be raised above the level of any possible flooding caused by blockage of roof 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 Rooflogic Limited approved applicators.
- 13.2 Installation of substrates must be completed by or under the supervision of Licensed Building Practitioners with the relevant License Class, in accordance with instructions given within the Rooflogic Limited Technical Literature and this Appraisal.

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 plywood sheet must be dry at time of membrane application. This will generally require plywood sheets to be covered until just before the membranes are laid, to prevent rain wetting.



Membrane Installation

15.1 The installation of these membrane systems is very complex and limited to approved applicators only. The Rooflogic Limited Installation Guide should be referred in all instances for the correct procedures.

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 Technical Literature instructions.

Health and Safety

17.1 Safe use and handling procedures for Rooflogic Ultraflex TPO Membranes is provided in the Technical Literature. The product 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

18.1 Testing has been carried out on the membranes for elongation, tensile strength, seam strength, breaking strength, low temperature, resistance to aging, water absorption, resistance to ultraviolet [UV] and peel adhesion to plywood and concrete.

18.2 Test methods and results have been reviewed by BRANZ and found to be satisfactory.

Other Investigations

19.1 A durability opinion has been given of the Rooflogic Ultraflex TPO 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 Rooflogic Ultraflex TPO Membranes have 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.

20.2 The quality of supply of the product to the market is the responsibility of Rooflogic Limited.

20.3 Quality on-site is the responsibility of the Rooflogic Limited approved 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 the substrate manufacturer, Rooflogic Limited and this Appraisal.



Sources of Information

- AS/NZS 1170:2002 Structural design action – General principles.
- AS/NZS 2269:2012 Plywood – Structural.
- BRANZ Good Practice Guide: Membrane Roofing, 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.

Amendments

Amendment No. 1, dated 03 September 2021.

This Appraisal has been amended to reflect building code updates relating to fire.

Amendment No. 2, dated 12 May 2022.

This Appraisal has been amended to update the Appraisal holder's address.



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23 August 2019

ROOFLOGIC ULTRAFLEX TPO
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In the opinion of BRANZ, **Rooflogic Ultraflex TPO 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 **Rooflogic Limited**, 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. **Rooflogic Limited:**
 - 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 **Rooflogic Limited**.
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 **Rooflogic Limited** or any third party.

For BRANZ

Chelydra Percy

Chief Executive

Date of Issue:

23 August 2019