



BRANZ Appraised

Appraisal No. 670 [2017]

SIKAROOF® MTC ROOF AND DECK MEMBRANE

Appraisal No. 670 [2017]

This Appraisal Replaces BRANZ
Appraisal No. 670 [2010]



BRANZ Appraisals

Technical Assessments of
products for building and
construction.



BUILDING TRUST

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Product

- 1.1 SikaRoof MTC Roof and Deck Membrane is a UV resistant, aliphatic polyurethane based, liquid-applied waterproofing membrane for roofs and decks.

Scope

- 2.1 SikaRoof MTC Roof and Deck Membrane has been appraised as a roof and deck waterproofing membrane on buildings within the following scope:
 - the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; or,
 - the scope of 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 SikaRoof MTC Roof and Deck Membrane has also been appraised as a roof and deck waterproofing membrane 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 6 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 SikaRoof MTC Roof and Deck Membrane must be designed and constructed in accordance with the following limitations:
 - decks and nominally flat or 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 downpipe direct discharge to the deck; and,
 - with the deck membranes continually protected from physical damage by a pedestal protection system.
- 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 membrane must be installed by trained applicators, approved by Sika [NZ] Ltd.

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, SikaRoof MTC Roof and Deck Membrane, 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. SikaRoof MTC Roof and Deck Membrane meets these requirements. See Paragraph 10.1.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.1 and E2.3.2. SikaRoof MTC Roof and Deck Membrane meets these requirements. See Paragraphs 14.1 – 14.9.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. SikaRoof MTC Roof and Deck Membrane meets this requirement and will not present a health hazard to people.

Technical Specification

4.1 Materials supplied by Sika [NZ] Ltd are as follows:

- **Sika® Bonding Primer** a two component, water based primer for concrete, masonry, insulation foams, plaster, cementitious renders, screeds and mortars. It is supplied as a milky green liquid in 15 litre kits [Part 'A' 12 lt and Part 'B' 3 lt].
- **Sika® Concrete Primer** a two component, rapid curing, high solids, solvent based polyurea primer for cementitious substrates and improving adhesion between Sikalastic® -601 BC and Sikalastic® -602 BR. It is supplied as a colourless to pale yellow colour in a 12 kg kit [Part 'A' 9.8 kg and Part 'B' 2.2 kg].
- **Sika® Metal Primer** a two component, amide curing primer for exposed metallic substrates. It is supplied as a pearl grey colour in a 5 litre kit.
- **Sikalastic® Carrier** a glass reinforcement coated with modified elastomer coating. It is available in rolls 20 m long and 1 m wide.
- **Sikalastic® Coldstik/Coldstik HT** are two component, solvent free polyurethane adhesives for bonding Sikalastic® Vap, Sikalastic® Insulation and Sikalastic® Carrier. In colder temperatures the Sikalastic Coldstik is used. They are supplied as a colourless to pale yellow colour in 12 kg kits [Part 'A' 8 kg and Part 'B' 4 kg].
- **Sikalastic® Reactivation Primer** a single pack, polyurethane based primer used when recoating existing Sikalastic® Roof Systems. It is supplied as a clear liquid supplied in 5 litre containers.
- **Sika® Reemat Premium** is a 225g/m² glass fibre reinforcement mat used to reinforce SikaRoof MTC systems. It is supplied in rolls either 1.3 m or 0.30 m wide and 155 m or 100 m long.
- **Sikalastic®-601 BC** is a cold applied, one component, moisture triggered polyurethane base coat to be used with Sikalastic®-621 TC. It is supplied as a red oxide colour in 15 litre containers.
- **Sikalastic®-621 TC** is a cold applied, UV-stable, one component, moisture triggered polyurethane top coat for over Sikalastic®-601 BC. It is supplied in colours of slate grey, shale grey and white in 15 litre containers.

Handling and Storage

5.1 Handling and storage of all materials whether on or off site is under the control of the trained applicators, approved by Sika [NZ] Ltd. 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 SikaRoof MTC Roof and Deck Membrane. 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 SikaRoof MTC Roof and Deck Membrane is for use on roofs and decks where an impervious waterproof membrane is required to prevent damage to building elements and adjoining areas. The product can be used on new or existing buildings. Sika [NZ] Ltd should be consulted as to the suitability of any existing substrates prior to using SikaRoof MTC Roof and Deck Membrane.
- 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 publication Good Practice Guide - Membrane Roofing.
- 7.3 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.
- 7.4 Decks using SikaRoof MTC Roof and Deck Membrane must be protected by either tiles or timber decking resting on Sika [NZ] Ltd approved pedestal supports.

Structure

- 8.1 SikaRoof MTC Roof and Deck Membrane is suitable for use in areas subject to maximum wind pressures of 6 kPa Ultimate Limit State.

Substrates

Plywood

- 9.1 Plywood must be treated to H3 [CCA treated]. LOSP treated plywood must not be used. Plywood must comply with NZBC Acceptable Solution E2/AS1, Paragraph 8.5.3 and 8.5.5. Where specific design is used [i.e. outside the scope of E2/AS1] the plywood thickness and fixing size may increase and centres may decrease to meet specific wind loadings. 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 all sheet edges are fully supported.

Concrete

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

Existing Construction

- 9.3 A thorough inspection of the substrate must be made to ensure it is in fit condition and does not contain any materials that will adversely affect the performance of the membrane.
- 9.4 Repairs must be undertaken, where applicable, to ensure the substrate is sound, the joints are sealed, and the flashings are sound. Plywood substrates must be checked for screw fixings, and if necessary refixed as for new plywood.

Durability

Serviceable Life

- 10.1 SikaRoof MTC Roof and Deck Membrane is expected to have a serviceable life of at least 15 years, provided it is designed, used, installed and maintained in accordance with this Appraisal and the Technical Literature.

Chemical Resistance

- 10.2 Industrial air pollutants and windborne salt deposits should not significantly affect the durability of the membrane. However, the long term properties of the material may be affected by contact with petroleum-based products such as oils, greases and solvents.



Maintenance

- 11.1 The membrane roof system must be regularly [at least annually] checked for damage, rubbish, debris or coating breakdown. Damage, such as small punctures and scratches (gouges) must be repaired and coatings reapplied as recommended by Sika [NZ] Ltd.
- 11.2 Special care must be taken when inspecting the membrane roof systems to ensure the continuing prevention of moisture ingress, and repairs must be undertaken where required.
- 11.3 Drainage outlets must be maintained to operate effectively.

Prevention of Fire Occurring

- 12.1 Separation or protection must be provided to SikaRoof MTC Roof and Deck Membrane from heat sources such as fire places, heating appliances, flues 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

- 13.1 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 which aligns with details in NZBC Acceptable Solution E2/AS1.
- 13.2 When installed in accordance with this Appraisal and the Technical Literature, SikaRoof MTC Roof and Deck Membrane will prevent the penetration of water and will therefore meet code compliance with Clause E2.3.2. The membrane is impervious to water and will give a weathertight roof or deck.
- 13.3 SikaRoof MTC Roof and Deck Membrane is 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.
- 13.4 The minimum fall to roofs is 1 in 30, decks 1 in 40 and gutters are 1 in 60. All falls must slope to an outlet. Inadequate falls will allow moisture to collect and increase the risk of deterioration of the membrane.
- 13.5 Roof and deck falls must be built into the substrate and not created with mortar screeds applied over the membrane.
- 13.6 Allowance for deflection and settlement of the substrate must be made in the design of the roof or deck to ensure falls are maintained and no ponding of water can occur.
- 13.7 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 roof does not drain to an external gutter or spouting.
- 13.8 Penetrations and upstands of the membranes must be raised above the level of any possible flooding caused by the blockage of roof or deck drainage.
- 13.9 The design of details not covered by the Technical Literature is subject to specific weathertightness design and is outside the scope of this Appraisal.

Water Supplies

- 14.1 SikaRoof MTC Roof and Deck Membrane has not been assessed for roofs used for the collection of potable water.

Installation Information

Installation Skill Level Requirement

- 15.1 Installation of substrates must always be carried out in accordance with the SikaRoof MTC Roof and Deck Membrane Technical Literature and this Appraisal by, or under the supervision of, a Licensed Building Practitioner [LBP] with the relevant Licence Class.
- 15.2 Installation and finishing of components and accessories supplied by Sika [NZ] Ltd and its approved applicators must be completed by trained applicators, approved by Sika [NZ] Ltd.

Preparation of Substrates

- 16.1 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.
- 16.2 Concrete substrates must have <4% actual moisture content. There must be no rising damp according to ASTM D4263 [Polyethylene Sheet Test Method] and no water, moisture or condensation on the substrate. Sika [NZ] Ltd should be contacted for further information.
- 16.3 The moisture content of the plywood and timber substructure must be a maximum of 20% and the plywood sheets must be dry at time of membrane application. This will generally require plywood sheets to be covered until just before the membrane is laid, to prevent rain wetting.
- 16.4 All substrates must be primed with the correct primer for the situation [refer Sika [NZ] Ltd for specification] and left to dry before the membrane is applied.

Membrane Installation

- 17.1 The membrane must be installed in accordance with the Technical Literature.
- 17.2 All roof-wall and deck-wall junctions must have a layer of Sika® Reemat embedded in Sikalastic® 601 BC and then allowed to cure.
- 17.3 The base coat membrane, Sikalastic® 601 BC is then applied and with a complete layer of Sika® Reemat embedded into this coat.
- 17.4 Once the Sikalastic® 601 BC is fully cured the topcoat membrane, Sikalastic® 621 TC is applied in two coats.

Inspections

- 18.1 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

- 19.1 Safe use and handling procedures for SikaRoof MTC Roof and Deck Membrane is provided in the Technical Literature. The products must be used in conjunction with the relevant Material Safety Data Sheets.

Basis of Appraisal

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

Tests

- 20.1 The following is a summary of the testing and test reports on SikaRoof MTC Roof and Deck Membrane:
- Water vapour permeability, low temperature flexibility, heat resistance, adhesion to concrete, resistance to water pressure, dynamic indentation, puncture resistance, tensile strength and elongation, cyclic movement resistance, nail tear and resistance to water.
 - British Board of Agreement evaluation for the issue of the current BBA and European Technical Approval covering these products.
- 20.2 The above test methods and results have been reviewed by BRANZ and found to be satisfactory.

Other Investigations

- 21.1 A durability opinion has been provided by BRANZ technical experts.
- 21.2 Site inspections were carried out by BRANZ to examine the practicability of installation.
- 21.3 The Technical Literature has been examined by BRANZ and found to be satisfactory.

Quality

- 22.1 The manufacture of the membrane 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. The manufacturer of SikaRoof MTC Roof and Deck Membrane has been assessed and registered as meeting the requirements of ISO 9001: 2008.
- 22.2 The quality of the supply of products to the New Zealand market is the responsibility of Sika [NZ] Ltd.
- 22.3 Quality on site is the responsibility of the trained applicators, approved by Sika [NZ] Ltd.
- 22.4 Designers are responsible for the building design, and building contractors are responsible for the quality of construction of substrate systems in accordance with the instructions of Sika [NZ] Ltd and this Appraisal.
- 22.5 Building owners are responsible for the maintenance of the membrane system in accordance with the instructions of Sika [NZ] Ltd and this Appraisal.

Sources of Information

- AS/NZS 1170: 2002 Structural design actions.
- AS/NZS 2269: 2012 Plywood – structural.
- BRANZ Good Practice Guide – Membrane Roofing, reprint October 2015.
- 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 7, 01 January 2017).
- Ministry of Business, Innovation and Employment Record of amendments – Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.



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17 January 2018

SIKAROOF® MTC ROOF AND
DECK MEMBRANE



In the opinion of BRANZ, **SikaRoof MTC Roof and Deck Membrane** 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 **Sika [NZ] 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. **Sika [NZ] 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 **Sika [NZ] 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 **Sika [NZ] Ltd** or any third party.

For BRANZ

Chelydra Percy

Chief Executive

Date of Issue:

17 January 2018