



**BRANZ Appraised**  
Appraisal No. 1068 [2019]

## SIKA INDEX ROOF AND DECK MEMBRANES

Appraisal No. 1068 [2019]



### BRANZ Appraisals

Technical Assessments of  
products for building and  
construction.



**BUILDING TRUST**

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## Product

- 1.1 The Sika Index Roof and Deck Membranes are for nominally flat, pitched and curved roofs, decks, gutters and parapets. They are installed as torch-on, two-layer systems with a top layer finished with mineral chip. They can also be installed as single layer onto concrete substrates with traffic protection such as paving slabs or topping screed. The products are reinforced, APP, SBS and SBS/APP polymer-modified bitumen sheet in roll form.

## Scope

- 2.1 Sika Index Roof and Deck 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,
  - 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 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 m<sup>2</sup>; and,
  - situated in NZS 3604 Wind Zones up to, and including Extra High.
- 2.2 Sika Index Roof and Deck Membranes have also been appraised for use as waterproofing membranes for external reinforced concrete and plywood roofs, pedestrian decks and balconies for 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 pressure 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, decks and balconies waterproofed with Sika Index Roof and Deck Membranes 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 down pipe discharging directly onto the deck; and,
  - with the deck membranes continually protected from physical damage by a pedestral protection system.

- 2.4 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 and is outside the scope of this Appraisal.
- 2.5 The membranes must be installed by Sika [NZ] Ltd approved applicators.

## Building Regulations

### New Zealand Building Code [NZBC]

- 3.1 In the opinion of BRANZ, the Sika Index Roof and Deck 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 B1 STRUCTURE:** Performance B1.3.3 [h], wind. The Sika Index Roof and Deck Membranes meets this requirement.
- Clause B2 DURABILITY:** Performance B2.3.1 [b], 15 years. The Sika Index Roof and Deck Membranes meets this requirement. See Paragraph 10.1.
- Clause E2 EXTERNAL MOISTURE:** Performance E2.3.1, E2.3.2 and E2.3.6. The Sika Index Roof and Deck Membranes meets these requirements. See Paragraphs 13.1 – 13.6.
- Clause F2 HAZARDOUS BUILDING MATERIALS:** Performance F2.3.1. The Sika Index Roof and Deck Membranes meets this requirement and will not present a health hazard to people.

## Technical Specification

- 4.1 The following materials, covered by this Appraisal, are manufactured by Index S.p.A [a fully owned subsidiary of Sika AG] and marketed and supplied by Sika [NZ] Ltd:
- **Proteaduo Triarmato** – 4.0 mm thick, torch applied composite [SBS modified lower layer and APP modified upper layer] bitumen waterproofing membrane with a non-woven polypropylene upper surface finish, used as a base sheet. It is supplied in 1 m x 10 m rolls.
  - **Mineral Proteaduo Triarmato** – 4.0 mm thick, torch applied composite [SBS modified lower layer and APP modified upper layer] bitumen waterproofing membrane with a mineral upper surface finish, used as a cap sheet. It is supplied in 1 m x 10 m rolls.
  - **Fidia Biarmato** – 3mm thick, torch applied modified bitumen waterproofing membrane with a talc upper surface finish, used as a base sheet. It is supplied in 1 m x 10 m rolls.
  - **Mineral Nova Polyester** – 4.5 kg/m<sup>2</sup> torch applied APP modified bitumen waterproofing membrane with a slate granule [mineral] upper surface finish, used as a cap sheet in a single or multilayer system. It is supplied in 1 m x 10 m rolls.
  - **Tectene BV Strip EP/V** – 3.0 mm thick, torch applied modified bitumen vapour barrier for use beneath insulation material. The upper surface has strips of adhesive [over 40% of its surface] that are heated immediately prior to placing the insulation boards. It is supplied in 1 m x 10 m rolls.
  - **Autotene Base EP Polyester** – 3.0 mm thick modified bitumen waterproofing membrane with a special heat-activated adhesive and a sand upper surface, used over thermal insulation as a base layer for both APP and SBS membranes in multilayer systems. It is supplied in 1 m x 10 m rolls.
  - **Rollbase Polyester-V** – 2 kg/m<sup>2</sup> mechanically fastened polymer modified bitumen base membrane, used as a base sheet over plywood. It is supplied in 1 m x 10 m rolls.
  - **Elastocene Surebase Polyester** – 2.6 mm thick, torch applied modified bitumen waterproofing membrane with a sand upper surface used as a base sheet for both APP and SBS membranes in multi-layer systems. It is supplied in 1 m x 10 m rolls.
  - **Defend Antiroot 15 Polyester** – 4.0 mm thick, torch applied root resistant polymer modified bitumen waterproofing membrane, used in all waterproofing systems in contact with the ground or where there is a risk of roots attacking the system. It is used as the last waterproofing layer, in contact with planting soil. It is supplied in 1 m x 10 m rolls.



- **Proteaduo Polyester** – 4.0 mm thick, torch applied composite (SBS modified lower layer and APP modified upper layer) bitumen waterproofing membrane with a non-woven polypropylene upper surface finish, used as a base sheet. It is supplied in 1 m x 10 m rolls.

#### **Accessories**

- **Indever** – is a solvent-borne, bitumen primer applied to substrates prior to the installation of Sika Index torch-on membranes. It is supplied in 20 litre units.

## **Handling and Storage**

- 5.1 Handling and storage of all materials whether on or off site is under the control of the Sika [NZ] Ltd approved applicators. Dry storage must be provided for all products and the rolls of membranes must be stored in an upright position.

## **Technical Literature**

- 6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for the Sika Index Roof and Deck 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 The Sika Index Roof and Deck 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. The products 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 the Sika Index Roof and Deck Membranes.
- 7.2 The effective control of internal moisture must be considered at the design stage due to the impermeability of the membranes. Refer to BRANZ publication Good Practice Guide - Membrane Roofing.

### **Structure**

- 8.1 The Sika Index Roof and Deck Membranes are fully bonded single or double layer systems and are suitable for use in areas subject to maximum wind pressures of 6 kPa Ultimate Limit State.

### **Substrates**

#### **Plywood and Timber Roof Framing**

- 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 NZBC 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.

#### **Steel Roof Framing**

- 9.2 Steel framing must comply with the NZBC and subject to specific engineering design 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. Particular attention must be paid to steel framing to limit deflection and movement.

### **Concrete**

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

### **Existing Construction**

- 9.4 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.
- 9.5 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 The Sika Index Roof and Deck Membranes are expected to have a serviceable life of at least 15 years, provided they are 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 membranes. 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 and deck systems must be regularly [at least annually] checked for damage, rubbish, debris or coating breakdown. Damage, such as small punctures and tears must be repaired 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 the Sika Index Roof and Deck Membranes from heat sources such as fire places, heating appliances, flues and chimneys. Part 7 of NZBC Acceptable Solutions C/AS1 and C/AS2 and NZBC Verification Method C/VM1 provide methods for separation and protection of combustible materials from heat sources.

## **External Moisture**

- 13.1 Roofs, 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 aligns with details in NZBC Acceptable Solution E2/AS1.
- 13.2 When installed in accordance with this Appraisal and the Technical Literature, the Sika Index Roof and Deck 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, deck or balcony.
- 13.3 Roof, deck and balcony falls must be built into the substrate and not created with mortar screeds applied over the membrane.
- 13.4 The minimum fall to roofs is 1 in 30, decks is 1 in 40 and 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 membranes.
- 13.5 Allowance for deflection and settlement of the substrate must be made in the design of the roof, deck or balcony to ensure falls are maintained and no ponding of water can occur.



- 13.6 The Sika Index Roof and Deck 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.
- 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, deck or balcony 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, deck or balcony 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 The Sika Index Roof and Deck Membranes have not been assessed for roofs used for the collection of potable water.

## Installation Information

### Installation Skill Level Requirement

- 15.1 Installation of the membranes must be completed by Sika [NZ] Ltd approved applicators.
- 15.2 Installation of substrates must be completed by tradespersons with an understanding of roof, deck or balcony construction, in accordance with instructions given within the Sika [NZ] Ltd Technical Literature and this Appraisal.

### Preparation of Substrates

- 16.1 Substrates must be dry, clean and stable, smooth and free from nibs, sharp edges, dust, dirt or other materials such as oil, grease or concrete formwork release agents before installation commences. All surface defects must be filled to achieve an even and uniform surface.
- 16.2 The relative humidity of concrete substrates must be 75% or less before membrane application. The concrete can be checked for dryness by using a hygrometer, as set out in BRANZ Bulletin No. 585.
- 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 or the sheet surface and edges pre-primed, to prevent rain wetting.
- 16.4 All substrates must be primed with Sika Index Indever and left to dry [3-8 hours] before the membranes are installed. Primed substrates exposed to the weather for more than 96 hours will require re-priming.

### Membrane Installation

- 17.1 The membranes must be installed in accordance with the Technical Literature.
- 17.2 All roof and wall junctions must have a 20 mm x 20 mm fillet installed at the junction. Concrete substrate junctions must have a 20 mm x 20 mm cement mortar fillet installed.
- 17.3 The membranes must be unrolled without tension onto the prepared substrate and allowed to 'relax' for at least 30 minutes prior to installation.
- 17.4 The membranes are installed from the lowest point and each layer is installed across the roof fall allowing a 100 mm side overlap and a 150 mm end overlap. The cap sheet layer must be offset against the base sheet layer. *Note: In certain situations the membranes can also be installed up the roof falls. Please refer to Sika [NZ] Ltd for technical recommendation.*



## 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 membranes.
  - Acceptance of the substrate by the membrane installer prior to application of the membranes.
  - Installation of the membranes to the Technical Literature.

## Health and Safety

- 19.1 Safe use and handling procedures for the Sika Index Roof and Deck Membranes are provided in the Technical Literature. The products must be used in conjunction with the relevant Material Safety Data Sheets for each membrane.

## Basis of Appraisal

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

### Tests

- 20.1 The Sika Index Roof and Deck Membranes have been tested according to the requirements of EN13707 and are covered by CE Certification. The above information and test 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 Installation of the membranes have been assessed by BRANZ for practicability of installation and found to be satisfactory.
- 21.3 The Technical Literature has been examined by BRANZ and found to be satisfactory.

### Quality

- 22.1 The manufacture of the 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. The manufacturer of the Sika Index Roof and Deck Membranes has been assessed and registered as meeting the requirements of ISO 9001 and Directive 89/106/EEC.
- 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 Sika [NZ] Ltd approved applicators.
- 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 systems 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 Bulletin 585 Measuring Moisture in Timber and Concrete.
- BRANZ Good Practice Guide – Membrane Roofing, October 2015.
- Code of Practice for Torch-on Bitumen Membrane Systems for Roof and Decks, Membrane Group Inc, October 2008.
- NZS 3101: 2006 Concrete structures Standard.
- 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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In the opinion of BRANZ, **Sika Index Roof and Deck Membranes** 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

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19 August 2019