



BRANZ Appraised

Appraisal No.770 [2012]

BRANZ Appraisals

Technical Assessments of products
for building and construction

**BRANZ
APPRAISAL
No. 770 (2012)**

SIKA BLACKSEAL ELASTIC DAMP PROOF MEMBRANE

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Product

1.1 Sika BlackSeal Elastic is a water-based bitumen emulsion modified with acrylic latex polymer used as a damp proof membrane material behind basement and retaining walls to prevent water vapour penetrating to the interior.



Scope

2.1 Sika BlackSeal Elastic has been appraised as a damp-proof membrane behind concrete masonry basement walls complying with NZS 4229.

2.2 Sika BlackSeal Elastic has also been appraised for use as a damp-proof membrane on buildings subject to specific design within the following scope:

- where the design of the building will be the responsibility of the building designer; and,
- with clean, sound, continuous substrates of insitu or precast concrete complying with NZS 3101 or concrete masonry complying with NZS 4210; and,
- where the membrane is adequately protected against damage during backfilling and in service; and,
- where subsoil drainage and free draining granular backfill has been placed behind basement walls.

2.3 When used to meet the requirements of the New Zealand Building Code this product must be applied by a Licensed Building Practitioner (LBP). The LBP must be trained and registered with Sika (NZ) Ltd.

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, Sika BlackSeal Elastic 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 (a) not less than 50 years. Sika BlackSeal Elastic meets this requirement. See Paragraph 11.1.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.3. Sika BlackSeal Elastic meets this requirement. See Paragraphs 13.1 – 13.3.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Sika BlackSeal Elastic meets this requirement and will not present a health hazard to people.

3.2 This is an Appraisal of an **Alternative Solution** in terms of New Zealand Building Code compliance.

Technical Specification

4.1 Sika BlackSeal Elastic is a water-based bitumen emulsion modified with acrylic latex polymer used as a damp proof membrane material behind retaining walls and as a damp proof membrane for underground structures. It is supplied in 4 and 20 litre containers.

Handling and Storage

5.1 Handling and storage of all materials whether on or off site is under the control of the installer. Dry storage must be provided for the product and the product must be kept from freezing.

Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for Sika BlackSeal Elastic. 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

Substrate Design

7.1 Substrate design must be in accordance with the NZBC to a relevant standard, such as NZS 3101 for concrete and NZS 4230 or NZS 4229 for concrete masonry.

7.2 The substrate must have a surface finish that is smooth, clean and free from defects or irregularities which may damage the membrane.

Control Joints

8.1 Where control or construction joints are formed in the substrate, Sika (NZ) Ltd must be consulted for use of the membranes over these joints.

Backfilling and Drainage

9.1 The membrane must be protected against damage by the placement of a BlackSeal protection sheet between the membrane and the granular fill.

9.2 The minimum requirement for backfilling is that a granular, free-draining material is used with the top of the backfill capped with an impervious clay fill that may be covered with topsoil if required. The impervious capping and topsoil must slope at a minimum of 1:30 fall away from the wall.

9.3 A minimum 100 mm diameter subsoil perforated drainage pipe must be installed at the bottom of the wall. The pipe must be covered with a geotextile filter fabric, be laid at a minimum 1:200 fall and discharge to a drainage outlet. Provision for cleaning the pipe must also be provided.

Durability

Serviceable Life

10.1 Sika BlackSeal Elastic is a suitable damp proof membrane material (polymer modified bitumen emulsion), therefore it is expected to have a serviceable life of at least 50 years provided it is installed and maintained in accordance with this Appraisal and is continually protected from sunlight and UV radiation.

Maintenance

11.1 Annual inspections must be made of the membrane top edge seal and protection, the backfill capping, and the drainage pipe to ensure all are functioning as originally designed.

11.2 If required, the drainage pipe must be cleared to remove any sediment or silt build-up. The slope of the backfill capping must be maintained at all times.

External Moisture

12.1 Sika BlackSeal Elastic, when installed in accordance with this Appraisal and the Technical Literature, will prevent water vapour from penetrating to the interior face of basement retaining walls in spaces where moisture may cause damage. The membrane has a vapour flow resistance of not less than 90 MN s/g.

12.2 All penetrations and construction joints should be made waterproof following the instructions in the Technical Literature before the application of the membrane. The membrane must be terminated at ground level as set out in the Technical Literature, and protected.

12.3 Building designers must ensure junctions with other membranes, such as at the floor/wall junction, form a waterproof joint. Junctions have not been assessed and are outside the scope of this Appraisal.

Installation Information

Installation Skill Level Requirement

13.1 Installation of the membranes must be completed by a Licensed Building Practitioner trained and approved by Sika (NZ) Ltd.

System Installation

Substrate Preparation

14.1 Prior to application of the membrane all prepared surfaces must be clean and free from any loose material. Contaminants such as dust, dirt, oil, grease, mould release agents and curing compounds must be removed before application.

Membrane Installation

14.2 Sika BlackSeal Elastic can be applied using a coarse whitewash brush, roller or squeegee. Apply two full undiluted coats of Sika BlackSeal Elastic at 2m² /litre/coat. The second coat must be applied in the opposite direction to the first coat. Backfilling must commence within 48 hours of application of the membrane and BlackSeal protection sheet being installed to ensure the system is not left exposed to sunlight or UV radiation.

Health and Safety

15.1 Safe use and handling procedures for the membrane system are provided in the Technical Literature.

Basis of Appraisal

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

Tests

16.1 Various testing organisations have tested Sika BlackSeal Elastic for water vapour transmission, adhesion to concrete, low temperature flexibility, sag index resistance, static puncture resistance, storage stability, resistance to re-emulsification, tensile strength and elongation retention before and after heat aging. These have been reviewed by BRANZ and found to be satisfactory.

Other Investigations

17.1 A durability opinion has been given by BRANZ technical experts.

17.2 Practicability of installation has been assessed by BRANZ and found to be satisfactory.

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

Quality

18.1 The manufacture of the membrane has been examined by BRANZ and details regarding the quality and composition of the materials obtained by BRANZ show the processes to be satisfactory.

18.2 The quality management system of the membrane manufacturer has been assessed to ISO 9001: 2008.

18.3 The quality of materials supplied to the market is the responsibility of Sika (NZ) Ltd.

18.4 Quality of installation on site is the responsibility of the applicator.

18.5 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.

18.6 Building owners are responsible for the maintenance of the membrane systems in accordance with the instructions of Sika (NZ) Ltd.

Sources of Information

- AS/NZS 1170: 2002 Structural and design actions - General principles.
- NZS 3101: 2006 The design of concrete structures.
- NZS 3604: 2011 Timber-framed buildings.
- NZS 4210: 1989 Masonry construction: Materials and Workmanship.
- NZS 4229: 1999 Concrete masonry buildings not requiring specific engineering design.
- NZS 4230: 2004 Design of reinforced concrete masonry structures.
- New Zealand Building Code Handbook Department of Building and Housing, Third Edition (Amendment 12, 10 October 2011).
- The Building Regulations 1992.



BRANZ

In the opinion of BRANZ, **Sika BlackSeal Elastic** 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

P Burghout
Chief Executive

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