



BRANZ Appraised

Appraisal No. 452 [2019]

SIKA BOOM® AIR SEAL

Appraisal No. 452 [2019]

This Appraisal replaces BRANZ Appraisal No. 452 [2013].



BRANZ Appraisals

Technical Assessments of products for building and construction.



BUILDING TRUST

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Product

- 1.1 Sika Boom® is a self-expanding polyurethane foam air seal used around window and door penetrations and other cladding fenestration trim cavities to assist with weathertightness and energy efficiency.

Scope

- 2.1 Sika Boom® has been appraised for use as an air seal around window and door penetrations and other cladding fenestration trim cavities in buildings within the following scope:
 - the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regard to building height and floor plan area; and,
 - situated in NZS 3604 Wind Zones up to, and including Extra High.
- 2.2 Sika Boom® has also been appraised as an air seal with window and door joinery that is designed and manufactured in accordance with NZS 4211, situated in NZS 3604 Wind Zones up to, and including Extra High, and where the cladding is an Alternative Solution and/or the building is outside the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1. The weathertightness design of the window and door joinery penetrations and other cladding fenestration trim cavities in these situations has not been assessed and is outside the scope of this Appraisal.

Building Regulations

New Zealand Building Code (NZBC)

- 3.1 In the opinion of BRANZ, Sika Boom® Air Seal, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet or contribute to meeting the following provisions of the NZBC:

Clause B2 DURABILITY: Performance B2.3.1 [b], 15 years. Sika Boom® Air Seal meets this requirement. See Paragraphs 8.1 and 8.2.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. When used as part of a cladding system, Sika Boom® Air Seal will contribute to meeting this requirement. See Paragraphs 10.1 – 10.4.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Sika Boom® Air Seal meets this requirement and will not present a health hazard to people.

Technical Specification

4.1 Products and accessories supplied by Sika [NZ] Ltd are as follows:

Air Seal

- **Sika Boom®** – a single component self expanding moisture cure polyurethane foam. Available as Sika Boom® – G a 750 ml can fitted with an adaptor system for use with a one component dispensing gun and Sika Boom in 250 ml, 500 ml, 750 ml Multi positional cans. *[Note these can be used in any position, the can does not have to be inverted to allow the foam to be propelled].*

Accessories

- **Sika Boom® Cleaner** – a solvent based cleaner for the dispensing gun.

4.2 Accessories supplied by the building contractor are as follows:

- One-component dispensing gun.
- PEF backing rod – a closed cell polyethylene foam [PEF] backing rod complying with ASTM C1330.

Handling and Storage

5.1 The handling and storage of Sika Boom® on site is the responsibility of the installer. Sika Boom® has a shelf life of 12 months if stored in unopened packaging under dry, cool conditions at temperatures between 5°C and 35°C. The product must be stored out of direct sunlight.

Technical Literature

- 6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for Sika Boom®. 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.
- 6.2 Some installation instructions are also printed on the can. The can label also contains uses outside the scope of this Appraisal.

Design Information

General

- 7.1 The use of air seals is critical to assist the weathertightness performance of window and door joinery installations at the trim cavities, and other wall penetrations. Air seals also assist energy efficiency by reducing heat loss through these cavities.
- 7.2 Sika Boom® is designed to be used as a gap-filling air seal around window and door trim cavities and wall penetrations, e.g. plumbing pipes. It is designed for use in interior locations, and along with its good gap-filling capacities it has excellent adhesion to most materials. Two exceptions are polyethylene or polypropylene. However, testing completed on window installations incorporating polyethylene building wraps and polyethylene backed flashing tapes has shown that any potential lack of adhesion between Sika Boom® and the polyethylene will not affect its performance as an air seal.
- 7.3 Sika Boom® is designed to prevent air leakage at the interior face of the window and door trim cavities and wall penetrations. This prevention of air leakage assists in achieving the overall airtightness requirements of the trim cavity.
- 7.4 A PEF backing rod complying with ATSM C1330 must be used in all trim cavities and around wall penetrations to support the Sika Boom®. At the same time the backing rod prevents the trim cavity from being completely filled by restricting the depth of the air seal to a maximum of 45 mm.
- 7.5 Sika Boom® is not designed to overcome poor detailing and workmanship of window or door joinery installation. It is designed to be used in conjunction with flashing systems, not as a substitute.

Durability

- 8.1 Assessment of durability to meet the NZBC is based on difficulty of access and replacement of the air seal, and the ability to detect failure of the air seal both during normal use and maintenance of the building.

Serviceable Life

- 8.2 When air seals are installed using Sika Boom® in accordance with this Appraisal [i.e. in dry, interior environments where the product is inaccessible, and completely sheltered from exposure to sunlight, chemicals, solvents and temperature extremes], they will remain serviceable for at least 15 years.

Prevention of Fire Occurring

- 9.1 Separation or protection of the Sika Boom® from heat sources such as fire places, heating appliances, flues and chimneys must be provided. 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

- 10.1 Sika Boom® is a self-expanding polyurethane foam complying with the requirements of NZBC Acceptable Solution E2/AS1 Paragraph 9.1.6.
- 10.2 When installed over a PEF backing rod complying with ASTM C1330, window, door and other penetration openings in exterior walls incorporating Sika Boom® can minimise the risk of airflows carrying water into the building wall.
- 10.3 Sika Boom®, when installed in accordance with this Appraisal, will assist the total cladding system in complying with NZBC Acceptable Solution E2/AS1.
- 10.4 Buildings outside the scope of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 are the subject of specific weathertightness design. The designer must incorporate air seal details to meet their own requirements and the performance requirements of the NZBC. These details are outside the scope of this Appraisal.

Installation Information

Installation Skill Level Requirements

- 11.1 Installation of Sika Boom® must be completed by competent tradespersons with an understanding of air seal installation, in accordance with the instructions given in the Technical Literature and this Appraisal.

General

- 12.1 Before the installation of Sika Boom®, the installer must refer to the contract documentation, E2/AS1 and the cladding system manufacturer's Technical Literature for guidance on the installation requirements of air seals in their system.
- 12.2 Substrate surfaces must be clean and free from any surface contaminants such as dust or grease that may cause loss of adhesion. Window and door joinery or wall penetrations must have been installed and firmly secured in place.
- 12.3 Substrate surfaces should be moistened with a mist of water before the installation of Sika Boom®. The moisture assists by accelerating the curing of the air seal and creating a more homogeneous cell structure.
- 12.4 After installation of the PEF backing rod, Sika Boom® must be extruded into the gap between the window or door reveal liner or wall penetration and the timber frame or building wrap at the internal face of the cavity using the dispensing gun. Once extruded, it will expand to fill the gap and form a continuous air seal.
- 12.5 Sika Boom® that has spilled but not cured can be removed with Sika Boom® Cleaner.
- 12.6 Sika Boom® that has cured can be trimmed with a sharp knife.

Health and Safety

- 13.1 Safe use and handling procedures for Sika Boom® are provided on the can. Extra care must be taken when using the product in areas where there is insufficient ventilation, and suitable respiratory equipment must therefore be worn. Additional information on the product is available in the Material Safety Data Sheet available from Sika [NZ] Ltd.

Basis of Appraisal

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

Tests

- 14.1 A BRANZ ad-hoc test was completed to confirm the suitability of Sika Boom® for use as an air seal. The test results were reviewed by BRANZ experts and found to be satisfactory.
- 14.2 Cyclic and static pressure water leakage tests in accordance with AS/NZS 4284 were carried out by BRANZ on typical window installations to assess the practicability of expanding foam air seals.

Other Investigations

- 15.1 The practicability of installation was assessed by BRANZ and found to be satisfactory.
- 15.2 A Material Safety Data Sheet for Sika Boom® has been reviewed by BRANZ and found to be satisfactory.
- 15.3 A durability opinion has been given by BRANZ technical experts for Sika Boom® when used as an air seal.

Quality

- 16.1 The manufacture of the product has not been examined by BRANZ, but details of the quality and composition of the materials used were obtained and found to be satisfactory. The manufacturer is an ISO 9001:2008 Certified manufacturer.
- 16.2 The quality of supply of the product to the market is the responsibility of Sika [NZ] Ltd.
- 16.3 The quality of installation of the product on site is the responsibility of the installer.
- 16.4 Building designers are responsible for the design of the building, and for the incorporation of the air seal into their design in accordance with the instructions of Sika [NZ] Ltd.

Sources of Information

- AS/NZS 4284: 2008 Testing of building facades.
- NZS 3604: 2011 Timber-framed buildings.
- NZS 4211:2008 Specification for performance of windows
- ASTM C1330-02 Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants.
- 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 8, 30 November 2018].
- 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 Boom® Air Seal** 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:

23 May 2019