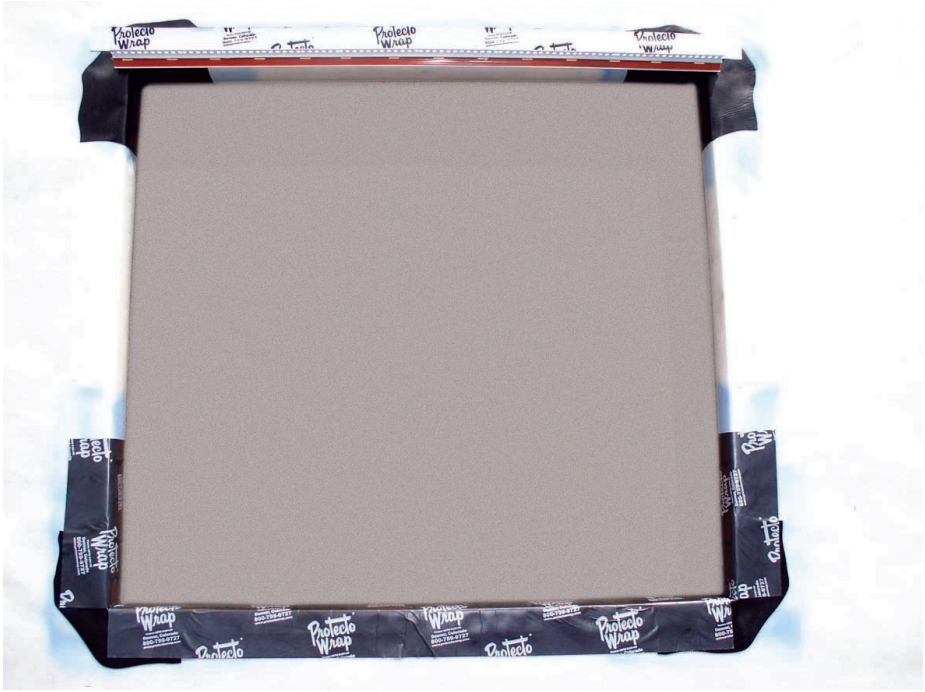
BRANZ Appraised
Appraisal No. 444 [2022]

PROTECTO SILL WINDOW SEALING SYSTEM



Appraisal No. 444 (2022)

This Appraisal replaces BRANZ Appraisal No. 444 (2017)

BRANZ Appraisals

Technical Assessments of products for building and construction.

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Product

1.1 The Protecto Sill Window Sealing System comprises of Protecto Wrap Detail Tape, Protecto Wrap Sill Tape and Protecto Tak spray-on adhesive primer. The system is used around framed joinery openings as a secondary weather-resistant barrier.

1.2 The system is installed into and around the framed joinery opening, over the building wrap and exposed frame to cover both the face and edge of the opening framing. Protecto Wrap Sill Tape is also used at joinery heads to seal flashing upstands to the building wrap.

Scope

2.1 The Protecto Sill Window Sealing System has been appraised as a flexible flashing system for use around window and door joinery openings for timber-framed buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; and,
- with a risk score of 0-20, calculated in accordance with NZBC Acceptable Solution E2/AS1, Table 2; and,
- with wall cladding systems complying with NZBC Acceptable Solution E2/AS1 or a valid BRANZ Appraisal that specifies a flexible flashing system; and,
- with wall wraps compatible with the flashing tape; and,
- situated in NZS 3604 Wind Zones up to, and including, Extra High.

2.2 The Protecto Sill Window Sealing System has also been appraised as a flexible flashing system for use around window and door joinery openings for steel-framed buildings within the following scope:

- constructed with steel framing in accordance with the scope limitations of NASH Building Envelope Solutions, Paragraph 1.1 with regard to building height and floor plan; and,
- with a risk score of 0-20, calculated in accordance with NASH Building Envelope Solutions, Table 2; and,
- with wall wraps compatible with the flashing tape and steel frame cladding systems; and,
- situated in NASH Standard Part Two Wind Zones up to, and including, Extra High.

Building Regulations

New Zealand Building Code (NZBC)

3.1 **In the opinion of BRANZ, Protecto Sill Window Sealing System, 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 and B2.3.2. Protecto Sill Window Sealing System meets these requirements. See Paragraphs 8.1 and 8.2.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. Protecto Sill Window Sealing System contributes to meeting this requirement. See Paragraphs 7.1-7.4 and 11.1.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Protecto Sill Window Sealing System meets this requirement.

Technical Specification

4.1 System components and accessories supplied by Marshall Innovations Limited are:

- **Protecto Wrap Detail Tape** is a black, self-adhering, unreinforced, conformable, modified styrene-butadiene-styrene (SBS) rubberised, asphalt membrane tape. The tape is covered on one side by a silicone release paper and on the other side by a protective removable film. The tape is 1 mm thick and is supplied in rolls 150 mm wide and 15 m long.
- **Protecto Wrap Sill Tape** is a polyethylene backed, modified SBS rubberised, asphalt adhesive membrane tape. The adhesive surface of the tape is covered with a silicone release paper. The tape is 0.5 mm thick and is supplied in rolls of 200, 150 and 50 mm wide and 30 m long.
- **Protecto Tak** is a solvent-based spray-on adhesive primer, coloured blue. It is supplied in 369 g cans.

Handling and Storage

5.1 Handling and storage of all materials supplied by Marshall Innovations Limited, whether on-site or off-site, is under the control of the installer. The Protecto Sill Window Sealing System components must be protected from damage and weather. Rolls must be stored under cover, in clean, dry conditions away from direct exposure to sunlight.

Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for the Protecto Sill Window Sealing System. 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 Protecto Sill Window Sealing System meets the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.1.5 b). Refer to the Technical Literature for details of the underlays that are compatible with the system. The installation method for the Protecto Sill Window Sealing System is an Alternative Solution to the installation method shown within NZBC Acceptable Solution E2/AS1, Figure 72.

7.2 The use of flexible flashing systems around window and door joinery openings is critical to assist the overall weathertightness performance of window and door joinery installations.

7.3 The Protecto Sill Window Sealing System is designed to prevent air leakage and water penetration around window and door openings at framing junctions (e.g. at the sill trimmer and opening stud junction), and to keep any water that gets past the cladding, or through the joinery, from direct contact with the framing.

7.4 The Protecto Sill Window Sealing System is not designed to overcome poor detailing and workmanship of the window or door joinery installation. The system must not be considered in isolation, but be considered as part of the wall cladding system. The Protecto Sill Window Sealing System is designed to be used in conjunction with air seals and joinery flashing systems, not as a substitute.

7.5 When the Protecto Sill Window Sealing System is used in conjunction with light organic solvent preservative (LOSP) treated timber, the solvent from the timber treatment must be allowed to evaporate (generally at least one week) prior to the installation of the system.

Durability

8.1 Assessment of durability to meet the NZBC is based on difficulty of access and replacement, and the ability to detect failure of the Protecto Sill Window Sealing System both during normal use and maintenance of the building.

Serviceable Life

8.2 Provided it is not exposed to the weather or ultraviolet (UV) light for a total of more than 90 days, and provided the exterior cladding is maintained in accordance with the cladding manufacturer's instructions and the cladding remains weather-resistant, the Protecto Sill Window Sealing System is expected to have a serviceable life equal to that of the cladding.

Maintenance

9.1 No maintenance is required for the Protecto Sill Window Sealing System. Regular checks, at least annually, must be made of the junctions between the joinery and wall cladding to ensure that they are maintained weathertight and that the primary means of weather resistance for the junction e.g. flashing, sealant, etc. continues to perform its function, to ensure that water will not penetrate the cladding.

Prevention of Fire Occurring

10.1 Separation or protection must be provided to the Protecto Sill Window Sealing System 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

11.1 Where a cladding manufacturer specifies the use of generic flashing tapes around window and door joinery openings at framing junctions as part of their system, or they specify the use of flexible flashing tapes that comply with NZBC E2/AS1, Paragraph 9.1.5 b), the Protecto Sill Window Sealing System may be used.

Installation Information

Installation Skill Level Requirements

12.1 All design and building work must be carried out in accordance with the Protecto Sill Window Sealing System Technical Literature and this Appraisal by competent and experienced tradespersons conversant with the Protecto Sill Window Sealing System. Where the work involves Restricted Building Work (RBW), this must be completed by, or under the supervision of, a Licensed Building Practitioner (LBP) with the relevant License Class.

General

13.1 The selected building underlay must be installed in accordance with the manufacturer's instructions, and must completely cover the joinery opening. The wrap is then cut on a 45° angle away from each corner of the opening so the flaps can be folded into the opening and secured to the interior face of the framing.

13.2 Before the Protecto Tak adhesive primer is applied, the substrate surfaces must be clean, dry and free from any surface contaminants such as dust and grease that may cause loss of adhesion. The Protecto Tak adhesive primer must be sprayed onto the wrap and exposed frame along the entire length of the sill trimmer, the inside and front face of the opening studs and into the top corners of the joinery opening.

13.3 A 300 mm length of Protecto Wrap Detail Tape is installed around all four corners of the opening, keeping the tape flush with the interior face of the opening and ensuring the exposed framing is covered. After removing the protective film, the tape that overhangs the front of the opening is 'moulded' onto the face of the building wrap to create an airtight seal at the framing junction.

13.4 The Protecto Wrap Sill Tape is cut in individual lengths to suit the opening of the sill. The Protecto Wrap Sill Tape is installed flush with the interior face of the opening and is applied along the entire length of the sill. The overhanging tape is folded onto the face of the building underlay.

13.5 Two 300 mm lengths of Protecto Wrap Sill Tape are cut for the jambs. The tape is installed flush with the interior face of the opening and tight into the sill/jamb junction. The overhanging tape is folded onto the face of the building underlay.

13.6 Protecto Wrap Sill Tape must not be stretched. To avoid wastage, the tape can be lapped 100 mm minimum onto itself without reducing the performance of the Protecto Sill Window Sealing System.

13.7 If Protecto Wrap Sill Tape is exposed to the weather or UV light for more than 90 days, then it must be replaced with new material.

Installation Temperature

13.8 The Protecto Sill Window Sealing System must not be installed at temperatures of less than 10°C.

Inspections

13.9 The Technical Literature must be referred to during the inspection of Protecto Sill Window Sealing System installations.

Basis of Appraisal

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

Tests

14.1 Cyclic and static water pressure leakage tests in accordance with AS/NZS 4284 were carried out by BRANZ on cladding systems incorporating the Protecto Sill Window Sealing System. The test results were reviewed by BRANZ experts and found to be satisfactory.

14.2 The adhesion of Protecto Wrap Sill Tape and Protecto Wrap Detail Tape to black bituminous kraft building paper complying with the requirements of NZBC Acceptable Solution E2/AS1, Table 23 and selected other synthetic wall underlays have been tested by BRANZ and found to be satisfactory.

14.3 Tests have been carried out on Protecto Wrap Sill Tape in accordance with ICC Evaluation Service Criteria for Flashing Materials, AC148. The results have been reviewed by BRANZ experts and found to be satisfactory.

Other Investigations

15.1 An assessment was made of the durability of the Protecto Sill Window Sealing System by BRANZ technical experts.

15.2 Site inspections were carried out by BRANZ to examine the practicability of installation.

15.3 The Technical Literature has been reviewed by BRANZ and found to be satisfactory.

Quality

16.1 The manufacture of the Protecto Sill Window Sealing System has not been examined by BRANZ, but details of the quality and composition of the materials used were obtained and found to be satisfactory.

16.2 Overseas certifications have been reviewed by BRANZ and found to be satisfactory.

16.3 The quality of supply to the market is the responsibility of Marshall Innovations Limited.

16.4 Designers are responsible for the building design, and building contractors are responsible for the quality of installation of framing systems and building wraps in accordance with the instructions of the designer.

16.5 The quality of installation, handling and storage on-site is the responsibility of the installer, in accordance with the instructions of Marshall Innovations Limited.

Sources of Information

- ICC Evaluation Service, Inc, AC148 Acceptable Criteria for Flexible Flashing Materials, July 2001.
- NASH Building Envelope Solutions: 2019 Light steel-framed buildings.
- NASH Standard Part Two: 2019 Light steel-framed buildings.
- 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.

In the opinion of BRANZ, Protecto Sill Window Sealing System 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 Marshall Innovations 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. Marshall Innovations 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 Marshall Innovations 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 Marshall Innovations Limited or any third party.

For BRANZ

Chelydra Percy
Chief Executive

Date of Issue:
14 June 2022