



BRANZ Appraised

Appraisal No.444 [2005]

BRANZ Appraisals

Technical Assessments of products
for building and construction

**BRANZ
APPRAISAL
CERTIFICATE
No. 444 (2005)**

This Appraisal replaces BRANZ
Appraisal No. 444 (2003) issued
22 October 2003

Amended 17 July 2008

**PROTECTO
SILL**

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Product

1.1 The Protecto Sill system comprises Protecto Wrap Jiffy Seal 500 tape, Protecto Wrap BT20 XL tape and Protecto Tak spray-on adhesive primer.

1.2 The system is installed with the flashing tapes 'moulded' into the framed joinery opening over the building wrap to cover both the face and edge of the opening framing. BT20 XL tape is also used at joinery heads to seal flashings to the building wrap.



Scope

2.1 Protecto Sill has been appraised for use as a flexible flashing system for use around window and door openings for 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 tapes; and,
- situated in NZS 3604 Building Wind Zones up to, and including, 'Very High'.

2.2 Protecto Sill 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:

- the scope limitations of NZBC Acceptable Solution E2/AS1, with regards to building height and floor plan area; and,
- constructed with steel framing complying with the NZBC; and,
- with a risk score of 0-20, calculated in accordance with NZBC Acceptable Solution E2/AS1, Table 2; and,
- with wall cladding systems covered by a valid BRANZ Appraisal that specifies a flexible flashing system; and,
- with wall wraps compatible with the flashing tape and steel frame; and,
- situated in NZS 3604 Building Wind Zones up to, and including, 'Very High'.

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, Protecto Sill, 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. Protecto Sill meets this requirement. See Paragraphs 8.1 and 8.2.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. Protecto Sill contributes to meeting this requirement. See Paragraphs 7.1 - 7.4 and 10.1.

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

3.2 This is an Appraisal of an Acceptable Solution in terms of New Zealand Building Code Compliance. Protecto Sill meets the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.1.5(b).

Technical Specification

4.1 System components and accessories supplied by Marshall Waterproofing NZ/AUS Ltd are:

- Protecto Wrap Jiffy Seal 500 is a black, self-adhering, unreinforced, conformable, modified SBS (styrene-butadiene-styrene) 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 1.0 mm thick and is supplied in rolls 150 mm wide and 15 m long.
- Protecto Wrap BT20 XL 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 460 g cans.

Handling and Storage

5.1 Handling and storage of all materials supplied by Marshall Waterproofing NZ/AUS Ltd, whether on or off site, is under the control of the installer. Protecto Sill components must be protected from damage and weather. They must be stored under cover, in clean, dry conditions away from direct exposure to sunlight.

5.2 The tapes and primer have a recommended shelf life of 1 year.

Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for the Protecto Sill 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 use of flexible flashing systems around window and door openings is critical to assist the overall weathertightness performance of window and door joinery installations.

7.2 The Protecto Sill 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 timber.

7.3 Refer to the Technical Literature for details of wall wraps that are compatible with the Protecto Sill system.

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

7.5 When Protecto Sill is used in conjunction with LOSP (light organic solvent preservative) 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 system both during normal use and maintenance of the building.

Serviceable Life

8.2 Provided it is not exposed to the weather or ultra-violet 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, Protecto Sill is expected to have a serviceable life equal to that of the cladding.

Maintenance

9.1 No maintenance is required for the Protecto Sill 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.

Outbreak of Fire

10.1 Protecto Sill must be separated from chimneys and flues in accordance with the requirements of NZBC Acceptable Solution C/AS1 Part 9 for the protection of combustible materials.

External Moisture

11.1 Where a cladding manufacturer specifies the use of generic flashing tapes around window and door 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), Protecto Sill may be used.

Installation Information

Installation Skill Level Requirements

12.1 Installation of the Protecto Sill system must be completed by tradespersons with an understanding of flexible flashing systems, in accordance with instructions given within the Protecto Sill Technical Literature and this Appraisal.

General

13.1 The selected building wrap 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 timber 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 timber 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 Jiffy Seal 500 is installed around all four corners of the opening, keeping the tape flush with the interior face of the opening and ensuring the exposed timber 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 BT20 XL tape is cut in individual lengths to suit the opening of the sill. The BT20 XL 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 wrap.

13.5 Two 300 mm lengths of Protecto Wrap BT20 XL 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 wrap.

13.6 BT20 XL 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 system.

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

Inspections

13.8 The Technical Literature must be referred to during the inspection of Protecto Sill installations.

Health and Safety

14.1 Care must be taken when using Protecto Tak in areas where there is insufficient ventilation. Suitable respiratory equipment must be worn at all times. Additional information on the product is available in the Material Safety Data Sheet available from Marshall Waterproofing NZ/AUS Ltd.

Quality

17.1 The manufacture of the Protecto Sill 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.

17.2 The quality of supply to the market is the responsibility of Marshall Waterproofing NZ/AUS Ltd.

17.3 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.

17.4 The quality of installation, handling and storage on site is the responsibility of the installer.

Sources of Information

- AS/NZS 4284: 1995 Testing of building facades.
- NZS 3603: 1993 Timber Structure Standard.
- NZS 3604: 1999 Timber framed buildings.
- NZS 4203: 1992 General structural design and design loadings for buildings
- Compliance Document for New Zealand Building Code External Moisture Clause E2, Department of Building and Housing, Third Edition July 2005.
- New Zealand Building Code Handbook and Approved Documents, Building Industry Authority, 1992.
- The Building Regulations 1992, up to, and including October 2004 Amendment.

Basis of Appraisal

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

Tests

15.1 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 system. The test results were reviewed by BRANZ experts and found to be satisfactory.

15.2 The adhesion of Protecto Wrap BT20 XL and Jiffy Seal 500 to black bituminous Kraft building paper complying with the requirements of NZBC Acceptable Solution E2/AS1, Table 23 and selected other synthetic wall wraps has been tested by BRANZ and found to be satisfactory.

15.3 Tests have been carried out on Protecto Wrap BT20 XL tape by Ramtech Laboratories Inc 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

16.1 An assessment was made of the durability of the Protecto Sill system by BRANZ technical experts.

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

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



BRANZ

In the opinion of BRANZ, Protecto Sill 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 the Appraisal Holder, Marshall Waterproofing NZ/AUS Ltd, and is valid until further notice, subject to the Conditions of Certification.

Conditions of Certification

1. This Certificate:
 - 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. The Certificate Holder:
 - 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.
3. The product and the manufacture are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ.
4. BRANZ makes no representation 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 the Certificate Holder.
5. Any reference in this Certificate to any other publication shall be read as a reference to the version of the publication specified in this Certificate.

For BRANZ

P Robertson
Chief Executive

Date of issue: 20 July 2005

Appraisal Amendment No. 1 - 17 July 2008

The Appraisal has been amended to increase the exposure time of the product prior to enclosing and to include steel framed construction in the Appraisal scope.