



BRANZ Appraised

Appraisal No.621 [2008]

BRANZ Appraisals

**Technical Assessments of products
for building and construction**

**BRANZ
APPRAISAL
No. 621 (2008)**

**THE TEKTON®
WEATHERIZATION
SYSTEM**

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Product

1.1 The Tekton® Weatherization System consists of Tekton® Building Wrap, One Piece Sill Tape or Protecto Sill System (flexible flashing tapes) and Tekton Seam Tape. The system is used behind wall cladding systems and around framed joinery openings as a secondary weather resistant barrier for walls.

1.2 The Tekton® Building Wrap is fixed directly to the outside of the external wall framing, and is also wrapped around the inside face of the framing at openings. Tekton Seam Tape is applied over the joints of the installed building wrap. The One Piece Sill Tape or Protecto Sill System is then 'moulded' into the opening over the building wrap to cover both the face and edge of the opening framing, and also at joinery heads to seal flashings to the building wrap. The Protecto Wrap Tapes are also used for sealing punctures, tears or penetrations in the building wrap.



Scope

2.1 The Tekton® Weatherization System has been appraised for use on timber framed buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regards to building height and floor plan area; and,
- with absorbent wall claddings directly fixed to framing; and,
- with absorbent and non-absorbent wall claddings installed over an 18 mm minimum drained cavity; and,
- with masonry veneer in accordance with NZS 3604: 1999; and,
- situated in NZS 3604 Building Wind Zones up to, and including 'Very High'.

2.2 The Tekton® Weatherization System has been appraised for use on steel framed buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regards to building height and floor plan area; and,
- with absorbent and non-absorbent wall claddings installed over an 18 mm minimum drained cavity; and,
- situated in NZS 3604 Building Wind Zones up to, and including 'Very High'.

2.3 The Tekton® Weatherization System has also been appraised for use on building subject to specific weathertightness design. Building designers are responsible for the building design and for the incorporation of Tekton® Weatherization System into their design in accordance with the declared properties and the instructions of Marshall Waterproofing NZ/AUS Ltd.

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, the Tekton® Weatherization 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 (a) not less than 50 years, B2.3.1 (b) 15 years and B2.3.2. The Tekton® Weatherization System meets this requirement. See Paragraphs 9.1 – 9.2

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. The Tekton® Weatherization System contributes to exterior walls meeting this requirement. See Paragraphs 12.1 and 12.2.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. The Tekton® Weatherization System 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 System components supplied by Marshall Waterproofing NZ/AUS Ltd are as follows:

- Building wrap – Tekton® Building Wrap is a synthetic breather-type building membrane available in rolls 2740 mm wide and 37 m long or 1370 mm wide and 74 m long. The product is manufactured from coated spun bonded polypropylene.
- Flexible flashing tape (1) – One Piece Sill Tape is a polyethylene faced, modified SBS rubberised asphalt, self adhesive flashing tape. It is available in rolls 150 mm wide, 20 m long and 1 mm thick.
- Flexible flashing tape (2) – Protecto Sill System comprises Protecto Wrap Detail Tape, Protecto Wrap Sill Tape and Protecto Tak spray on primer. Both the tapes are based on modified SBS rubberised asphalt and Protecto Tak is a solvent based spray on adhesive primer. Protecto Wrap Detail Tape is supplied as a 150 mm wide, 15 m long and 1.0 mm thick roll, Protecto Wrap Sill Tape is supplied as a 50, 150, 200 mm wide, 30m long and 0.5mm thick roll and Protecto Tak is supplied in 369 g can.
- Adhesive tape – Tekton Seam Tape is a thin polypropylene joining adhesive tape, available in rolls 48 mm wide and 50 m long.

4.2 Accessories used with the system which are supplied by the building contractor are:

- Staples, clouts or other temporary fixings to attach the building wrap to the framing, and polypropylene tape, galvanized wire or mesh as set out in NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.5 where required to support the building wrap.

Handling and Storage

5.1 All products must be kept clean and dry at all times prior to use by storing under cover so that they are protected from the weather and damage. Rolls of Tekton® Building Wrap must be stored on end.

Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for the Tekton® Weatherization 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

Timber and Steel Framing

7.1 Studs must be provided at maximum 600 mm centres. Dwangs must be fitted flush between studs at maximum 1200 mm centres.

General

7.2 The Tekton® Weatherization System is intended for use as an alternative to conventional building papers which are fixed over timber or steel framed walls in order to limit the entry of wind into building cavities, and to act as a secondary barrier to wind-driven rain.

7.3 The Tekton® Weatherization System is intended for use behind wall cladding systems and at joinery openings as a secondary defence against water penetration into framing cavities.

7.4 The 'moulding' of One Piece Sill and Protecto Sill System Tapes into openings over the building wrap as an internal flashing system provides a seamless, physical waterproof barrier at that point. When it is installed at a slope forward, or when 'dammed' at the back of the sill trimmer with the likes of an air seal, the flashing tapes will direct moisture to the outside of the framing. One Piece Sill and Protecto Sill System Tapes are manufactured from modified SBS rubberised asphalt and therefore will self-seal around most common fasteners used to fix joinery to framing.

7.5 The system will also provide a degree of temporary weather protection during construction. However, it will not make the building weathertight and some wetting of the underlying structure is always possible before the building is closed-in. Hence, as with all other temporary weather protection systems, the building must be closed-in and made weatherproof before moisture sensitive materials such as wall or ceiling linings and insulation materials are installed.

7.6 The Tekton® Weatherization System is also suitable for use as an air barrier to walls that are not lined, such as attic spaces at gable ends, as called up in NZBC Acceptable Solution E2/AS1, Paragraph 9.1.4 (b). Refer to Table 1.

Table 1: NZBC E2/AS1 Table 23 Requirements

NZBC E2/AS1 Table 23 Wall Wrap Properties	Property Performance Requirement	Actual Property Performance - Tekton® Building Wrap
Absorbency	≥ 100 g/m ²	Classified as non-absorbent (see paragraph 7.4)
Vapour Resistance	≤ 7 MN s/g	1.15 MN s/g
Water Resistance	≥ 20 mm	Pass
pH of Extract	≥ 6 and ≤ 9	9.78 (Note 1)
Shrinkage	≤ 0.5%	0.10 %
Mechanical	Edge tear and tensile strength	Edge tear: Machine direction = 228 N Cross direction = 186 N Tensile strength: Machine direction = 4.4 kN/m Cross direction = 3.9 kN/m
Air Barrier	Air resistance: ≥ 0.1 MN s/m ³	≥ 0.1 MN s/m ³

Note 1: Further testing of Tekton® Building Wrap was completed to determine the effect of the high pH level on the wrap and materials it is likely to come into contact with during its serviceable life. The testing confirmed that the high pH had no adverse effects on the building wraps performance, or the performance of other materials.

7.7 The Tekton® Weatherization System is suitable for use under wall cladding as a wall wrap system as called up in NZBC Acceptable Solution E2/AS1, Table 23 on timber framed buildings, except that it must not be used with non-absorbent metal based wall claddings such as sidings or metal based weatherboards in direct fixed installations. Tekton® Weatherization System is suitable for use under cavity based wall claddings as a non-absorbent synthetic wall wrap system as called up in NZS 2295, Table 2.4 on steel framed buildings.

7.8 In cavity installations where the cavity battens are installed at greater than 450 mm centres, the building wrap must be supported between the battens to prevent the wrap bulging into the cavity space when bulk insulation is installed in the wall frame cavity in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.5.

7.9 When the Tekton® Weatherization System 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.

Structure

8.1 The Tekton® Weatherization System is suitable for use in all Building Wind Zones of NZS 3604 up to, and including, 'Very High'

Durability

Serviceable Life

9.1 The system meets code compliance with NZBC Clause B2.3.1 (a), not less than 50 years where the cladding durability requirement or expected serviceable life is not less than 50 years, e.g. behind masonry veneer, and code compliance with NZBC Clause B2.3.1 (b), 15 years where the cladding durability requirement is 15 years. This is provided it is not exposed to the weather for a total time of more than 60 days when using either Protecto Sill System Tapes or the One Piece Sill Tape. The product also must not be exposed to the weather or UV light at any time in service.

9.2 The exterior cladding must be maintained weathertight at all times for the Tekton® Weatherization System to have a serviceable life equal to that of the cladding.

Control of Internal Fire and Smoke Spread

10.1 The Tekton® Building Wrap component of the system has an AS 1530 Part 2 Flammability Index of 0. It therefore meets the requirements of NZBC Acceptable Solution C/AS1 Part 6, Table 6.2 for surface finish requirements for suspended flexible fabrics, and therefore it may be used with no restrictions in all buildings.

Outbreak of Fire

11.1 The system 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

12.1 The system is used to assist the control of moisture behind wall claddings by ensuring moisture which may occasionally penetrate the wall cladding is directed back to the exterior of the building.

12.2 The system is suitable for use with wall claddings complying with NZBC Acceptable Solution E2/AS1 or a valid BRANZ Appraisal, and where exposed up to, and including 'Very High' winds as defined by NZS 3604.

Installation Information

Installation Skill Level Requirements

13.1 Installation must always be carried out in accordance with the Technical Literature and this Appraisal by a competent tradesperson with an understanding of the wall wrap and weatherization system installation.

System Installation

14.1 The system must be installed in accordance with NZBC Acceptable Solution E2/AS1, or when used with BRANZ Appraised wall claddings, in accordance with any instructions given in the Appraisal, along with the instructions given in the Technical Literature.

14.2 Tekton® Building Wrap building wrap must be fixed first to the external face of the timber wall framing and as per NZS 2295 for steel framed buildings installed over all openings in the framing then cut and dressed into all sides of the openings.

14.3 Openings are dressed with lengths of One Piece Sill or Protecto Sill System Tapes where required and adhered to the Tekton Building Wrap. The tape is 'fanned' around the corners onto the face of the Tekton Building Wrap and folded over the outside edge of the opening framing. All surfaces must be clean and dry prior to the installation.

14.4 Any other components of the cladding system or joinery installation, such as sill trays, other flashings or seals should be installed as instructed by the cladding or joinery manufacturer. Note that these components, including cladding systems and joinery have not been assessed and are outside the scope of this Appraisal.

Inspections

14.5 The Technical Literature must be referred to during the inspection of Tekton® Weatherization System installations.

Basis of Appraisal

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

Tests

15.1 The following tests have been carried out on Tekton® Building Wrap by Ensis Papro: Folding strength of paper in accordance with AS/NZS 1301.423; edge tear resistance and tensile strength in accordance with AS/NZS 4200.1 and air resistance in accordance with BS 6538-3.

15.2 The following tests have been carried out on Tekton® Building Wrap by BRANZ: Absorbency in accordance with AS/NZS 4201.6, Vapour transmission in accordance with ASTM E 96B, Shrinkage in accordance with AS/NZS 4201.3, Water barrier in accordance with AS/NZS 4201.4 and pH of extract in accordance with AS/NZS 1301.421.

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

15.4 Peel adhesion testing of the One Piece Sill, Protecto Wrap Detail Tape and Protecto Wrap Sill Tapes on the Tekton® Building Wrap has been completed by BRANZ.

Other Investigations

16.1 Durability opinions have been given by BRANZ technical experts.

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

16.3 The manufacturer's Technical Literature has been examined by BRANZ and found to be satisfactory.

Quality

17.1 The manufacture of the products that make up the system has 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.

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

17.3 Building designers are responsible for the design of the building, and for the incorporation of the Tekton® Weatherization System into their design in accordance with the instructions of Marshall Waterproofing NZ/AUS Ltd.

17.4 Quality of installation is the responsibility of the installer in accordance with the instructions of Marshall Waterproofing NZ/AUS Ltd.

Sources of Information

- AS 1530.2 - 1993 Test for flammability of materials.
- AS/NZS 1301.421s: 1988 Determination of the pH value of aqueous extracts of paper, board and pulp - cold extraction method.
- AS/NZS 4200.1: 1994 Pliable building membranes and underlays - materials.
- AS/NZS 4201.3: 1994 Pliable building membranes and underlays - Methods of test - Shrinkage.
- AS/NZS 4284: 1995 Testing of building facades.
- BS 6538-3: 1987 Method for determination of air permeance using the Garley apparatus.
- NZS 2295: 2006 Pliable, Permeable Building Underlays.
- NZS 3604: 1999 Timber Framed Buildings.
- Compliance Document for the New Zealand Building Code External Moisture Clause E2, Department of Building and Housing, Third Edition July 2005.
- New Zealand Building Code Handbook, Department of Building and Housing, Third Edition, May 2007
- The Building Regulations 1992, up to, and including June 2007 Amendment.



BRANZ

In the opinion of BRANZ, the **Tekton® Weatherization 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 Waterproofing NZ/AUS 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. **Marshall Waterproofing NZ/AUS 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.
3. 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.
4. 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 Waterproofing NZ/AUS Ltd**.
5. 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.
6. BRANZ provides no certification, guarantee, indemnity or warranty, to **Marshall Waterproofing NZ/AUS Ltd** or any third party.

For BRANZ

P Burghout
Chief Executive

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