



BRANZ Appraised

Appraisal No.855 [2014]

BRANZ Appraisals

Technical Assessments of products
for building and construction

**BRANZ
APPRAISAL
No. 855 (2014)**

Amended 1 September 2014.

**SOLITEX MENTO
3000 ROOF
UNDERLAY**

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Product

1.1 SOLITEX MENTO 3000 is a synthetic building underlay for use under roof claddings. The product consists of a water resistant film laminated to two layers of polypropylene microfibre cover fleece.



Scope

2.1 SOLITEX MENTO 3000 has been appraised for use as a self-supporting roof underlay on 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 masonry tile roof cladding; and,
- with metal tile and profiled metal roof cladding; and,
- situated in NZS 3604 Wind Zones up to, and including Extra High.

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, SOLITEX MENTO 3000, if used, designed, 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. SOLITEX MENTO 3000 meets these requirements. See Paragraphs 9.1 and 9.2.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. When used as part of the roof cladding system, SOLITEX MENTO 3000 will contribute to meeting this requirement. See Paragraphs 12.1 and 12.2.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. SOLITEX MENTO 3000 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 the New Zealand Building Code compliance.

Technical Specification

4.1 SOLITEX MENTO 3000 is a synthetic building underlay for use under roof claddings. The product consists of a TEE (Thermoplastic Elastomer Ether Ester) water resistant film laminated to two layers of polypropylene microfibre cover fleece. SOLITEX MENTO 3000 Roof Underlay is coloured black on the top face and grey on the bottom face.

4.2 SOLITEX MENTO 3000 Roof Underlay is supplied in rolls 3.0 m and 1.50 m wide x 50 m long. A 'connect' version is available in rolls 1.50 m wide x 50 m long, with in-built self-adhesive strips. The products are printed with the MENTO 3000 name repeated along the length of the roll. The rolls are wrapped in clear polythene film.

4.3 TESCON EXTORA Sealing Tape is used where required to seal the laps of SOLITEX MENTO 3000 Roof Underlay and to repair rips and tears in the underlay. Refer to BRANZ Appraisal No. 838 (2013) for further information.

Accessories

4.4 Accessories used with SOLITEX MENTO 3000 which are supplied by the installer are:

- Fixings - stainless steel staples, clouts, screws or proprietary underlays fixings, or other temporary fixings to attach the roof underlay to the framing.

Handling and Storage

5.1 Handling and storage of the product, whether on or off site, is under the control of the installer. The rolls must be protected from damage and weather. They must be stored on their side, under cover, in clean, dry conditions and must not be crushed.

Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for SOLITEX MENTO 3000. 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 Timber and steel roof framing must be provided in accordance with the requirements of the NZBC and the roof cladding manufacturer.

General

7.2 SOLITEX MENTO 3000 is intended for use as an alternative to conventional kraft paper roof underlays, which are fixed over timber or steel framed roofs in order to limit the entry of wind into the roof cavity, and to assist in the moisture management of the roof cladding system.

7.3 The material also provides a degree of temporary weather protection during early construction. However, the product will not make the roof weathertight and some wetting of the underlying structure is always possible before the roof cladding is installed. Hence, the entire building must be closed-in and made weatherproof before moisture sensitive materials such as ceiling linings and insulation materials are installed.

7.4 SOLITEX MENTO 3000 must not be exposed to the weather or ultra violet light for a total of more than 90 days before being covered by the roof cladding.

7.5 SOLITEX MENTO 3000 is suitable for use under roof claddings on buildings as a roof underlay as called up in NZBC Acceptable Solution E2/AS1, Table 23. Refer to Table 1 for the material properties of the SOLITEX MENTO 3000.

Table 1: NZBC E2/AS1 Table 23 Requirements

NZBC E2/AS1 Table 23 Roof Underlays Properties	Property Performance Requirement	Results
Absorbency	≥ 150 g/m ²	Pass
Vapour Resistance	≤ 7 MN s/g	Pass
Water Resistance	≥ 100 mm	Pass
pH of Extract	≥ 5.5 and ≤ 8	Pass
Shrinkage	≤ 0.5%	Pass
Mechanical	Edge tear and tensile strength	Edge tear (Average): Machine direction > 180 N Cross direction > 120 N Tensile strength (Average): Machine direction > 4.0 kN/m Cross direction > 2.5 kN/m

7.6 SOLITEX MENTO 3000 is suitable for use at roof pitches less than 8° (minimum 3°). When used at pitches less than 8°, SOLITEX MENTO 3000 must be installed horizontally. At pitches greater than 8°, SOLITEX MENTO 3000 can be installed vertically or horizontally. SOLITEX MENTO 3000 must span no greater than 1200 mm in one direction.

Pro Clima Installation Method

7.7 Pro Clima (NZ) Ltd offer an optional installation method where the SOLITEX MENTO 3000 is separated from the roofing to provide additional ventilation to the roof space. This method requires that SOLITEX MENTO 3000 is installed horizontally and that the underlay is fixed direct to the top of the rafter or truss top chord and is secured with a 45 x 45 mm counter batten fixed directly over the rafter or truss member. The length of fixings used to secure purlins and tile battens to the rafter or truss must be increased by 45 mm. Pro Clima (NZ) Ltd recommend for this installation method that, in addition to all laps being a minimum of 150 mm, all laps are sealed with TESCON EXTORA Sealing Tape. In addition, for roof pitches 15° or less, Pro Clima (NZ) Ltd also recommends that laps are sealed with Orcon adhesive or that the 'connect' version of SOLITEX MENTO 3000 is used. When used at a roof pitch less than 10°, Pro Clima (NZ) Ltd recommends that the underlay is also laid on solid sarking.

Structure

8.1 SOLITEX MENTO 3000 is suitable for use in all Wind Zones of NZS 3604 up to, and including, Extra High.

Durability

9.1 SOLITEX MENTO 3000 meets code compliance with NZBC Clause B2.3.1 (a), not less than 50 years for roof underlays used where the roof cladding durability requirement or expected serviceable life is not less than 50 years, e.g. behind masonry roof tile cladding, and code compliance with NZBC Clause B2.3.1 (b), 15 years for roof underlays used where the roof cladding durability requirement is 15 years.

Serviceable Life

9.2 Provided it is not exposed to the weather or ultra-violet light for a total of more than 90 days, and provided the roof cladding is maintained in accordance with the cladding manufacturer's instructions and the roof cladding remains weather resistant, SOLITEX MENTO 3000 is expected to have a serviceable life equal to that of the roof cladding.

Control of Internal Fire and Smoke Spread

10.1 SOLITEX MENTO 3000 has an AS 1530 Part 2 Flammability Index of not greater than 5 and therefore meets the requirements of NZBC Acceptable Solutions C/AS2 to C/AS6, Paragraph 4.17.8 b), for the surface finish requirements of suspended flexible fabric used as an underlay to exterior cladding that is exposed to view in occupied spaces. It may therefore be used with no restrictions in all buildings.

Prevention of Fire Occurring

11.1 Separation or protection must be provided to SOLITEX MENTO 3000 from heat sources such as fire places, heating appliances, flues and chimneys. 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

12.1 SOLITEX MENTO 3000 must only be used under roof claddings that meet the requirements of the NZBC, such as those covered by NZBC Acceptable Solution E2/AS1, or roof claddings covered by a valid BRANZ Appraisal.

12.2 SOLITEX MENTO 3000, when installed in accordance with the Technical Literature and this Appraisal, will assist in the total cladding system's compliance with NZBC Clause E2.

Installation Information

Installation Skill Level Requirements

13.1 Installation must always be carried out in accordance with the SOLITEX MENTO 3000 Technical Literature and this Appraisal, by competent tradespersons with an understanding of roof underlay installation.

Underlay Installation

14.1 SOLITEX MENTO 3000 must be fixed at maximum 150 mm centres to all framing members with large-head clouts 20 mm long, 8-12 mm stainless steel staples, self-drilling screws or proprietary underlay fixings. The membrane must be pulled taut over the framing before fixing.

14.2 SOLITEX MENTO 3000 may be run vertically or horizontally at roof pitches greater than 8° and must be laid horizontally at roof pitches less than 8°. It must extend from the ridge and overhang the fascia board by 20 - 25 mm. Vertical laps must be no less than 150 mm wide. Horizontal laps must be no less than 150 mm, with the direction of the lap ensuring that water is shed to the outer face of the underlay. End laps must be made over framing and be no less than 150 mm wide. To assist with achieving the correct lap dimension, SOLITEX MENTO 3000 has a 150 mm lap line printed continuously along the edges.

14.3 When fixing the product in windy conditions, care must be taken due to the large sail area created.

14.4 Any damaged areas of SOLITEX MENTO 3000, such as tears, holes or gaps around service penetrations, must be repaired. Damaged areas can be repaired by covering with new material lapping the damaged area by at least 150 mm and taping with TESCON EXTORA Sealing Tape. Small tears and holes may also be repaired with TESCON EXTORA Sealing Tape.

Pro Clima Installation Method

14.5 Pro Clima (NZ) Ltd offers an optional installation method. Refer to Paragraph 7.7 for more detail. In this installation method Pro Clima (NZ) Ltd recommends that SOLITEX MENTO 3000 is fixed directly to the top of the rafter or truss and that 45 x 45 mm counter battens are fixed over the rafter or truss member to secure the underlay. Pro Clima (NZ) Ltd recommends that SOLITEX MENTO 3000 be run horizontally for all roof pitches. It must extend from the ridge and overhang the fascia board by 20 - 25 mm. Laps must be in accordance with Paragraph 14.2 and be sealed as in accordance with Paragraph 7.7.

Inspections

14.6 The Technical Literature must be referred to during the inspection of SOLITEX MENTO 3000 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 SOLITEX MENTO 3000 in accordance with NZBC Acceptable Solution E2/AS1, Table 23: tensile strength, edge-tear resistance and resistance to water vapour transmission in accordance with AS/NZS 4200.1, shrinkage in accordance with AS/NZS 4201.3, resistance to water penetration in accordance with AS/NZS 4201.4, surface water absorbency in accordance with AS/NZS 4201.6 and pH of extract in accordance with AS/NZS 1301.421s. A range of these tests were completed before and after SOLITEX MENTO 3000 was exposed to ultra-violet light.

15.2 The Flammability Index of SOLITEX MENTO 3000 has been evaluated in accordance with AS 1530.2.

Other Investigations

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

16.2 An evaluation of the expected performance of SOLITEX MENTO 3000 in direct contact with metal roof cladding has been completed by BRANZ.

16.3 The practicability of installation of SOLITEX MENTO 3000 has been assessed by BRANZ and found to be satisfactory.

16.4 The Technical Literature, including installation instructions, has been examined by BRANZ and found to be satisfactory.

Quality

17.1 The manufacture of SOLITEX MENTO 3000 has been examined on behalf of BRANZ, including methods adopted for quality control. 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 Pro Clima (NZ) Ltd.

17.3 Building designers are responsible for the design of the building, and for the incorporation of the roof underlay into their design in accordance with the instructions of Pro Clima (NZ) Ltd.

17.4 Quality of installation is the responsibility of the installer in accordance with the instructions of Pro Clima (NZ) Ltd.

Sources of Information

- AS 1530.2: 1993 Test for Flammability of Materials.
- AS/NZS 1301.421s: 1998 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 4201.4: 1994 Pliable building membranes and Underlays - Methods of test - Resistance to water penetration.
- AS/NZS 4201.6: 1994 Pliable building membranes and Underlays - Methods of test - Surface water absorbency.
- AS/NZS 4534: 2006 Zinc and zinc/aluminium-alloy coatings on steel wire.
- NZS 3604: 2011 Timber-framed Buildings.
- Acceptable Solutions and Verification Methods for New Zealand Building Code External Moisture Clause E2, Department of Building and Housing, Third Edition July 2005 (including Amendment 6, 14 February 2014).
- Ministry of Business, Innovation and Employment Record of Amendments for Compliance Documents and Handbooks.
- The Building Regulations 1992.



BRANZ

In the opinion of BRANZ, **SOLITEX MENTO 3000 Roof Underlay** 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 **Pro Clima (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. **Pro Clima (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 **Pro Clima (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 **Pro Clima (NZ) Ltd** or any third party.

For BRANZ

C Percy
Chief Executive

Amendment No. 1, dated 1 September 2014.

This Appraisal has been amended to add conventional installation as an installation option.

Date of issue: 29 July 2014