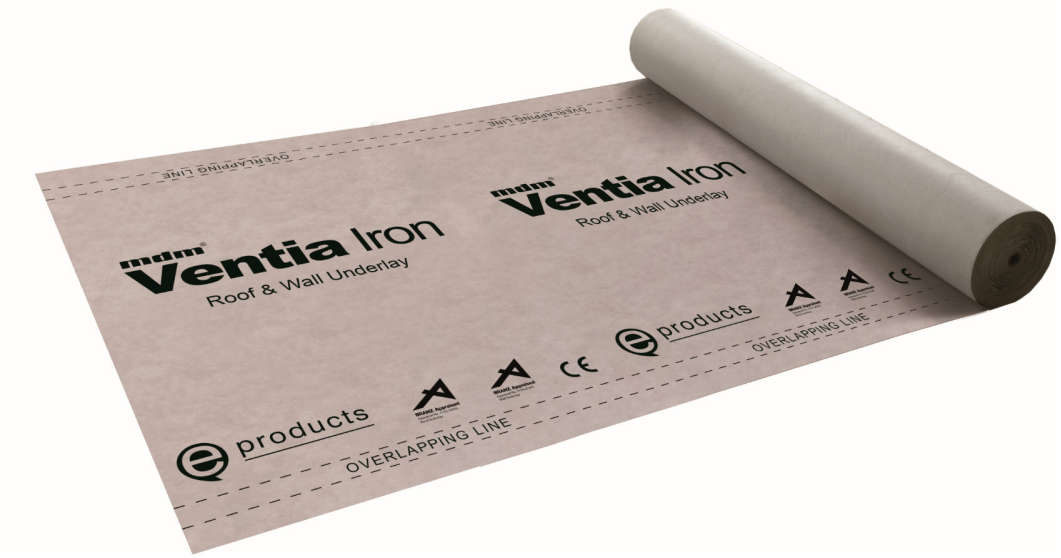
BRANZ Appraised
Appraisal No. 1137 [2020]

VENTIA IRON WALL UNDERLAY



Appraisal No. 1137 (2020)

BRANZ Appraisals

Technical Assessments of products for building and construction.

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Product

1.1 Ventia Iron Wall Underlay is a synthetic wall underlay for use as a flexible wall underlay under wall claddings on timber and steel-framed buildings. The product consists of a micro-porous water-resistant polypropylene film laminated between two layers of spun-bonded polypropylene and is coloured grey.

Scope

Flexible Wall Underlay

2.1 Ventia Iron Wall Underlay has been appraised for use as a flexible wall underlay for timber and 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,
- the scope limitations of NASH Building Envelope Solutions, Paragraph 1.1 for steel-framed buildings; and,
- with direct fixed absorbent and non-absorbent wall claddings; or,
- with absorbent and non-absorbent wall claddings installed over an 18 mm minimum drained cavity; or,
- with masonry veneer in accordance with NZBC Acceptable Solution E2/AS1 for timber-framed buildings or to NASH Building Envelope Solutions Paragraph 1.1 for steel-framed buildings; and,
- situated in NZS 3604 Wind Zones up to, and including, Very High.

Use over Rigid Wall Underlay

2.2 Ventia Iron Wall Underlay has been appraised for use as a flexible wall underlay over rigid wall underlays on timber and 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,
- the scope limitations of NASH Building Envelope Solutions, Paragraph 1.1 for steel-framed buildings; and,
- with absorbent and non-absorbent wall claddings installed over an 18 mm minimum drained cavity; and,
- with masonry veneer in accordance with NZBC Acceptable Solution E2/AS1 for timber-framed buildings or NASH Building Envelope Solutions for steel-framed buildings; and,
- situated with NZS 3604 and NASH Standard Part 2 Wind Zones up to, and including, Extra High.

Specific design

2.3 Ventia Iron Wall Underlay has also been appraised for use on buildings subject to specific weathertightness design. Building designers are responsible for the building design and for the incorporation of Ventia Iron Wall Underlay into their design in accordance with the declared properties and the instructions of E-Products NZ Ltd.

Building Regulations

New Zealand Building Code (NZBC)

3.1 **In the opinion of BRANZ, the Ventia Iron Wall Underlay, 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. Ventia Iron Wall Underlay meets these requirements. See Paragraphs 9.1 and 9.2.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. When used as part of the cladding system, Ventia Iron Wall Underlay will contribute to meeting this requirement. See Paragraphs 12.1 and 12.2.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Ventia Iron Wall Underlay meets this requirement.

Technical Specification

4.1 Ventia Iron Wall Underlay is a synthetic building underlay for use under wall claddings. The product consists of a micro-porous water-resistant polypropylene film laminated between two layers of spun-bonded polypropylene. Ventia Iron Wall Underlay is coloured grey and/or white on the top and bottom faces.

4.2 Ventia Iron Wall Underlay is supplied in rolls 2.74 m wide x 36.5 m long (100 m²) and 1.5 m x 50 m (75 m²). The product is printed with the Ventia Iron Wall Underlay logo repeated along the length of the roll. The rolls are wrapped in clear polythene film.

Accessories

4.3 Accessories used with Ventia Iron Wall Underlay which are supplied by the installer are:

- **Fixings** – staples, clouts, screws or proprietary underlay fixings, or other temporary fixings to attach the wall underlay to the framing.
- **Wall underlay support** – polypropylene strap, 75 mm galvanised mesh or galvanised wire, or vertical cavity battens where required to support the wall underlay in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.5.

Handling and Storage

5.1 Handling and storage of the product, whether on-site or off-site, is under the control of the installer. The rolls must be protected from damage and weather. They must be stored on end, 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 Ventia Iron Wall Underlay. 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 Ventia Iron Wall Underlay 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. Refer to Table 1 for material properties.

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

7.3 Ventia Iron Wall Underlay must not be exposed to the weather or ultraviolet (UV) light for a total of more than 90 days before being covered by the wall cladding.

7.4 Ventia Iron Wall Underlay is suitable for use as an air barrier where walls are not lined, such as attic spaces at gable ends, in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.4 c).

7.5 In cavity installations where the cavity battens are installed at greater than 450 mm centres, the wall underlay must be supported between the battens to prevent the underlay 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. Wall underlay support options include polypropylene strap, 75 mm galvanised mesh or galvanised wire, or vertical cavity battens.

Table 1: NZBC Acceptable Solution E2/AS1, Table 23 Requirements

NZBC E2/AS1, Table 23 Wall Underlay Properties	Property Performance Requirements	Actual Property Performance
Absorbency	≥ 100 g/m²	Pass
Vapour Resistance	≤ 7 MN s/g	Pass
Water Resistance	≥ 20 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 = 128 N Cross direction = 74 N **Tensile strength (Average):** Machine direction = 4.38 N Cross direction = 2.95 N
Air Barrier	Air resistance: ≥ 0.1 MN s/m³	Not tested

Cladding

7.6 Ventia Iron Wall Underlay is suitable for use under wall claddings as a wall underlay in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Table 23 on timber-framed building, including non-absorbent wall claddings such as vinyl and metal-based weatherboards in direct fixed situations. Ventia Iron Wall Underlay is suitable for use under cavity based wall claddings as an absorbent synthetic wall underlay in accordance with NZS 2295, Table 2.4 on steel-framed buildings.

Stucco Plaster

7.7 Ventia Iron Wall Underlay is suitable for use as a non-rigid backing material for stucco plaster in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.3.5.1. The underlay must be supported with 75 mm galvanised mesh or wire at 150 mm centres run across the cavity battens to limit deflections to a maximum of 5 mm.

7.8 Ventia Iron Wall Underlay may also be used as a slip layer over rigid backing for stucco plaster in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.3.3.1 b).

Structure

8.1 Ventia Iron Wall Underlay is suitable for use in all Wind Zones of NZS 3604 up to, and including, Very High when used as a stand-alone flexible wall underlay, and all Wind Zones of NZS 3604 up to, and including, Extra High when used as an overlay for rigid wall underlays.

Durability

9.1 Ventia Iron Wall Underlay meets code compliance with NZBC Clause B2.3.1 (a) not less than 50 years for wall underlays used where the cladding durability requirement of 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 for wall underlays used where the cladding durability requirement is 15 years.

Serviceable Life

9.2 Provided it is not exposed to the weather or 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, Ventia Iron Wall Underlay is expected to have a serviceable life equal to that of the cladding.

Control of Internal Fire and Smoke Spread

10.1 Ventia Iron Wall Underlay has an AS 1530 Part 2 flammability index of no greater than 5 and therefore meets the requirements of NZBC Acceptable Solution C/AS2, 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 Ventia Iron Wall Underlay from heat sources such as fireplaces, heating appliances, flues and chimneys. Part 7 of NZBC Acceptable Solutions C/AS1, C/AS2 and NZBC Verification Method C/VM1 provide methods for separation and protection of combustible materials from heat sources.

External Moisture

12.1 Ventia Iron Wall Underlay must only be used behind claddings that meet the requirements of the NZBC, such as those covered by NZBC Acceptable Solution E2/AS1, or claddings covered by a valid BRANZ Appraisal.

12.2 Ventia Iron Wall Underlay, 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 All design and building work must be carried out in accordance with the Ventia Iron Wall Underlay Technical Literature and this Appraisal by competent and experienced tradespersons conversant with the Ventia Iron Wall Underlay. 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.

Underlay Installation

14.1 Ventia Iron Wall Underlay must be fixed to all framing members at maximum 300 mm centres with large-head clouts 20 mm long, 6-8 mm staples, self drilling screws or proprietary underlay fixings. The membrane must be pulled taut over the framing before fixing.

14.2 Ventia Iron Wall Underlay must be run horizontally and must extend from the upper-side of the top plate to the under-side of the bearers or wall plates supporting ground floor joists, or below bottom plates on concrete slabs. Horizontal laps must be no less than 150 mm wide, with the direction of the lap ensuring that water is shed to the outer face of the membrane. End laps must be made over framing and be no less than 150 mm wide.

14.3 The wall underlay should be run over openings and these left covered until windows and doors are ready to be installed. Openings are formed in the membrane by cutting on a 45 degree diagonal from each corner of the penetration. The flaps of the cut membrane must be folded inside the opening and stapled to the penetration framing. Excess underlay may be cut off flush with the internal face of the wall frame.

14.4 Ventia Iron Wall Underlay can be added as a second layer over head flashings in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.1.10.3.

14.5 When fixing the product in windy conditions, care must be taken due to the large sail area created by wide roll widths.

14.6 Any damaged areas of Ventia Iron Wall Underlay, 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, or by taping small tears.

Inspections

14.7 The Technical Literature must be referred to during the inspection of Ventia Iron Wall Underlay installation.

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 Ventia Iron Wall Underlay 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, pH extract in accordance with AS/NZS 1301.421s and air resistance to BS 6538.3. A range of these tests were completed before and after Ventia Iron Wall Underlay was exposed to UV light.

15.2 The flammability index of Ventia Iron Wall Underlay has been tested in accordance with AS/NZS 1530.2.

Other Investigations

16.1 A durability opinion was given by BRANZ technical experts.

16.2 An evaluation of the expected performance of Ventia Iron Wall Underlay in direct contact with metal wall cladding has been completed by BRANZ.

16.3 Site inspections were carried out by BRANZ to assess methods used for the installation of Ventia Iron Wall Underlay

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

Quality

17.1 The manufacture of Ventia Iron Wall Underlay has not been examined by BRANZ, but details of the methods adopted for quality control and the quality of the materials used, have been obtained and found to be satisfactory. BRANZ undertakes an ongoing review of product quality on an inwards goods basis.

17.2 The quality of supply to the market is the responsibility of E-Products NZ Ltd.

17.3 Building designers are responsible for the design of the building, and for the incorporation of the wall underlay into their design in accordance with the instructions of E-Products NZ Ltd.

17.4 Quality of installation is the responsibility of the installer in accordance with the instructions of E-Products 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.
- BS 6538.3: 1987 Method for determination of air permeance using the Garley apparatus.
- NZS 2295: 2006 Pliable, permeable building underlays.
- 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.

BRANZ

In the opinion of BRANZ, Ventia Iron Wall 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 E-Products 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. E-Products 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 E-Products 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 E-Products NZ Ltd or any third party.

For BRANZ

Chelydra Percy
Chief Executive

Date of Issue:
17 December 2020