



**bayonet**<sup>®</sup>

# Fastwrap Synthetic Wall Underlay

Product Technical  
Statement &  
Installation Guide



ISSUED: DEC 2021



# Product Technical Statement

## Product

1.1 Bayonet Fastwrap Synthetic Wall Underlay is a synthetic building underlay for use as a flexible wall underlay under wall claddings on timber and steel-framed buildings. The product is manufactured from an ultraviolet (UV) light resistant non-woven, spun-bonded polypropylene, and is coloured beige.

## Scope

### Flexible Wall Underlay

- 2.1 Bayonet Fastwrap Synthetic 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 for timber framed buildings; or,
  - 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 18mm 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 for steel-framed buildings; and,
  - situated in NZS 3604 Building Wind Zones up to and including Very High.

### Use over Rigid Wall Underlay

- 2.2 Bayonet Fastwrap Synthetic 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 for timber framed buildings; or,

- 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 18mm minimum drained cavity; and,
- With masonry veneer in accordance with NZBC Acceptable Solution E2/AS1 for timber-framed buildings or to NASH Building Envelope Solutions for steel-framed buildings; and,
- situated in NZS 3604 Building Wind Zones up to and including Extra High.

### Specific Design

- 2.3 Bayonet Fastwrap Synthetic 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 Bayonet Fastwrap Synthetic Wall Underlay into their design in accordance with the declared properties and the instructions of J&F Holdings NZ Ltd T/A Bayonet.

## Building Regulations

### New Zealand Building Code (NZBC)

- 3.1 Bayonet Fastwrap Synthetic Wall Underlay, if used, designed, installed and maintained in accordance with the statements and conditions within this brochure, 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. Bayonet Fastwrap Synthetic Wall Underlay meets these requirements.
- Clause C3 Fire Affecting Areas Beyond the Fire Source:** Performance C3.4 (c). Bayonet Fastwrap Synthetic Wall Underlay meets this requirement.
- Clause E2 External Moisture:** Performance E2.3.2. When used as part of the cladding system, Bayonet Fastwrap Synthetic Wall Underlay will contribute to meeting this requirement.
- Clause F2 Hazardous Building Materials:** Performance F2.3.1. Bayonet Fastwrap Synthetic Wall Underlay meets this requirement.

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## Technical Specification

- 4.1 Bayonet Fastwrap Synthetic Wall Underlay is a beige, UV stabilised, no woven, spun-bonded polypropylene.
- 4.2 Bayonet Fastwrap Synthetic Wall Underlay is supplied in rolls 1.370m wide x 36.5 and 73m long and 2.47m wide x 18.5 and 36.5m long. The rolls are wrapped in clear polythene film.

### Accessories

- 4.3 Accessories used with Bayonet Fastwrap Synthetic Wall Underlay which are supplied by the installer are:  
**Fixings** - stainless steel staples, staples, clouts, screws or proprietary underlay fixings, or other temporary fixings to attach the wall underlay to the framing.  
**Wall Underlay restraint (timber frame)** – 75mm galvanised mesh or galvanised wire, or vertical cavity battens where required to restrain the wall underlay in accordance with NZBC Acceptable Solution E2/AS1, paragraph 9.1.8.5  
**Wall Underlay restraint (steel Frame)** – 75mm Galvanised mesh or galvanised wire, vertical cavity battens or thermal break sheets where required to restrain the wall underlay in accordance with NASH Building Envelope Solutions Paragraph 9.1.9.5

## Handling & Storage

- 5.1 Handling and storage of the Bayonet Fastwrap Synthetic Wall Underlay, 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 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 Bayonet Fastwrap Synthetic Wall Underlay. The technical literature must be read in conjunction with the appraisal. All aspects of design, use, installation and maintenance contained in the technical literature and within the scope of the appraisal must be followed.

## Design Information - General

- 7.1 Bayonet Fastwrap Synthetic 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 Bayonet Fastwrap Synthetic Wall Underlay 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 Bayonet Fastwrap Synthetic Wall Underlay must not be exposed to the weather or UV light for a total of more than 42 days before being covered by the wall cladding.
- 7.4 Bayonet Fastwrap Synthetic 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 c0, or NASH Building Envelope Solutions, Paragraph 9.1.4c).
- 7.5 In Cavity installations where the cavity battens are installed at greater than 450mm 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 for timber frame or NASH Building Envelope Solutions, Paragraph 9.1.9.5 for steel frame. Wall underlay support options include polypropylene strap, 75mm galvanised mesh or galvanised wire, vertical cavity battens or thermal break sheathing (steel frame only).

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Table 1. NZBC E2/AS1 Table 23 (NZS 2295) Requirements

NZBC E2/AS1, Table 23 (NZS 2295) Wall Underlays Properties	Property Performance Requirement	Actual Property Performance
Absorbency	≤ 100 g/m <sup>2</sup>	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 = 164 N Cross direction = 97 N Tensile strength (Average): Machine direction = 3.4 kN/m Cross direction = 1.95 kN/m
Air Barrier	Air resistance: > 0.1 MN s/m <sup>3</sup>	Average 0.120 MN s/m <sup>3</sup> Fastwrap is suitable for use as an air barrier.

### Claddings

7.6 Bayonet Fastwrap Synthetic Wall Underlay is suitable for use under wall claddings as a wall underlay as called up in NZBC Acceptable Solutions E2/AS1, Table 23 on timber-framed buildings and NASH Building Envelope Solutions Table 23 on steel-framed buildings, including non-absorbent wall claddings such as vinyl and metal-based weatherboards in direct fixed situations. Bayonet Fastwrap Synthetic Wall Underlay is suitable for use under cavity based wall claddings as an absorbent synthetic wall underlay as called up in NZS 2295, Table 2.4 on steel-framed buildings.

### Stucco Plaster

- 7.7 Bayonet Fastwrap Synthetic 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 for timber framing or NASH Building Envelope Solutions, Paragraph 9.3.5.1 for steel framing. The underlay must be supported with a 50 or 75mm galvanised mesh or wire at 150mm centres run across the cavity battens to limit deflection to a maximum of 5mm.
- 7.8 Bayonet Fastwrap Synthetic Wall Underlay may also be used as a slip layer over rigid backings for stucco plaster in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.3.3.1 b) for timber framing or NASH Building Envelope Solutions, Paragraph 9.3.3.1 b) for steel framing.

### Structure

- 8.1 Bayonet Fastwrap Synthetic Wall Underlay is suitable for use in all Wind Zones of NZS 3604 and NASH Standards Part 2 up to, and including Very High when used as a stand-alone flexible wall underlay, and in all Wind Zones of NZS 3604 and NASH Standards Part 2 up to, and including, Extra High when used as an overlay for rigid wall underlays.

### Durability

- 9.1 Bayonet Fastwrap Synthetic 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 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 for wall underlays used where the cladding durability requirement is 15 years.

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## Serviceable Life

- 9.2 Provided it is not exposed to the weather or ultra-violet light for a total of more than 42 days, and provided the exterior cladding is maintained in accordance with the cladding manufacturer's instructions and the cladding remains weather resistant, Bayonet Fastwrap Synthetic Wall Underlay is expected to have a serviceable life equal to that of the cladding.

## Control of Internal Fire and Smoke Spread

- 10.1 Bayonet Fastwrap Synthetic Wall Underlay has an AS 1530 Part 2 flammability Index of not greater than 5 and therefore meets the requirements of NZBC Acceptable Solutions C/AS2 Paragraph 4.1.7.8 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 Bayonet Fastwrap Synthetic Wall Underlay from heat sources such as fireplaces, heating appliances, flues and chimneys. Part 7 of NZBC Acceptable Solutions C/AS1 and C/AS2, and NZBC Verification Method C/VMI provide methods for separation and protection of combustible materials from heat sources.

## External Moisture

- 12.1 Bayonet Fastwrap Synthetic 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 NASH Building Envelope Solutions, or claddings covered by a valid BRANZ Appraisal.
- 12.2 Bayonet Fastwrap Synthetic Wall Underlay, when installed in accordance with the technical literature and the BRANZ 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 Bayonet Fastwrap Synthetic Wall Underlay technical literature and the BRANZ appraisal by, or under the supervision of, a Licensed Building Practitioner (LBP) with the relevant license class.

### Underlay Installation

- 14.1 Bayonet Fastwrap Synthetic Wall Underlay must be fixed to all framing members at maximum 300mm centres with large-head clouts 20mm long, 6-8mm staples, self-drilling screws or proprietary underlay fixings. The membrane must be pulled taut over the framing before fixing.
- 14.2 Bayonet Fastwrap Synthetic 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 150mm 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 150mm 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 Bayonet Fastwrap Synthetic 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 for timber frames or NASH Building Envelope Solutions, Paragraph 9.1.11.3 for steel framing.

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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 Bayonet Fastwrap Synthetic 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 150mm and taping, or by taping small tears.

### Inspections

14.7 The Technical Literature must be referred to during the inspection of Bayonet Fastwrap Synthetic Wall Underlay 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 Bayonet Fastwrap Synthetic 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 and pH of 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 Bayonet Fastwrap Synthetic Wall Underlay was exposed to ultra-violet light.

15.2 The flammability index of Bayonet Fastwrap Synthetic Wall Underlay has been evaluated in accordance with AS/NZS 1530.2

15.3 This product has been both BRANZ appraised (Appraisal No. 615 (2008) Amended 21 April 2021) and code mark certified (CM70027R1).