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CMI -EVALUATION REPORT # CMA-AB-CM40134-I01-R08

REPORT HOLDER

Masons Plastabrick Ltd
9A Parkhead Place
Albany, Auckland 0632
New Zealand
www.mpb.co.nz

PRODUCT

Masons FR1 Building Wrap/Barricade Plus Building Wrap

PRODUCT DESCRIPTION

Masons FR1 Building Wrap/Barricade Plus Building Wrap is a synthetic breather-type flexible building wrap manufactured from (UV) resistant and fire resistant, spun-bonded polypropylene and is coloured white.



Brand Names:

- Masons FR1 Building Wrap
- Barricade Plus Building Wrap

CertMark International Pty Ltd (CMI) has awarded this Certification to the company named above for the Product/system described herein. The Product/ System have been assessed by CMI as Being fit for purpose providing they are installed, used and maintained as set out in this Evaluation Report.
For and on behalf of CMI

John Thorpe
CertMark International

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This document has been produced by the Administration Department of CertMark International (CMI).

For technical information on the matters discussed in the document, contact us on 1800 CertMark (237 862), International Call +617 5445 2199 or e-mail Info@CertMark.org.

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Published by:

CertMark International Pty Ltd

7/76 Wisers Rd
Buderim QLD 4556

PO Box 7144
Sippy Downs QLD 4556

Phone: 1800 CertMark (237 862)

Phone: (07) 5445 2199

Email: info@CertMark.org

Website: www.CertMark.org

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SCOPE & SUMMARY OF ASSESSMENT BRIEF

Masons FR1 Building Wrap/Barricade Plus Building Wrap is a non-woven fire retardant, water resistant, breathable synthetic wall underlay for use under direct fixed and non-direct fixed wall cladding on timber framed and steel framed buildings. The product is manufactured from high quality synthetic spun bonded material with high UV qualities.

Masons Barricade Plus Building Wrap is the same product as Masons FR1 Building Wrap but is exclusively market in Bunnings New Zealand under the Barricade Plus Building Wrap brand name.

Masons FR1 Building Wrap/Barricade Plus Building Wrap have been appraised by CertMark International (CMI) for use as a flexible wall underlay on timber and steel framed buildings within the following scope:

TIMBER FRAMED BUILDINGS

Masons FR1 Building Wrap/Barricade Plus Building Wrap has been appraised for use as a flexible wall underlay on timber framed buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1;
- with absorbent and non-absorbent wall claddings directly fixed to the frame;
- with absorbent and non-absorbent wall claddings installed over an 18mm minimum drained cavity;
- with masonry veneer in accordance with NZBC Acceptable Solution E2/AS1; and,
- situated in NZS 3604 wind zones up to and including 'Very High'.

STEEL FRAMED BUILDINGS

Masons FR1 Building Wrap/Barricade Plus Building Wrap has been appraised for use as a flexible wall underlay 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;
- with absorbent and non-absorbent wall claddings directly fixed to the frame;
- with absorbent and non-absorbent wall claddings installed over an 18mm minimum drained cavity;
- with masonry veneer in accordance with NZBC Acceptable Solution E2/AS1; and,
- situated in NZS 3604 wind zones up to and including 'Very High'.

RIGID WALL UNDERLAYS ON TIMBER AND STEEL FRAMED BUILDINGS

Masons FR1 Building Wrap/Barricade Plus Building Wrap 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 absorbent and non-absorbent wall claddings installed over an 18mm minimum drained cavity;
- with masonry veneer in accordance with NZBC Acceptable Solution E2/AS1; and
- situated in NZS 3604 wind zones up to and including 'Extra High'.

ASSESSMENT BRIEF INCLUDES:

- Factors relating to compliance with building regulations, where applicable.
- Factors relating to additional non-regulatory information, where applicable.
- Independently verified technical specifications.
- Assessment criteria and technical investigations.

- Design considerations.
- Installation guidance.
- Regular surveillance of production.
- Formal three yearly review.

Notes:

- i. The inclusion of the reference to the NZBC is aimed at assisting those involved in the design; specifying and building approval/permit process readers of this Assessment Brief must relate this document to the relevant Performance Requirements of the NZBC.
- ii. Any changes made to the NZBC will be reviewed during the term of validity of this Assessment Brief and, where necessary, any amendment required will be published.

BASIS OF THIS ASSESSMENT BRIEF

CMI has assessed the following aspects in undertaking the CodeMark Certification of the subject and the generation of this assessment brief:

- Physical Properties
- Relation to relevant NZBC clauses
- The ability of the installation details to meet the requirements of the NZBC and relevant New Zealand Standards.

Note: This Certification is an Alternative Solution in terms of New Zealand Building Code compliance.

REGULATIONS

COMPLIES WITH THE NEW ZEALAND BUILDING CODE:

1. Clause B2 Durability: Performance B2.3.1 (a), not less than 50 years, B2.3.1) b), 15 years and B2.3.2.
2. Clause E2 External Moisture: E2.3.2.
3. Clause F2 Hazardous Building Materials: F2.3.1.

Subject to the following Conditions & Limitations:

- a. Must be installed in accordance with E2/AS1, Clauses 9.1.5 and 9.1.7.
- b. Building designers are responsible for the building design and for the incorporation of Masons FR1 Building Wrap/Barricade Plus Building Wrap into their design in accordance with the declared properties and the instructions of the FR1 technical data sheet February 2015. Masons FR1 Building Wrap/Barricade Plus Building Wrap has been appraised for use as a flexible wall underlay over rigid wall underlays on timber and steel framed buildings within the following scope:
 - i. The scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regards to building height and floor plan area; and,
 - ii. With absorbent and non-absorbent wall claddings direct fixed to framing and installed over an 18-mm minimum drained cavity; and,
 - iii. With masonry veneer in accordance with NZBC Acceptable Solution E2/AS1 for timber framed buildings or specific design for steel framed buildings; and,
 - iv. Situated in NZS 3604 Wind Zones up to and including 'Extra High'.
- c. Masons FR1 Building Wrap/Barricade Plus Building Wrap 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).

- d. In cavity installations where stud spacing is greater than 450mm and flexible underlays only are used, an intermediate means of restraining the underlay and insulation from bulging into the drained cavity must be installed as required by E2/AS1 9.1.8.5
- e. Only to be installed by a suitable licenced tradesperson in accordance with FR1 technical data sheet May 2015 or the Barricade Plus technical data sheet May 2015.
- f. This certification relates only the clauses of the NZBC as contained herein. Consequently, any clause not included on this certificate are outside the scope of this certificate. Excluded clauses are to be addressed at an individual project basis.
- g. This certification relates only to Masons FR1 Building Wrap/Barricade Plus Building Wrap that is described above and has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective.1

DESCRIPTION

BENEFITS

The Barricade FR Building Wrap;

- is fire retardant;
- is available in 4 colour print;
- has a consistent breathable surface;
- is water resistant;
- is absorbable and can be used with absorbent and non-absorbent claddings;
- is strong and durable, suitable for all areas of New Zealand including 'Very High' wind zones of NZS 3604;
- is suitable for use with all cladding systems;
- performs over timber or steel framing;
- is suitable to be used as a non-rigid backing for stucco plaster;
- is suitable as an air barrier on walls that are not lined; and
- has unique anti-fungal properties.

ASSESSMENT AND TECHNICAL INVESTIGATIONS

TECHNICAL DATA

Masons FR1 Building Wrap/Barricade Plus Building Wrap is a 100 gsm non-woven breathable composite building wrap. The following tests have been carried out in accordance with NZBC Acceptable Solution E2/AS1 Table 23:

- Tensile strength, edge tear resistance in accordance with ASNZS 4200.1
- Resistance to water vapour transmission with ASTM E96
- Surface water absorbency in accordance with AS/NZS 4201.6
- Air resistance to BS 6538.3
- Shrinkage in accordance with AS/NZS 4201.3
- pH of extract in accordance with AS/NZS 1301.421s
- Fire retardant in accordance with AS1530 Part 2 Flammability

Masons FR1 Building Wrap/Barricade Plus Building Wrap has been CodeMark Certified to ensure it meets Code Compliance with NZBC Clause B2.3.1 (a), not less than 50 years for building wraps used where the cladding durability requirement, or expected serviceable life is not less than 50 years.

DESIGN CONSIDERATIONS

TIMBER AND STEEL FRAMING

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

GENERAL

Masons FR1 Building Wrap/Barricade Plus Building Wrap 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.

The material also provides a degree of temporary weather protection during early construction. However, the product will not make the building weather tight 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.

Property	Test Standard	Actual Property Performance
Resistance to Water Penetration	AS/NZS 4201.4 Modified with 20mm head of water	Pass
Water Absorbency	AS/NZS 4201.6 ²	Pass
Water Vapour (Flow Resistance)	ASTM E96 Water method 23°C, 100% RH inside 50% RH outside	Pass
Mass per Area	Mass per Area	Mass per Area
pH of Extract	AS/NZS 1301.421s extraction	Pass
Air Barrier	Air resistance: 0.1 MN s/m ³	Pass. Masons FR1 Building Wrap/Barricade Plus Building Wrap can be used as an air barrier.
Tensile Strength	ASTM D882 (25mm)	Machine Direction: 3.53kN/m Cross Direction: 3.47kN/m
Edge Tear Resistance	AS/NZS 4200 TAPPI T470 (25mm width)	Edge tear: Machine direction (average) = 160 N Cross direction (average) = 155

CAVITY INSTALLATIONS

Where the cavity battens are installed at greater than 450-mm centers, Masons FR1 Building Wrap/Barricade Plus Building Wrap 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.

STRUCTURE

Masons FR1 Building Wrap/Barricade Plus Building Wrap is suitable for use in all Wind Zones of NZS 3604 up to, and including, Very High when used as a stand-alone flexible building underlay, and all Wind Zones of NZS 3604 up to, and including, Extra High when used as an overlay for rigid building underlays.

DURABILITY

Masons FR1 Building Wrap/Barricade Plus Building Wrap meets code compliance with NZBC Clause B2.3.1 (a), not less than 50 years for building 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 building underlays used where the cladding durability requirement is 15 years.

SERVICEABLE LIFE

Provided it is not exposed to the weather or ultra-violet light for a total of more than 60 days, and provided the exterior cladding is maintained in accordance with the cladding manufacturer's instructions and the cladding remains weather resistant, Masons FR1 Building Wrap/Barricade Plus Building Wrap is expected to have a serviceable life equal to that of the cladding.

CONTROL OF INTERNAL FIRE AND SMOKE SPREAD

Masons FR1 Building Wrap/Barricade Plus Building Wrap has been tested to AS 1530 Part 2 flammability index of 1 (not greater than 5) and therefore meets the requirements of NZBC Acceptable Solutions C/AS6, 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 in purpose groups SM, SI, C, WB and WS. It may therefore be used with no restrictions in all buildings.

PREVENTION OF FIRE OCCURRING

Masons FR1 Building Wrap/Barricade Plus Building Wrap must be separated from fireplaces, heating appliances, flues and chimneys in accordance with the requirements of NZBC Acceptable Solutions C/AS1 to C/AS6, Paragraph 7.5.9 for the protection of combustible materials.

EXTERNAL MOISTURE

Masons FR1 Building Wrap/Barricade Plus Building Wrap must be used behind claddings that meet the requirements of the NZBC, such as those covered by NZBC Acceptable Solution E2/AS1.

Masons FR1 Building Wrap/Barricade Plus Building Wrap, when installed in accordance with the Technical Literature and this Appraisal will assist in the total cladding systems compliance with NZBC Clause E2.

MASONRY VENEER

Masonry veneer on timber framed buildings must be in accordance with NZBC Acceptable Solution E2/AS1. Masonry veneer on steel framed buildings must be subject to specific design.

STUCCO PLASTER

Masons FR1 Building Wrap/Barricade Plus Building Wrap 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 plastic tape or wire at 150 mm centres run across the cavity battens to limit deflection to a maximum of 5 mm.

Masons FR1 Building Wrap/Barricade Plus Building Wrap 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).

INSTALLATION

INSTALLATION INSTRUCTIONS:

1. Masons FR1 Building Wrap/Barricade Plus Building Wrap 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.
2. Masons FR1 Building Wrap/Barricade Plus Building Wrap 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 75-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.
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.
4. Masons FR1 Building Wrap/Barricade Plus Building Wrap must be restrained from bulging into the drained cavity in accordance with NZBC Acceptable Solution E2/ AS1, Paragraph 9.1.8.5.
5. Masons FR1 Building Wrap/Barricade Plus Building Wrap can be added as a second layer over head flashings in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.1.7(e).
6. When fixing the product in windy conditions, care must be taken due to the large sail area created by wide roll widths.
7. Any damaged areas of Barricade FR Building Wrap, 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.

Masons FR1 Building Wrap/Barricade Plus Building Wrap is not exposed to the weather or ultra-violet light for a total of more than 60 days, and provided the exterior cladding is maintained in accordance with the manufacturer's instructions and the cladding remains weather resistant, the wrap is expected to have a serviceable life equal to that of the cladding.

LIMITATIONS

This underlay is suitable for use with direct fixed non-absorbent wall cladding, e.g. metal or plastic based claddings.

HANDLING & STORAGE

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 end, under cover, in clean, dry conditions and must not be crushed.

INSTALLATION SKILL LEVEL REQUIREMENTS

Installation must always be carried out in accordance with the Masons FR1 Building Wrap/Barricade Plus Building Wrap Technical Literature and this Assessment Brief, by competent tradesperson/s with an understanding of wall underlay installation.

INSPECTIONS:

CMI representatives have inspected installations of the systems and found the level of performance satisfactory.

TECHNICAL INVESTIGATIONS

VALIDITY OF THE OPINION

Condition

This Assessment Brief applies only to Masons FR1 Building Wrap/Barricade Plus Building Wrap as certified under the CodeMark Scheme

Withdrawal

This Assessment Brief will be withdrawn or amended if CMI considers that a change in any documentation, design or manufacturing quality renders the basis of the Certification or Assessment Brief invalid, or if reported field experience convinces CMI of unsatisfactory quality or performance.

Term of Validity

This Assessment Brief will lapse three years after the date of issue unless revalidation has been requested and granted.

RELEVANT DOCUMENTS

- New Zealand Buildings Code.
- Relevant New Zealand Standards.
- Relevant International Standards.

BASES OF ASSESSMENT BRIEF

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

Tests

The following tests have been carried out on Masons FR1 Building Wrap/Barricade Plus Building Wrap in accordance with NZBC Acceptable Solution E2/AS1, Table 23:

- tensile strength, edge tear resistance in accordance with AS/NZS 4200.1;
- resistance to water vapour transmission with ASTM E96;
- 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 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 Masons FR1 wrap was exposed to ultra-violet light; and
- the flammability Index of Masons FR1 wrap has been evaluated in accordance with AS/NZS 1530.2.

CMI has also investigated the following criteria's in generating this Assessment Brief:

- Installation procedures.
- Physical properties.
- Relation to relevant NZBC clauses.
- The ability of the installation details to meet the requirements of the NZBC and relevant Australian and International Standards.

BIBLIOGRAPHY

The following documents and inspections were used in carrying out the CMI Certification and Assessment Brief.

TEST REPORTS:

1. GunnLab (Melbourne) testing to AS/NZS 4201 series
2. GunnLab (Melbourne) testing to AS/NZS 1301.421s
3. GunnLab (Melbourne) testing to ASTM E96
4. GunnLab (Melbourne) testing to AS/NZS 4200 TAPPI T470
5. Scion Report moisture vapour properties AS/NZS 4200.1, Vapour barrier. Based on ASTM standard E96, Procedure B (wet cup).
6. MFPA report DIN EN 13859.1
7. MFPA Report DIN EN ISO 11925 Part 2

OTHER DOCUMENTS:

1. AS 1530.2 - 1993 Test for flammability of materials.
2. AS/NZS 1301.421s: 1988 Determination of the pH value of aqueous extracts of paper, board and pulp - cold extraction method.
3. AS/NZS 4200.1: 1994 Pliable building membranes and underlays - materials.
4. AS/NZS 4201.1: 1994 Pliable building membranes and underlays - Methods of test—Resistance to dry delamination.
5. AS/NZS 4201.2: 1994 Pliable building membranes and underlays - Methods of test—Resistance to wet delamination.
6. AS/NZS 4201.3: 1994 Pliable building membranes and underlays - Methods of test — Shrinkage.
7. AS/NZS 4201.4: 1994 Pliable building membranes and underlays - Methods of test—Resistance to water penetration.
8. AS/NZS 4201.6: 1994 Pliable building membranes and underlays - Methods of test—Surface water absorbency.
9. BS 6538.3: 1987 Method for determination of air permeance.
10. NZS 2295: 2006 Pliable, permeable building underlays.
11. NZS 3604: 2011 Timber-framed Buildings.
12. Compliance Document for New Zealand Building Code External Moisture Clause E2, Department of Building and Housing, Third Edition July 2005 (Amendment 5, 1 August 2011).
13. New Zealand Building Code Handbook Department of Building and Housing, Third Edition (Amendment 12, 10 October 2011).
14. The Building Regulations 1992.

CONCLUSION

In the opinion of CertMark International, that the Masons FR1 Building Wrap/Barricade Plus Building Wrap is fit for purpose and will comply with the National Construction Code Volume One – Building Code of Australia 2016 to the extent specified in this Evaluation Report provided it is used, designed, installed and maintained as set out in this Evaluation Report.

The Evaluation Report is issued only to Masons Plastabrick Ltd and is valid until expiry, subject to the Conditions of Evaluation Report.

CONDITIONS OF EVALUATION REPORT

This Evaluation Report:

- relates only to the product as described herein;
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