



## BRANZ Appraised

Appraisal No. 729 [2017]

## WATERGATE-PLUS HOUSE WRAP

### Appraisal No. 729 [2017]

This Appraisal replaces BRANZ  
Appraisal No. 729 [2011]

Amended 19 September 2019



### BRANZ Appraisals

Technical Assessments of  
products for building and  
construction.

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## Product

1.1 Watergate-Plus is a fire retardant, synthetic pliable building membrane. The product is manufactured from coated, non-woven polyolefin and is coloured white.

## Scope

2.1 Watergate-Plus is a pliable building membrane appraised for use as a sarking on walls of buildings within the following scope:

- Class 1 and Class 10 buildings; and,
- Class 2 to Class 9 buildings subject to specific weathertightness design; and,
- constructed with timber or steel framing in accordance with the BCA; and,
- with absorbent and non-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 the BCA; and,
- situated in non-cyclonic wind zones up to, and including N3.

2.2 Building designers are responsible for the building design and for the incorporation of Watergate-Plus into their design in accordance with the declared properties and the instructions of Thermakraft Australia Pty Ltd.

## Building Regulations

### National Construction Code Series [NCC] Building Code of Australia [BCA]

3.1 In the opinion of BRANZ, Watergate-Plus, if used, designed, installed and maintained in accordance with the statements and conditions of this Appraisal, will contribute to meeting the following provisions of the BCA:

#### BCA Volume 1

**PART C1 – Fire resistance and stability:** Deemed-to-satisfy Provision C1.9 [e] [vi]. Watergate-Plus will meet this requirement. See Paragraph 10.1.

**PART F1 – Damp and Weatherproofing:** Performance Requirement FP1.4. Watergate-Plus will contribute to meeting this requirement. Deemed-to-satisfy Provision F1.6. Watergate-Plus will meet this requirement. See Paragraphs 13.1 and 13.2.

**PART F6 – Condensation Management:** Performance Requirement FP6.1. Watergate-Plus will contribute to meeting this requirement. Deemed-to-satisfy Provision F6.2. Watergate-Plus will meet this requirement. See Paragraph 14.1 and 14.2.

**PART G5 – Construction in bushfire prone areas:** Performance Requirement GP5.1. Watergate-Plus will contribute to meeting this requirement. Deemed-to-satisfy Provision G5.2. Watergate-Plus will contribute to meeting this requirement. See Paragraph 12.1.

**BCA Volume 2**

**PART 2.2 Damp and Weatherproofing:** Performance Requirement P2.2.2. Watergate-Plus will contribute to meeting this requirement. See Paragraphs 13.1 and 13.2.

**PART 2.4 Health and Amenity:** Performance Requirement P2.4.7. Watergate-Plus will contribute to meeting this requirement. See Paragraph 14.1 and 14.2.

**PART 2.7 Ancillary provisions and additional construction requirements:** Performance Requirement P2.7.5. Watergate-Plus will contribute to meeting this requirement. See Paragraph 12.1.

**PART 3.7 Fire safety:** Deemed-to-satisfy Provision 3.7.1.1 [f]. Watergate-Plus will meet this requirement. See Paragraph 10.1.

**PART 3.8 Health and amenity:** Deemed-to-satisfy Provision 3.8.7.2. Watergate-Plus will meet this requirement. See Paragraphs 14.1 and 14.3.

## Technical Specification

- 4.1 Watergate-Plus is a white, 105 g/m<sup>2</sup> non-woven, microporous polyolefin fabric pliable membrane.
- 4.2 Watergate-Plus is less than 1 mm in thickness and has a flammability index of less than 5.

**Table 1: Roll Dimensions**

Width [mm]	Length [m]	Area [m <sup>2</sup> ]
1370	18.3	25
1370	36.5	50
1370	54.8	75
1500	16.7	25
1500	33.4	50
1500	50	75
2740	30	82
3000	30	90

**Accessories**

- 4.3 Accessories used with Watergate-Plus which are supplied by the installer are:
  - Fixings - staples, clouts, screws or proprietary fixings, or other temporary fixings to attach the pliable building membrane to the wall framing.
  - Pliable Building Membrane support - polypropylene strap, 75 mm galvanised mesh or galvanised wire, or vertical cavity battens where required to support the wall underlay (refer to Paragraph 7.5).
- 4.4 The product is supplied in various widths and lengths, see Table 1. The product is printed with the Watergate-Plus logo repeated along the length of the roll and is labelled with the marketing or construction company's name. The rolls are wrapped in clear polythene film.

## 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 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 Watergate-Plus. 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

- 7.1 Watergate-Plus is a pliable building membrane for use as a wall sarking which is 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 Watergate-Plus must not be exposed to the weather or ultra violet light for a total of more than 60 days before being covered by the wall cladding.
- 7.4 Watergate-Plus is deemed to be a satisfactory sarking material for the waterproofing of walls in accordance with BCA Volume 1, Paragraph F1.6.
- 7.5 In masonry veneer installations and wall cladding installations over a cavity, where the studs or cavity battens are installed at greater than 450 mm centres, the sarking must be supported to prevent it bulging into the cavity space when bulk insulation is installed in the wall frame cavity.

**Table 2: Watergate-Plus Material Properties**

AS/NZS 4200.1 Properties	Property Performance Requirement	Actual Property Performance	AS/NZS 4200.1 Classification
Resistance to dry delamination		Pass	Not Applicable
Resistance to wet delamination		Pass	Not Applicable
Shrinkage	≤ 0.5%	Pass	Not Applicable
Folding Endurance [machine direction]	≥ 2.00	Pass	Not Applicable
Folding Endurance [cross direction]	≥ 1.70	Pass	Not Applicable
Absorbency	≥ 100 g/m <sup>2</sup>	Pass	High
Vapour Barrier	≤ 7 MN s/g	Pass	Low
Vapour Permeance	≥ 0.1429 µg/N.s	2.63 µg/N.s	Class 4 - Vapour Permeable
Water Barrier	≥ 100 mm	Pass	High
Emmittance			Non-reflective
Duty Classification [Light Wall]	<b>Edge tear resistance:</b> ≥ 45 N <b>Burst strength:</b> ≥ 200 N in accordance with AS 2001.2.19	Pass	Light Wall
Flammability	≤ 5	Pass	Low

## Structure

- 8.1 Watergate-Plus is suitable for use on buildings situated in non-cyclonic wind zones up to, and including N3.

## Durability

### Serviceable Life

- 9.1 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, Watergate-Plus is expected to have a serviceable life equal to that of the cladding.

## Flammability

- 10.1 Watergate-Plus is less than 1 mm in thickness and has an AS 1530 Part 2 Flammability Index of less than 5 and therefore has a flammability index classification of low in accordance with AS/NZS 4200.1.

## Heating Appliances, Fireplaces, Chimneys and Flues

- 11.1 Watergate-Plus must be separated from fireplaces, heating appliances, flues and chimneys in accordance with the requirements of the BCA for the protection of combustible materials.

## Bushfire Resistance

### BCA Bush Fire Zones

- 12.1 Where regulations require special attention in bushfire prone areas, it may be necessary for Watergate-Plus pliable building membrane to comply with AS 3959. The building designer is responsible for determining the compliance requirements.

## Damp and Weatherproofing

- 13.1 Wall claddings installed over Watergate-Plus must meet the performance requirements of the BCA, e.g. Deemed to Satisfy wall claddings covered by the BCA, or wall claddings covered by a valid BRANZ Appraisal.
- 13.2 Watergate-Plus, when installed in accordance with the Technical Literature and this Appraisal will assist in the total cladding systems compliance with the Damp and Weatherproofing performance clauses of the BCA.

## Condensation and Water Vapour Management

- 14.1 Thermakraft Watergate Plus is classified as a vapour permeable membrane in accordance with AS/NZS 4200.1.
- 14.2 In a sole-occupancy unit of a Class 2 building or a Class 4 part of a building, Thermakraft Watergate Plus meets the requirements of Deemed-to-Satisfy Provision F6.2[a][i] and [iii] and is therefore suitable for use in climate zones 6, 7 and 8.
- 14.3 Thermakraft Watergate Plus meets the requirements of Acceptable Construction Practice Paragraph 3.8.7.2[a] [i] and [iii] for a Class 1 Building and is therefore suitable for use in climate zones 6, 7 and 8.

## Installation Information

### Installation Skill Level Requirements

- 15.1 Installation must always be carried out in accordance with the Watergate-Plus Technical Literature and this Appraisal, by competent tradespersons with an understanding of wall sarking installation.

### Pliable Building Membrane Installation

- 15.2 Watergate-Plus 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 fixings. The membrane must be pulled taut over the framing before fixing.
- 15.3 Watergate-Plus 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.
- 15.4 The pliable building membrane 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 sarking may be cut off flush with the internal face of the wall frame.
- 15.5 Where the membrane needs to be supported, polypropylene strap or galvanised wire must be installed over the membrane at 300 mm centres. Alternatively, 75 mm galvanised wire mesh can be installed over the entire membrane surface.
- 15.6 Watergate-Plus can be added as a second layer over window and door joinery head flashings.
- 15.7 When used behind masonry veneer cladding, the brick ties must be fixed to the face of the stud only.
- 15.8 When fixing the product in windy conditions, care must be taken due to the large sail area created by wide roll widths.
- 15.9 Any damaged areas of Watergate-Plus, 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

- 15.10 The Technical Literature must be referred to during the inspection of Watergate-Plus installations.

## Basis of Appraisal

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

### Tests

- 16.1 The following tests have been carried out on Watergate-Plus in accordance with AS/NZS 4200.1: Resistance to dry delamination, resistance to wet delamination, shrinkage, folding endurance, tensile strength, edge-tear resistance, resistance to water vapour transmission, resistance to water penetration, and surface water absorbency. A range of these tests were completed before and after Watergate-Plus was exposed to ultra-violet light.
- 16.2 The Flammability Index of Watergate-Plus has been evaluated in accordance with AS/NZS 1530.2.

### Other Investigations

- 17.1 A durability opinion has been given by BRANZ technical experts.
- 17.2 The practicability of installation of Watergate-Plus has been assessed by BRANZ and found to be satisfactory.
- 17.3 The Technical Literature, including installation instructions, has been examined by BRANZ and found to be satisfactory.



### Quality

- 18.1 The manufacture of Watergate-Plus 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.
- 18.2 The quality of supply to the market is the responsibility of Thermakraft Australia Pty Ltd.
- 18.3 Building designers are responsible for the design of the building, and for the incorporation of the Watergate-Plus into their design in accordance with the instructions of Thermakraft Australia Pty Ltd.
- 18.4 Quality of installation is the responsibility of the installer in accordance with the instructions of Thermakraft Australia Pty Ltd.

### Sources of Information

- AS 1530.2 - 1993 Test for flammability of materials.
- AS 2001.2.19 - 1988 [R2016] Methods of test for textiles - Physical tests - Determination of bursting force of textile fabrics - Ball burst method.
- AS 3959 - 2009 Construction of buildings in bushfire-prone areas.
- AS/NZS 4200.1: 2017 Pliable building membranes and underlays.
- National Construction Code Series, Building Code of Australia 2019 - Australian Building Codes Board.

### Amendments

#### Amendment No.1, dated 27 August 2018

This Appraisal has been amended to update the Appraisal Holder and address.

#### Amendment No.2, dated 19 June 2019

This Appraisal has been amended to add condensation management statements, to update the referenced version of the NCC and to update the product weight.

#### Amendment No.3, dated 19 September 2019

This Appraisal has been amended to update roll sizes in Table 1, update building regulations and update product name.



In the opinion of BRANZ, **Watergate-Plus House Wrap** 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 **Thermakraft Australia Pty 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. **Thermakraft Australia Pty 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 **Thermakraft Australia Pty 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 **Thermakraft Australia Pty Ltd** or any third party.

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For BRANZ



**Chelydra Percy**

Chief Executive

Date of Issue:

21 September 2017