



BRANZ Appraised

Appraisal No. 729 [2024]

THERMAKRAFT® WATERGATE PLUS WALL WRAP

Appraisal No. 729 [2024]

This Appraisal replaces BRANZ
Appraisal No. 729 [2017]



BRANZ Appraisals

Technical Assessments of
products for building and
construction.



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Product

- 1.1 Thermakraft® Watergate Plus is a white coloured pliable building membrane. The product is printed with the Thermakraft® Watergate Plus logo repeated along the length of the roll.

Scope

- 2.1 Thermakraft® Watergate Plus is a pliable building membrane 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; and,
 - constructed with timber or steel framing; and,
 - with masonry veneer; or
 - with absorbent and non-absorbent wall claddings directly fixed to framing; or,
 - with absorbent and non-absorbent wall claddings installed over an 18 mm minimum drained cavity; 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 Thermakraft® Watergate Plus into their design, in accordance with the declared properties and the instructions of Kingspan Insulation Pty Ltd.



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Building Regulations

National Construction Code (NCC)

3.1 In the opinion of BRANZ, Thermakraft® Watergate Plus Wall Wrap, 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 NCC:

NCC 2022 Volume One - Building Code of Australia

Part C2 FIRE RESISTANCE AND STABILITY: Deemed-to-Satisfy Provisions C2D10 [6] [f] and C2D11 [g] and State Variation NSW C2D11 [g]. Thermakraft® Watergate Plus meets these requirements. See Paragraph 10.1

Part F3 ROOF AND WALL CLADDING: Performance F3P1. Thermakraft® Watergate Plus meets this requirement. See Paragraphs 12.1 and 12.2.

Part F8 CONDENSATION MANAGEMENT: Performance F8P1, Deemed-to-Satisfy Provision F8D3 and State Variation F8P1 [TAS]. Thermakraft® Watergate Plus contributes to meeting these requirements. See Paragraphs 13.1-13.3.

Part G5 CONSTRUCTION IN BUSHFIRE PRONE AREAS: Performance G5P1 and State Variations G5P1 [NSW, QLD, TAS, VIC]. Thermakraft® Watergate Plus will contribute to meeting these requirements. See Paragraph 14.1.

NCC 2022 Volume Two - Building Code of Australia

Part H2 DAMP AND WEATHERPROOFING: Performance Requirement H2P2. Thermakraft® Watergate Plus will contribute to meeting this requirement. See Paragraphs 12.1 and 12.2.

Part H3 FIRE SAFETY: Deemed-to-Satisfy Provision H3D2 [1] [f]. Thermakraft® Watergate Plus meets this requirement. See Paragraph 10.1.

Part H4 HEALTH AND AMENITY: Performance Requirement H4P7, Deemed-to-Satisfy Provision H4D9 and State Variation H4D9 [TAS]. Thermakraft® Watergate Plus contributes to meeting these requirements. See Paragraphs 13.1-13.3.

Part H7 BUILDINGS IN BUSHFIRE PRONE AREAS: Performance Requirement H7P5 and State Variation H7P5 [TAS]. Thermakraft® Watergate Plus meets this requirement. See Paragraph 14.1.

Technical Specification

4.1 Thermakraft® Watergate Plus is a white coloured pliable building membrane.

4.2 The product is supplied in various widths and lengths - refer to Table 1. The product is printed with the Thermakraft® 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.

Table 1: Roll Dimensions

Product Code	Width [mm]	Length [m]	Area [m ²]
WGP1370365 TL	1,370	36.5	50
WGP2740030TL	2,740	30	82
WGP3000030TL	3,000	30	90

Accessories

4.3 Accessories used with Thermakraft® 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).

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 This Appraisal must be read in conjunction with:
- Thermakraft Watergate Plus, KIAU0154, Issue 15, January 2024 .
- 6.2 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 Thermakraft® 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 2 for material properties.
- 7.2 Thermakraft® Watergate Plus 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 Thermakraft® Watergate Plus must not be exposed to the weather or ultraviolet [UV] light for a total of more than 60 days before being covered by the wall cladding.
- 7.4 Thermakraft® Watergate Plus is deemed to be a satisfactory sarking material for the waterproofing of walls in accordance with NCC Volume One, Part F3, Deemed-to-Satisfy Provision F3D3.
- 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: Thermakraft® 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
Folding Endurance [machine direction]	≥ 2	Pass	Not Applicable
Folding Endurance [cross direction]	≥ 1.7	Pass	Not Applicable
Surface Water Absorbency	≥ 100 g/m ²	Pass	High
Water Vapour Barrier	≤ 7 MN s/g	Pass	Low
Water Vapour Permeance	≥ 0.1429 µg/N.s	2.427 µg/N.s	Class 4 - Vapour Permeable
Resistance to Water Penetration	≥ 100 mm	Pass	High
Edge Tear Resistance	≥ 45 N	Pass	Extra Heavy
Flammability Index	≤ 5	Pass	Low

Structure

- 8.1 Thermakraft® 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 UV 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, Thermakraft® Watergate Plus is expected to have a serviceable life equal to that of the cladding.

Flammability

- 10.1 Thermakraft® Watergate Plus is a membrane-type material less than 1 mm thick and has a flammability index not greater than 5. It is therefore deemed non-combustible in accordance with NCC Volume One, Part C2, Deemed-to-Satisfy Provision C2D10 (6) (f) and NCC Volume Two, Part H3, Deemed-to-Satisfy Provision H3D2 (1) (f).

Heating Appliances, Fireplaces, Chimneys and Flues

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

Damp and Weatherproofing

- 12.1 Wall claddings installed over Thermakraft® Watergate Plus must meet the performance requirements of the NCC, e.g. Deemed-to-Satisfy wall claddings covered by the NCC, or wall claddings covered by a valid BRANZ Appraisal.
- 12.2 Thermakraft® 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 NCC.

Condensation and Water Vapour Management

- 13.1 Thermakraft® Watergate Plus is classified as a vapour permeable membrane in accordance with AS/NZS 4200.1.
- 13.2 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 NCC Volume One, Part F8, Deemed-to-Satisfy Provision F8D3 (1) (a) and (2) (b) and is therefore suitable for use in climate zones 6, 7 and 8.
- 13.3 Thermakraft® Watergate Plus meets the requirements of ABCB Housing Provisions, Clause 10.8.1 (1) (a) and (2) (b) and is therefore suitable for use in climate zones 6, 7 and 8.

Bushfire Prone Areas

- 14.1 Australian Standard AS 3959 is cited as a means of demonstrating compliance for Bushfire Prone Areas. This standard specifies in Clause 3.10 that where a membrane is required that it shall have a flammability index of not more than 5. Thermakraft® Watergate Plus meets this requirement.

Installation Information

Installation Skill Level Requirements

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

Pliable Building Membrane Installation

- 15.2 Thermakraft® 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 Thermakraft® 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° 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 Thermakraft® 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 Thermakraft® 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 Thermakraft® 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 Thermakraft® 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 Thermakraft® Watergate Plus was exposed to UV light.
- 16.2 The flammability index of Thermakraft® Watergate Plus has been tested in accordance with AS 1530.2.

Other Investigations

- 17.1 A durability opinion has been given by BRANZ technical experts.
- 17.2 The practicability of installation of Thermakraft® 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 Thermakraft® Watergate Plus has been examined by BRANZ, including methods adopted for quality control. Details regarding the quality and composition of the materials used were obtained and found to be satisfactory.
- 18.2 The quality of supply to the market is the responsibility of Kingspan Insulation Pty Ltd.
- 18.3 Building designers are responsible for the design of the building, and for the incorporation of the Thermakraft® Watergate Plus into their design in accordance with the instructions of Kingspan Insulation Pty Ltd.
- 18.4 Quality of installation is the responsibility of the installer, in accordance with the instructions of Kingspan Insulation Pty Ltd.

Sources of Information

- AS 1530.2-1993 Test for flammability of materials.
- AS 3959-2018 Construction of buildings in bushfire-prone areas.
- AS/NZS 4200.1:2017 Pliable building membranes and underlays.
- National Construction Code 2022, Australian Building Codes Board.



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09 April 2024

THERMAKRAFT® WATERGATE
PLUS WALL WRAP



BRANZ

In the opinion of BRANZ, **Thermakraft® Watergate Plus Wall 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 **Kingspan Insulation 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. **Kingspan Insulation 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 **Kingspan Insulation 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 **Kingspan Insulation Pty Ltd** or any third party.

For BRANZ

Claire Falck

Chief Executive

Date of Issue:

09 April 2024