BRANZ Appraised
Appraisal No. 904 [2021]

THERMAKRAFT® COVERTEK® 407 ROOF UNDERLAY

Appraisal No. 904 (2021)

This Appraisal replaces BRANZ Appraisal No. 904 (2015)

Amended 24 April 2024

BRANZ Appraisals

Technical Assessments of products for building and construction.

Product

1.1 Thermakraft® Covertek® 407 Roof Underlay is a synthetic building underlay (sarking) for use under roof claddings. The product consists of a micro-porous water resistant film laminated to two layers of non-woven, spun-bonded polyolefin.

Scope

2.1 Thermakraft® Covertek® 407 Roof Underlay has been appraised for use as a self-supporting roof underlay on 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 National Construction Code (NCC); and,
- with masonry tile, metal tile or profiled metal roof cladding; 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® Covertek® 407 Roof Underlay into their design in accordance with the declared properties and the instructions of Kingspan Insulation Pty Ltd.

Building Regulations

National Construction Code (NCC)

3.1 **In the opinion of BRANZ, Thermakraft® Covertek® 407 Roof Underlay, 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 F3 ROOF AND WALL CLADDING: Performance Requirement F3P1. Thermakraft® Covertek® 407 Roof Underlay contributes to meeting 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® Covertek® 407 Roof Underlay 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® Covertek® 407 Roof Underlay contributes to meeting these requirements. See Paragraph 14.1.

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Part H2 DAMP AND WEATHERPROOFING: Performance H2P2. Thermakraft® Covertek® 407 Roof Underlay contributes to meeting this requirement. See Paragraphs 12.1 and 12.2.

Part H3 FIRE SAFETY: Deemed-to-Satisfy Provision H3D2 (1) (f). Thermakraft® Covertek® 407 Roof Underlay 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® Covertek® 407 Roof Underlay 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® Covertek® 407 Roof Underlay meets this requirement. See Paragraph 14.1.

Technical Specification

4.1 Thermakraft® Covertek® 407 Roof Underlay is a synthetic building underlay for use under roof claddings. The product consists of a micro-porous, water-resistant film laminated to two layers of non-woven, spun-bonded polyolefin. Thermakraft® Covertek® 407 Roof Underlay is coloured white on the top and bottom faces.

4.2 The product is supplied in rolls 1.25 m wide x 40 m long. The product is printed with the Thermakraft® Covertek® 407 Roof Underlay logo repeated along the length of the roll. The rolls are wrapped in clear polythene film.

Accessories

4.3 Accessories used with Thermakraft® Covertek® 407 Roof Underlay which are supplied by the installer are:

- **Fixings** - stainless steel staples, clouts, screws or proprietary underlay fixings, or other temporary fixings to attach the roof underlay to the framing.

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® Covertek® 407 Self-supporting Roof Sarking, KIAU0155, Issue 7, April 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

General

7.1 Thermakraft® Covertek® 407 Roof Underlay must not be exposed to the weather or ultraviolet (UV) light for a total of more than 28 days before being covered by the roof cladding system.

7.2 Thermakraft® Covertek® 407 Roof Underlay is intended for use as an alternative to conventional roof sarkings, which are fixed over timber or steel-framed roofs in order to limit the entry of wind into the roof cavity, and to assist in the moisture management of the roof cladding system.

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

7.4 Thermakraft® Covertek® 407 Roof Underlay is suitable for use under roof claddings on buildings as a roof underlay or sarking in accordance with NCC Volume One, Deemed-to-Satisfy Provision F3D3 and NCC Volume Two, Section H2P2 for roofs.

7.5 Refer to Table 1 for details of the material properties of Thermakraft® Covertek® 407 Roof Underlay and the relevant AS/NZS 4200.1 classifications.

Table 1: Thermakraft® Covertek® 407 Roof Underlay Material Properties

AS/NZS 4200.1 Properties	Property Performance Requirement	Actual Property Performance	AS/NZS 4200.1 Classification
Shrinkage	≤ 0.5%	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	5.0 µg/N.s	Class 4 - Vapour Permeable
Resistance to Water Penetration	≥ 100 mm	Pass	High
Edge Tear Resistance	≥ 90 N	Pass	Extra Heavy
Tensile Strength	≥ 9.5 kN/m Machine direction	Pass	Medium
	≥ 3.5 kN/m Cross direction	Pass	Extra Light
Flammability Index	≤ 5	Pass	Low

7.6 Thermakraft® Covertek® 407 Roof Underlay is suitable for use at pitches less than 10° (minimum 3°). When used at pitches less than 10°, Thermakraft® Covertek® 407 Roof Underlay must be installed horizontally. At pitches greater than 10°, Thermakraft® Covertek® 407 Roof Underlay can be installed vertically or horizontally, and must span no greater than 1,200 mm in one direction.

Structure

8.1 Thermakraft® Covertek® 407 Roof Underlay is suitable for use on buildings situated in non-cyclonic wind zones up to, and including, N3.

Durability

Serviceable Life

9.1 Thermakraft® Covertek® 407 Roof Underlay is expected to have a serviceable life equal to that of the roof cladding provided it is not exposed to the weather or UV light for a total of more than 28 days. Thermakraft® Covertek® 407 Roof Underlay must be continuously protected from the weather and UV light in-service by a roof cladding that is maintained in accordance with the cladding manufacturer's instructions.

Flammability

10.1 Thermakraft® Covertek® 407 Roof Underlay 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 Deemed-to-Satisfy Provision C2D10 (6) (f) and NCC Volume Two Deemed-to-Satisfy Provision H3D2 (1) (f).

Heating Appliances, Fireplaces, Chimneys and Flues

11.1 Thermakraft® Covertek® 407 Roof Underlay must be separated from flues and chimneys in accordance with the requirements of the NCC for the protection of combustible materials.

Damp and Weatherproofing

12.1 Roof claddings installed over Thermakraft® Covertek® 407 Roof Underlay must meet the performance requirements of the NCC, e.g. Deemed-to-Satisfy roof claddings covered by the NCC, or roof claddings covered by a valid BRANZ Appraisal.

12.2 Thermakraft® Covertek® 407 Roof Underlay, 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® Covertek® 407 Roof Underlay 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® Covertek 407 Roof Underlay meets the requirements of Deemed-to-Satisfy Provision F8D5 (1)(a)(ii) and is therefore suitable for use in climate zones 6, 7 and 8.

13.3 Thermakraft® Covertek 407 Roof Underlay meets the requirements of ABCB Housing Provisions Clause 10.8.3 (1)(a) (ii) and is therefore suitable for use in climate zones 6, 7 and 8.

Fire Safety

Bush Fire Areas

14.1 Australian Standard AS 3959 is cited as a means of demonstrating compliance for Bushfire Prone Areas. Clause 3.10 specifies that where sarking is required, that it shall have a flammability index of not more than 5. Thermakraft® Covertek® 407 Roof Underlay meets this requirement.

Installation Information

Installation Skill Level Requirement

15.1 Installation must always be carried out in accordance with the Thermakraft® Covertek® 407 Roof Underlay Technical Literature and this Appraisal, by competent tradespersons with an understanding of roof underlay installation.

Underlay Installation

16.1 Thermakraft® Covertek® 407 Roof Underlay must be fixed at maximum 300 mm centres to all framing members. The membrane must be pulled taut over the framing before fixing.

16.2 Thermakraft® Covertek® 407 Roof Underlay may be run vertically or horizontally at roof pitches greater than 10° and must be laid horizontally at roof pitches less than 10°. It must extend from the ridge and overhang the fascia board by 20-25 mm. Vertical laps must be no less than 150 mm wide. Horizontal laps must also be no less than 150 mm, with the direction of the lap ensuring that water is shed to the outer face of the underlay. End laps must be made over framing and be no less than 150 mm wide. To assist with achieving the correct lap dimension, Thermakraft® Covertek® 407 Roof Underlay has a 150 mm lap line printed continuously along the top face.

16.3 When fixing the product in windy conditions, care must be taken due to the large sail area created.

16.4 Any damaged areas of Thermakraft® Covertek® 407 Roof 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

16.5 The Technical Literature must be referred to during the inspection of Thermakraft® Covertek® 407 Roof Underlay installations.

Basis of Appraisal

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

Tests

17.1 The following tests have been carried out on Thermakraft® Covertek® 407 Roof Underlay in accordance with AS/NZS 4200.1: 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. A range of these tests were completed before and after Thermakraft® Covertek® 407 Roof Underlay was exposed to UV light.

17.2 The flammability index of Thermakraft® Covertek® 407 Roof Underlay has been evaluated in accordance with AS 1530.2.

Other Investigations

18.1 A durability opinion has been given by BRANZ technical experts.

18.2 An evaluation of the expected performance of Thermakraft® Covertek® 407 Roof Underlay in direct contact with metal roof cladding has been completed by BRANZ.

18.3 The practicability of installation of Thermakraft® Covertek® 407 Roof Underlay has been assessed by BRANZ and found to be satisfactory.

18.4 The Technical Literature, including installation instructions, has been examined by BRANZ and found to be satisfactory.

Quality

19.1 The manufacture of Thermakraft® Covertek® 407 Roof Underlay has been examined by BRANZ, including methods adopted for quality control. Details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory.

19.2 The quality of supply to the market is the responsibility of Kingspan Insulation Pty Ltd.

19.3 Building designers are responsible for the design of the building, and for the incorporation of the roof underlay into their design in accordance with the instructions of Kingspan Insulation Pty Ltd.

19.4 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.

Amendments

Amendment No. 1, dated 24 April 2024

This Appraisal has been amended to update the NCC references from 2019 to 2022 and to update the Appraisal holder details and technical literature.

BRANZ

In the opinion of BRANZ, Thermakraft® Covertek® 407 Roof 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 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 quality of work;
   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

Chelydra Percy
Chief Executive

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