



BRANZ Appraised

Appraisal No.651 [2009]

BRANZ Appraisals

Technical Assessments of products
for building and construction

BRANZ APPRAISAL No. 651 (2009)

Amended 31 January 2012

THERMAKRAFT COVERTEK 407 FIRE RETARDANT SELF- SUPPORTING ROOF UNDERLAY

Thermakraft Industries (N.Z.) Ltd

P O Box 58-112

Botany

Manukau 2163

Auckland

Tel: 0800 806 595

Fax: 09 273 3726

Web: www.thermakraft.co.nz



BRANZ

BRANZ Limited

Private Bag 50 908

Porirua City

New Zealand

Tel: +64 4 237 1170

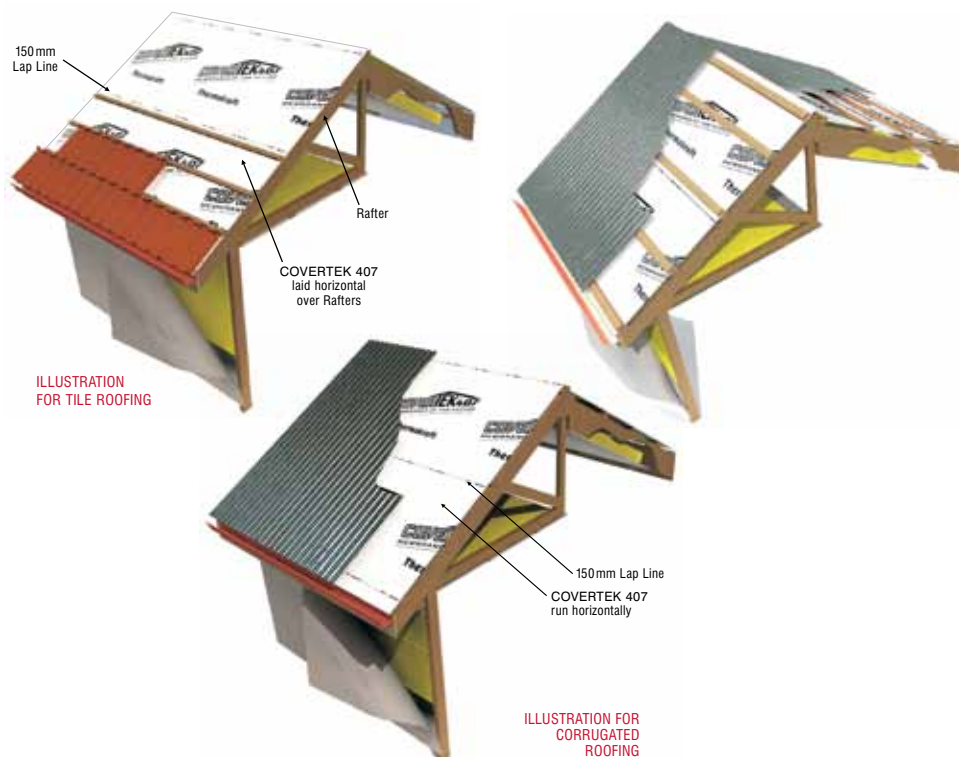
Fax: +64 4 237 1171

www.branz.co.nz



Product

1.1 Thermakraft Covertek 407 Fire Retardant Self-Supporting 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.



Scope

2.1 Thermakraft Covertek 407 Fire Retardant Self-Supporting Roof Underlay has been appraised for use as a self-supporting roof underlay on 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; and,
- with masonry tile roof cladding; and,
- with metal tile and profiled metal roof cladding; and,
- situated in NZS 3604 Wind Zones up to, and including 'Extra High'.

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, Thermakraft Covertek 407 Fire Retardant Self-Supporting Roof Underlay, if used, designed, installed and maintained in accordance with the statements and conditions of this Appraisal, 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. Thermakraft Covertek 407 Fire Retardant Self-Supporting Roof Underlay meets these requirements. See Paragraphs 9.1 and 9.2.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. When used as part of the roof cladding system, Thermakraft Covertek 407 Fire Retardant Self-Supporting Roof Underlay will contribute to meeting this requirement. See Paragraphs 12.1 and 12.2.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Thermakraft Covertek 407 Fire Retardant Self-Supporting Roof Underlay meets this requirement and will not present a health hazard to people.

3.2 This is an Appraisal of an **Alternative Solution** in terms of the New Zealand Building Code compliance.

Technical Specification

4.1 Thermakraft Covertex 407 Fire Retardant Self-Supporting 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 Covertex 407 Fire Retardant Self-Supporting Roof Underlay is coloured white on the top bottom faces.

4.2 The product is supplied in rolls 1.250 m wide x 20 m and 40 m long. The product is printed with the Thermakraft Covertex 407 Fire Retardant Self-Supporting 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 Covertex 407 Fire Retardant Self-Supporting 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 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 Thermakraft Covertex 407 Fire Retardant Self-Supporting Roof Underlay. 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

Timber and Steel Framing

7.1 Timber and steel roof framing must be provided in accordance with the requirements of the NZBC and the roof cladding manufacturer.

General

7.2 Thermakraft Covertex 407 Fire Retardant Self-Supporting Roof Underlay is intended for use as an alternative to conventional kraft paper roof underlays, 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 Covertex 407 Fire Retardant Self-Supporting Roof Underlay is suitable for use under roof claddings on buildings as a roof underlay as called up in NZBC Acceptable Solution E2/AS1, Table 23. Refer to Table 1 for the material properties of Thermakraft Covertex 407 Fire Retardant Self-Supporting Roof Underlay.

Table 1: NZBC E2/AS1 Table 23 Requirements

NZBC E2/AS1 Table 23 Roof Underlay Properties	Property Performance Requirement	Results
Absorbency	$\geq 100 \text{ g/m}^2$	Pass $> 150 \text{ g/m}^2$
Vapour Resistance	$\leq 7 \text{ MN s/g}$	Pass
Water Resistance	$\geq 100 \text{ mm}$	Pass
pH of Extract	≥ 6 and ≤ 9	Pass
Shrinkage	$\leq 0.5\%$	Pass
Mechanical	Edge tear and tensile strength	Edge tear (Average): Machine direction = 320 N Cross direction = 289 N Tensile strength (Average): Machine direction = 6.0 kN/m Cross direction = 5.8 kN/m

7.5 Thermakraft Covertex 407 Fire Retardant Self-Supporting Roof Underlay is suitable for use at pitches less than 8° (minimum 3°). When used at pitches less than 8° , Thermakraft Covertex 407 Fire Retardant Self-Supporting Roof Underlay must be installed horizontally. At pitches greater than 8° , Thermakraft Covertex 407 Fire Retardant Self-Supporting Roof Underlay can be installed vertically or horizontally and must span no greater than 1200 mm in one direction.

Structure

8.1 Thermakraft Covertex 407 Fire Retardant Self-Supporting Roof Underlay is suitable for use in all Wind Zones of NZS 3604 up to, and including, 'Extra High'.

Durability

9.1 Thermakraft Covertex 407 Fire Retardant Self-Supporting Roof Underlay meets code compliance with NZBC Clause B2.3.1 (a), not less than 50 years for roof underlays used where the roof cladding durability requirement or expected serviceable life is not less than 50 years, e.g. behind masonry roof tile cladding, and code compliance with NZBC Clause B2.3.1 (b), 15 years for roof underlays used where the roof cladding durability requirement is 15 years.

Serviceable Life

9.2 Provided it is not exposed to the weather or ultra-violet light for a total of more than 7 days, and provided the roof cladding is maintained in accordance with the cladding manufacturer's instructions and the roof cladding remains weather resistant, Thermakraft Covertex 407 Fire Retardant Self-Supporting Roof Underlay is expected to have a serviceable life equal to that of the roof cladding.

Control of Internal Fire and Smoke Spread

10.1 Thermakraft Covertex 407 Fire Retardant Self-Supporting Roof Underlay has an AS 1530 Part 2 Flammability Index of ≤ 5 and meets the requirements of NZBC Acceptable Solution C/AS1 Part 6, Table 6.2 for surface finish requirements for suspended flexible fabrics, and therefore it may be used with no restrictions in all buildings.

Outbreak of Fire

11.1 Thermakraft Covertex 407 Fire Retardant Self-Supporting Roof Underlay must be separated from fireplaces, heating appliances, flues and chimneys in accordance with the requirements of NZBC Acceptable Solution C/AS1 Part 9 for the protection of combustible materials.

External Moisture

12.1 Thermakraft Covertex 407 Fire Retardant Self-Supporting Roof Underlay must only be used under roof claddings that meet the requirements of the NZBC, such as those covered by NZBC Acceptable Solution E2/AS1, or roof claddings covered by a valid BRANZ Appraisal.

12.2 Thermakraft Covertex 407 Fire Retardant Self-Supporting Roof Underlay, when installed in accordance with the Technical Literature and this 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 Thermakraft Covertex 407 Fire Retardant Self-Supporting Roof Underlay Technical Literature and this Appraisal, by competent tradespersons with an understanding of roof underlay installation.

Underlay Installation

14.1 Thermakraft Covertex 407 Fire Retardant Self-Supporting Roof Underlay must be fixed at maximum 300 mm centres to all framing members with large-head clouts 20 mm long, 6-8 mm stainless steel staples, self drilling screws or proprietary underlay fixings. The membrane must be pulled taut over the framing before fixing.

14.2 Thermakraft Covertex 407 Fire Retardant Self-Supporting Roof Underlay may be run vertically or horizontally at roof pitches greater than 8° and must be laid horizontally at roof pitches less than 8°. 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 Covertex 407 Fire Retardant Self-Supporting Roof Underlay has a 150 mm lap line printed continuously along the top face.

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

14.4 Any damaged areas of Thermakraft Covertex 407 Fire Retardant Self-Supporting 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

14.5 The Technical Literature must be referred to during the inspection of Thermakraft Covertex 407 Fire Retardant Self-Supporting Roof 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 Thermakraft Covertex 407 Fire Retardant Self-Supporting Roof 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. A range of these tests were completed before and after Thermakraft Covertex 407 Fire Retardant Self-Supporting Roof Underlay was exposed to ultra-violet light.

15.2 The Flammability Index of Thermakraft Covertex 407 Fire Retardant Self-Supporting Roof Underlay has been evaluated in accordance with AS 1530.2.

Other Investigations

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

16.2 An evaluation of the expected performance of Thermakraft Covertex 407 Fire Retardant Self-Supporting Roof Underlay in direct contact with metal roof cladding has been completed by BRANZ.

16.3 The practicability of installation of Thermakraft Covertex 407 Fire Retardant Self-Supporting Roof Underlay has been assessed by BRANZ and found to be satisfactory.

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

Quality

17.1 The manufacture of Thermakraft Covertex 407 Fire Retardant Self-Supporting 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.

17.2 The quality of supply to the market is the responsibility of Thermakraft Industries (N.Z.) Ltd.

17.3 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 Thermakraft Industries (N.Z.) Ltd.

17.4 Quality of installation is the responsibility of the installer in accordance with the instructions of Thermakraft Industries (N.Z.) Ltd.

Sources of Information

- AS 1530.2: 1993 Test for Flammability of Materials.
- AS/NZS 1301.421s: 1988 Determination of the pH value of aqueous extracts of paper, board and pulp - cold extraction method.
- AS/NZS 4200.1: 1994 Pliable building membranes and underlays - materials.
- AS/NZS 4201.3: 1994 Pliable building membranes and underlays - Methods of test – Shrinkage.
- AS/NZS 4201.4: 1994 Pliable building membranes and underlays - Methods of test – Resistance to water penetration.
- AS/NZS 4201.6: 1994 Pliable building membranes and underlays - Methods of test – Surface water absorbency.
- NZS 3604: 2011 Timber-framed buildings.
- 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).
- New Zealand Building Code Handbook Department of Building and Housing, Third Edition (Amendment 12, 10 October 2011).
- The Building Regulations 1992.

Amendment No. 1, dated 14 August 2009

This Appraisal has been amended to change the use of Thermakraft Covertex 407 to a self-supporting underlay.

Amendment No. 2, dated 1 April 2010

This Appraisal has been amended to cover the use of Thermakraft Covertex 407 in direct contact with metal based roof cladding, and to include current flammability test information which removes the restrictions on the use of the material.

Amendment No. 3, dated 23 July 2010

This Appraisal has been amended to change the colour of Thermakraft Covertex 407 from red/white to white/white.

Amendment No. 4, dated 31 January 2012.

This Appraisal has been amended to update clause changes as required by the introduction of NZS 3604: 2011 and NZBC Acceptable Solution E2/AS1 Third Edition, Amendment 5.



BRANZ

In the opinion of BRANZ, **Thermakraft Covertex 407 Self-Supporting Fire Retardant 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 **Thermakraft Industries (N.Z.) 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 Industries (N.Z.) 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.
3. 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.
4. 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 Industries (N.Z.) Ltd**.
5. 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.
6. BRANZ provides no certification, guarantee, indemnity or warranty, to **Thermakraft Industries (N.Z.) Ltd** or any third party.

For BRANZ

P Burghout
Chief Executive

Date of issue: 27 May 2009