



BRANZ Appraised
Appraisal No. 1104 [2020]

THERMATHENE ORANGE CONCRETE UNDERLAY

Appraisal No. 1104 [2020]

Amended 06 September 2024

BRANZ Appraisals

Technical Assessments of products
for building and construction.



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Product

- 1.1 Thermathene Orange Concrete Underlay is a polythene sheet for use as a damp-proof membrane [DPM] under floor slabs.

Scope

- 2.1 Thermathene Orange Concrete Underlay has been appraised for use as a DPM under concrete slab-on-ground floors complying with NZS 3604 or NZS 4229.
- 2.2 Thermathene Orange Concrete Underlay has also been appraised for use as a DPM on buildings subject to specific design within the following scope:
- where the DPM is laid on a granular base prepared to not damage the DPM; and,
 - where the DPM is adequately protected against damage in service.

Building Regulations

New Zealand Building Code [NZBC]

- 3.1 In the opinion of BRANZ, Thermathene Orange Concrete Underlay, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet the following provisions of the NZBC:

Clause B2 DURABILITY: Performance B2.3.1 [a] not less than 50 years. Thermathene Orange Concrete Underlay meets this requirement. See Paragraph 8.1.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.3. Thermathene Orange Concrete Underlay meets this requirement. See Paragraphs 9.1-9.3.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Thermathene Orange Concrete Underlay meets this requirement.

Technical Specification

- 4.1 Materials supplied by Kingspan Insulation NZ Limited are as follows:
- **Thermathene Orange Concrete Underlay** – a 300-micron thick, polythene sheet used as a DPM membrane. It is supplied in rolls 4 m wide x 25 m long.
 - **Sealing Tapes** – Kingspan Insulation NZ Limited recommend the use of Thermakraft General Purpose Tape, Aluband Window Flashing Tape (bituminous) or Thermakraft Premium Joining Tape for sealing laps between Thermathene Orange Concrete Underlay sheets, sealing around penetrations and for repairing small tears.

Handling and Storage

- 5.1 Handling and storage of all materials whether on-site or off-site is under the control of the installer. Thermathene Orange Concrete Underlay must be handled with care to prevent damage. The product must be stored under cover well away from direct moisture, rainfall contact and sunlight [UV]. Care should be taken to not stack other materials on top of the product.

Technical Literature

- 6.1 This Appraisal must be read in conjunction with:
- Product Data Sheet Thermathene Orange, Issue 5.0, dated September 2022
 - Installation Guide Thermathene Orange, Issue 4.0, dated September 2022
- 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

Concrete Substrate

Concrete Slab-on-Ground

- 7.1 The DPM must be laid on a minimum of 75 mm thickness of suitable clean and compacted fill [granular base] for slab-on-ground applications. The structural concrete slab placed over the membrane must be a minimum of 100 mm thick.

Durability

Serviceable Life

- 8.1 Thermathene Orange Concrete Underlay is a suitable DPM material [polyethylene sheet], and is expected to have a serviceable life of at least 50 years provided it is installed and maintained in accordance with this Appraisal and is continually protected from sunlight and ultraviolet [UV] radiation.
- 8.2 Thermathene Orange Concrete Underlay may be exposed for a maximum period of 30 days before the concrete slab is placed.

External Moisture

- 9.1 Thermathene Orange Concrete Underlay, when installed in accordance with this Appraisal and the Technical Literature, will prevent moisture from being transmitted through the concrete slab-on-ground. The DPM has a vapour flow resistance of not less than 90 MNs/g.
- 9.2 Thermathene Orange Concrete Underlay meets the requirements of:
- NASH Building Envelope Solutions, Table 23; and,
 - NASH Standard Part 2, Paragraph 4.2 [which cites NZS 3604 and NZS 4229]; and,
 - NZBC Acceptable Solution E2/AS1, Table 23; and,
 - NZS 3604 Clause 7.5.4.2; and,
 - NZS 4229 Clause 7.4.2.

- 9.3 Building designers must ensure junctions with other membranes, such as at the floor/wall junction, form a waterproof joint. These junctions have not been assessed and are outside the scope of this Appraisal.

Installation Information

Installation Skill Level Requirement

- 10.1 All design and building work must be carried out in accordance with the Thermathene Orange Concrete Underlay Technical Literature and this Appraisal by competent and experienced tradespersons conversant with installing DPMs. Where the work involves Restricted Building Work [RBW] this must be completed by, or under the supervision of, a Licensed Building Practitioner [LBP] with the relevant License Class.

System Installation

Substrate Preparation

- 11.1 All surfaces must be checked to ensure they are clean, smooth and free from sharp edges, loose or foreign materials or other material that may damage the DPM.

Membrane Installation

- 11.2 The DPM must be installed in accordance with the Technical Literature. Sheet edges and ends must be overlapped by 150 mm minimum and taped with the Thermakraft General Purpose Tape or Aluband Window Flashing Tape. The DPM must be inspected for damage and any damage must be repaired. The DPM must not be exposed to UV radiation for any longer than 30 days before the structural concrete slab is placed.

Inspections

- 11.3 The Technical Literature must be referred to during the inspection of the DPM installation.

Basis of Appraisal

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

Tests

- 12.1 Thermathene Orange Concrete Underlay has been tested for tensile strength and elongation, tear propagation, puncture resistance before and after accelerated weathering and water vapour permeability.

Other Investigations

- 13.1 A durability opinion has been given by BRANZ technical experts.
13.2 The practicability of installation has been assessed by BRANZ and found to be satisfactory.
13.3 The Technical Literature has been examined by BRANZ and found to be satisfactory.

Quality

- 14.1 The manufacture of Thermathene Orange Concrete Underlay has not been examined by BRANZ, but details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory. BRANZ undertakes an ongoing review of product quality on an inwards goods process.
14.2 The quality of material supplied to the market is the responsibility of Kingspan Insulation NZ Limited.
14.3 Quality of installation on-site is the responsibility of the building contractor.
14.4 Designers are responsible for the building design, and for the incorporation of the concrete underlay into their design in accordance with the instructions of Kingspan Insulation NZ Limited.



Sources of Information

- NASH Building Envelope Solutions: 2019 Light steel-framed buildings.
- NASH Standard Part Two: 2019 Light steel-framed buildings.
- NZS 3101:2006 Concrete structures standard.
- NZS 3604:2011 Timber-framed buildings.
- NZS 4229:2013 Concrete masonry buildings not requiring specific engineering design.
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.

Amendments

Amendment No. 1, dated 06 September 2024

This Appraisal has been amended to update the Appraisal Holder and the Technical Literature.



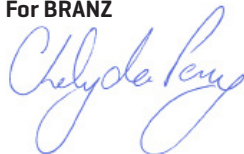
In the opinion of BRANZ, **Thermathene Orange Concrete Underlay** is fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided it is used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to **Kingspan Insulation NZ Limited**, 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 NZ Limited:**
 - 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 NZ Limited**.
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 NZ Limited** or any third party.

For BRANZ



Chelydra Percy

Chief Executive

Date of Issue:

19 May 2020