



## BRANZ Appraised

Appraisal No. 644 [2017]

## WARMUP UNDERTILE HEATING

### Appraisal No. 644 [2017]

This Appraisal replaces BRANZ Appraisal No. 644 [2010]

### BRANZ Appraisals

Technical Assessments of products for building and construction.

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**BRANZ**

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## Product

- 1.1 Warmup Undertile Heating is electric heating intended for floor surface warming and space heating to stone and ceramic tiled areas of residential and commercial building including wet areas.

## Scope

- 2.1 Warmup Undertile Heating has been appraised for use in internal dry and wet areas of buildings, within the following scope:
  - on structural substrates of concrete, plywood or compressed fibre cement sheet [excluding particle board flooring]; and,
  - with optional floor overlays of fibre cement tile underlays or Warmup Insulation Backer Board; and,
  - when protected from physical damage by a screed and ceramic or stone tiles; and,
  - where floors are designed and constructed such that deflections do not exceed 1/360<sup>th</sup> of the span; and,
  - movement and control joints in the substrate must be carried through to the screed, tile or stone finish; and,
  - the design and construction of the movement and control joints is specific to the building and therefore the responsibility of the building designer and building contractor and is therefore outside this scope; and,
  - tiling or stone finishes are outside the scope of this appraisal; and,
  - when used in a wet area a waterproofing system must be used but this is outside the scope of the Appraisal; and,
  - where floors are designed not to exceed a continuous operating temperature of 35°C; and,
  - the system must be installed using detailing as set out in the Technical Literature; and,
  - Warmup Undertile Heating must be installed by trained applicators, approved by Warmup New Zealand Ltd.

## Building Regulations

### New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, the Warmup Undertile Heating system, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet the following provisions of the New Zealand Building Code:

**Clause B2 DURABILITY:** Performance B2.3.1 (b), 15 years and B2.3.1 (c), 5 years. Warmup Undertile Heating meets these requirements. See Paragraphs 8.1 and 8.2.

**Clause F2 HAZARDOUS BUILDING MATERIALS:** Performance F2.3.1. Warmup Undertile Heating meets this requirement and will not present a health hazard to people.

**Clause G9 ELECTRICITY:** Performance G9.3.1. Warmup Undertile Heating meets this requirement. See Paragraphs 9.1 and 12.1.

## Technical Specification

### Description

4.1 Warmup Undertile Heating is electric element heating cable embedded into tile adhesive or screed over various substrates and finished with tiling. Temperature is controlled by a floor sensing Warmup Thermostat. The heating products and accessories used in the Warmup Undertile Heating and supplied or specified by Warmup New Zealand Ltd are as follows:

- Warmup Thermostats – a range of floor sensing non-programmable and programmable temperature controllers for the Warmup Undertile System.
- Warmup Insulation Board – substrate boards made from extruded polystyrene and coated both sides with a close woven fiberglass mesh embedded on a cement polymer mortar. It is available in a range of thicknesses from 6 mm to 50 mm, with widths of 600 mm or 1200 mm and lengths of 1250 mm or 2400 mm.
- Heating Cables – multi stranded single conductor, teflon insulated, full earth screen with outer PVC insulation. All heating elements are factory terminated and available in 13 different sizes. Each different element length is colour coded to ensure the correct element is used.

### Handling and Storage

5.1 Warmup Undertile Heating components must be stored inside in dry conditions.

## Technical Literature

6.1 Refer to the Appraisals Listing on the BRANZ Website for details of the current technical Literature for the Warmup Undertile Heating system. The Technical Literature must be read in conjunction with this Appraisal. All aspects of design, use, installation and maintenance covered in the Technical Literature and within the scope of this Appraisal must be followed.

## Design Information

### General

7.1 Warmup Undertile Heating is a low temperature radiant, electric floor surface warming and space heating system. It is suitable for use in most internal tiled areas of buildings where floor warming and space heating is required. It is also suitable for use in wet areas including shower areas provided a waterproofing membrane is used.

### Heating Design

7.2 Space heating design, including the layout of the electric element cables, must be carried out by Warmup New Zealand Ltd.

### Wet Area Membrane

7.3 A BRANZ appraised wet area membrane must be used in all wet areas, in accordance with the relevant requirements of NZBC E3 Internal Moisture.

### Durability

- 8.1 Under normal usage and maintenance conditions, Warmup Undertile Heating will provide a serviceable life of at least 15 years. The thermostat is readily accessible for servicing should it be required.

### Maintenance

- 8.2 No servicing of the electrical elements should be required unless damage has occurred. Should the tiling surface require repairs, Warmup New Zealand Ltd must be referred to regarding the heating element. Any electrical repairs must be carried out by a registered electrician.

### Electricity

- 9.1 Electrical components used in Warmup Undertile Heating meet the requirements of the Electricity [Safety] Regulations 2010 for electrical safety of fittings and electrical appliances.

### Energy efficiency

- 10.1 Where Warmup Undertile Heating is used as space heating in new buildings the requirements of NZBC Acceptable Solution H1/AS1 Table 3 must be complied with. This requires for climate Zones 1, 2 and 3 a thermal resistance of R 1.9 between the heated plane and the outside air. For suspended timber floors, bulk underfloor insulation can be designed to meet this requirement. For concrete slab-on-ground floors refer to BRANZ House Insulation Guide for design options.

## Installation Information

### General

- 11.1 Installation of Warmup Undertile Heating must be in accordance with this Appraisal and the Technical Literature.
- 11.2 Installation of the electrical wiring and components must be carried out by a registered electrician.

## Basis of Appraisal

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

### Tests

- 12.1 Assessment of electrical safety in compliance with AS/NZS 60335: 2002 has been carried out by UL International Ltd.

### Other Investigations

- 13.1 An assessment was made of the durability of Warmup Insulation Board and other Warmup components by BRANZ technical experts.
- 13.2 The Technical Literature including installation instructions and operation manual have been reviewed by BRANZ and found to be satisfactory.
- 13.3 Site visits were carried out to assess the practicability of installation.

### Quality

- 14.1 The manufacture of the Warmup components 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.
- 14.2 The quality of the supply to market is the responsibility of Warmup New Zealand Ltd.
- 14.3 Designers are responsible for the building design, and building contractors are responsible for the quality of the installation of the structure, framing systems and the substrates.
- 14.4 Quality of the onsite installation is the responsibility of Warmup New Zealand Ltd and their trained applicators.
- 14.5 Building owners are responsible for the maintenance of the ceramic or stone tile finish in accordance with the instructions of Warmup New Zealand Ltd and this Appraisal.
- 14.6 Electrical components that connect to mains power must be installed by a registered electrician.



### Sources of Information

- AS/NZS 1170: 2002 Structural design actions.
- AS/NZS 60335: 2002 Household and similar electrical appliances – Safety – Part 2.96: Particular requirements for flexible sheet heating elements for room heating.
- AS/NZS 3000: 2007 Australian/New Zealand Wiring Rules.
- Electricity [Safety] Regulations 2010
- NZS 3604: 2011 Timber-framed buildings.
- BRANZ House Insulation Guide, Fifth edition, 2014.
- Ministry of Business, Innovation and Employment Record of Amendments for Compliance Documents and Handbooks.
- The Building Regulations 1992.



In the opinion of BRANZ, **Warmup Undertile Heating** 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.

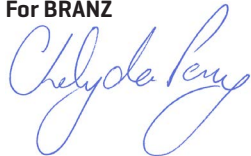
The Appraisal is issued only to **Warmup New Zealand Ltd**, and is valid until further notice, subject to the Conditions of Appraisal.

### 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. **Warmup New Zealand 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 **Warmup New Zealand 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 **Warmup New Zealand Ltd** or any third party.

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For BRANZ



**Chelydra Percy**

Chief Executive

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17 January 2017