



BRANZ Appraised

Appraisal No. 1151 [2020]

TEMPER GUARD INSULATION

Appraisal No. 1151 [2020]

Amended 29 September 2021

BRANZ Appraisals

Technical Assessments of products for building and construction.



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Product

- 1.1 Temper Guard Insulation is a range of thermal insulating materials manufactured from resin-bonded, glass wool fibres. Temper Guard Insulation is available in blanket and segment form to suit a wide range of thermal insulation requirements and framing set-outs in walls, ceilings and roofs of buildings.

Scope

- 2.1 Temper Guard Insulation has been appraised as a thermal insulating material for framed or part-framed walls, ceilings and roofs of domestic and commercial buildings.

Building Regulations

New Zealand Building Code (NZBC)

- 3.1 In the opinion of BRANZ, Temper Guard Insulation, if designed, used, 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. Temper Guard Insulation will meet these requirements. See Paragraphs 8.1 and 8.2.

Clause E3 INTERNAL MOISTURE: Performance E3.3.1. Temper Guard Insulation contributes to meeting this requirement. See Paragraphs 13.1 and 13.2.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Temper Guard Insulation meets this requirement.

Clause H1 ENERGY EFFICIENCY: Performance H1.3.1 (a) and H1.3.2 E. Temper Guard Insulation contributes to meeting these requirements. See Paragraphs 14.1 and 14.2.

Technical Specification

4.1 Temper Guard Insulation is resin-bonded, fibrous glass wool insulation manufactured of recycled and/or virgin glass, and phenol formaldehyde resin binder. Temper Guard Insulation is available as set out in Table 1.

Table 1: Temper Guard Insulation Product Range

R-value	Nominal Thickness (mm)	Width (mm)	Length (mm)	Density (kg/m ³)
Wall Blanket				
2.4	90	1,200	10,000	18
2.6	90	1,200	7,000	24
2.8	90	1,200	5,000	32
Ceiling Blanket				
2.9	125	1,200	10,000	12
3.3	145	1,200	12,000	12
3.6	155	1,200	12,000	12
4.0	175	1,200	9,000	12
Ceiling Segment				
3.6	175	430 or 580	1,200	8
4.1	195	430 or 580	1,200	8
5.2	230	430 or 580	1,200	10
6.3	260	430 or 580	1,200	12
7.3	275	430 or 580	1,200	16
Masonry Blanket				
1.0	40	1,200	30,000	13
1.3	50	1,200	15,000	16
Wall and Ceiling Segments				
2.2	90	580	1,200	12
2.6	90	580	1,200	20
2.8	90	580	1,200	32
Wall and Ceiling Blanket				
1.8	75	1,200	15,000	12
2.2	90	1,200	13,000	12
Skillion Roof				
3.2	115	430	1,200	20
3.6	140	1,200	6,500	16
4.0	140	580	1,200	24.1

[Note: Wall products, in some instances, are suitable for use in ceilings and ceiling products may be suitable for use in walls where the cavity space allows.]

- 4.2 Temper Guard Insulation is available in three colours: yellow, orange and brown.
- 4.3 All products are packaged in clear polythene, with an outer 'compression' wrap. Each packet is supplied with labelling in compliance with AS/NZS 4859.1.
- 4.4 Accessories used with Temper Guard Insulation, which are supplied by the insulation installer, are wire netting, plastic strapping and fixings.

Handling and Storage

- 5.1 Temper Guard Insulation must be stored under cover and in dry conditions. Heavy objects must not be stacked on the packs. The packs must be stored in an orientation that avoids excessive compression of the product.
- 5.2 In general, insulation products are sensitive to the length of time they are stored in compression packaging. Product that does not recover to its nominal thickness may not achieve the stated thermal resistance [R-value].

Technical Literature

- 6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for Temper Guard Insulation. 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

General

- 7.1 Temper Guard Insulation is intended for use as thermal insulation to meet the requirements of the NZBC. Temper Guard Insulation can be used to meet the minimum schedule method R-values of NZBC Verification Method H1/VM1 or NZBC Acceptable Solution H1/AS1. Greater construction R-values can be achieved where specific design is used. For construction R-values, refer to the BRANZ House Insulation Guide. Product R-values and dimensions are given in Table 1.
- 7.2 Temper Guard Insulation R-values have been determined by testing to AS/NZS 4859.1.
- 7.3 Temper Guard Insulation blanket is intended to be cut and friction-fitted between wall, ceiling or roof framing. Temper Guard Insulation can also be laid directly on a ceiling lining, over ceiling battens or joists/truss chords. In other horizontal situations, it must be adequately supported by wire netting or some other suitable durable material. Temper Guard Insulation segments are intended to be neatly friction-fitted between framing.
- 7.4 Where the insulation is installed in exterior walls, the insulation material nominal thickness must be selected to provide a snug close fit which touches all sides of the insulation cavity between the wall underlay and the interior wall lining. Temper Guard Insulation must not be compressed into cavities less than the insulations nominal thickness
- 7.5 Where the insulation is retrofitted in external walls without a wall underlay, and with direct-fix claddings, the insulation must be at least 20 mm thinner than the framing to allow a gap of at least 20 mm between the insulation and the wall cladding. Horizontal straps must be stapled into the sides of the wall studs at 300 mm centres maximum as support before the insulation is installed. Refer also to NZS 4246, Section 5.4.2.
- 7.6 When the insulation is installed in walls with a drained cavity, it is recommended that specific wall products with a controlled nominal thickness be used. Where the stud spacings are greater than 450 mm, an intermediate means of restraining the insulation from bulging into the cavity must be installed in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.5.
- 7.7 To prevent moisture transfer and to provide roof ventilation, a separation of 25 mm minimum is required between the insulation and any rigid substrate or flexible roof underlay. Selecting specifically designed skillion roof insulation products with a controlled thickness can assist with this requirement.
- 7.8 The building envelope must be constructed to ensure the insulation remains dry during installation and throughout the life of the building.
- 7.9 The clearance requirements for heating appliances and downlights must be met and reference made to the manufacturers instructions and NZS 4246. See Paragraph 10.1.

Durability

- 8.1 The durability assessment of Temper Guard Insulation to meet the requirements of the NZBC is based on the difficulty of access and replacement, and the ability to detect failure of the insulation, both during normal use and maintenance of the building.

Serviceable Life

- 8.2 Where the building is maintained so that provisions of the NZBC Clauses E2 and E3 are met, and where the insulation is not crushed or exposed to conditions that will diminish its thermal performance (e.g. moisture), then it can expect to have a serviceable life of at least 50 years.

Maintenance

- 9.1 Insulation that has become damp must be removed and the cause of dampness repaired. Cavities must be clean and dry before fitting new insulation of an equivalent thermal rating. NZS 4246 gives guidance on thermal insulation maintenance due to water damage.

Prevention of Fire Occurring

- 10.1 Separation or protection must be provided to Temper Guard Insulation from heat sources such as fireplaces, heating appliances, flues, chimneys and recessed luminaires. Part 7 of NZBC Acceptable Solution C/AS1 and C/AS2, and NZBC Verification Method C/VM1 provide methods for separation and protection of combustible materials from heat sources.

Downlights

- 10.2 Recessed luminaires shall be of the type specified and installed in accordance with NZBC Acceptable Solution C/AS1 or C/AS2, Section 7.4.
- 10.3 Insulation materials must maintain a clearance of 100 mm to undefined recessed luminaires in existing buildings.

Control of Internal Fire and Smoke Spread

- 11.1 Temper Guard Insulation has not been assessed for use in locations where a Fire Resistance Rating (FRR) is required.

External Moisture

- 12.1 The total building envelope must be weathertight and comply with the requirements of NZBC Clause E2 to ensure that the insulation remains dry in use.
- 12.2 The moisture content of the construction materials at the time of installing and enclosing the insulation must meet the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 10.2 a), or a lower moisture content if required by the lining manufacture.

Internal Moisture

- 13.1 Buildings must provide an adequate combination of thermal resistance, ventilation and space temperature to all habitable spaces, bathrooms, laundries and other spaces where moisture may be generated or may accumulate. This does not apply to Communal Non-residential, Commercial, Industrial Outbuildings or Ancillary buildings.
- 13.2 Roofs and walls of housing complying with the Schedule Method for Compliance with NZBC Clause H1.3.2 E will have adequate thermal resistance. Other buildings may require more thermal insulation to satisfy the requirements of NZBC Acceptable Solution E3/AS1 than that to satisfy the energy efficiency provisions alone.

Energy Efficiency

- 14.1 Temper Guard Insulation will contribute to meeting the requirements of NZBC Clause H1 Performance H1.3.1 (a) and H1.3.2 E by compliance with NZBC Verification Method H1/VM1 or NZBC Acceptable Solution H1/AS1. Refer to Paragraphs 7.1–7.7.
- 14.2 Temper Guard Insulation R-values have been determined by BRANZ testing to AS/NZS 4859.1 and are given in Table 1.

Installation Information

Installation Skill Level Requirements

- 15.1 All design and building work must be carried out in accordance with the Temper Guard Insulation Technical Literature and this Appraisal. All building work must be undertaken by competent and experienced tradespersons conversant with Temper Guard Insulation.

General

- 16.1 Installation of Temper Guard Insulation must be in accordance with the Technical Literature and this Appraisal. NZS 4246 should be used as a guide for installing insulation in residential buildings.
- 16.2 The product must be installed only when the building is enclosed and when the construction materials have achieved the required maximum moisture content or less.
- 16.3 Temper Guard Insulation must be released from the packaging and allowed to re-loft prior to installation. The time to loft will depend upon the length of time the product has been packaged and stored.
- 16.4 Temper Guard Insulation is supplied in blanket and segment form [see Table 1]. Blanket insulation will require cutting to suit wall cavities, and when fitted between ceiling or roof framing. In wall cavities, the insulation must be neatly friction-fitted between framing members and must completely fill the cavity to prevent possible sagging and thermal convection. In ceilings or roofs, the insulation may be neatly friction-fitted between framing members or fitted over framing members or support wire netting and butted tightly. The insulation must extend to the external wall top plates. The insulation must not be folded, tucked or compressed. A close, even fit provides the most efficient thermal performance. Wherever possible, the insulation should be fitted beneath wiring or plumbing.
- 16.5 The clearance requirements for heating appliances and downlights must be followed. Refer also to NZS 4246.

Inspections

- 16.6 The Technical Literature, this Appraisal and NZS 4246 must be referred to during the inspection of Temper Guard Insulation.

Health and Safety

- 17.1 Refer to the Technical Literature and NZS 4246 for guidance on health and safety requirements such as personal protective clothing and installation hazard assessment.

Basis of Appraisal

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

Tests

- 18.1 BRANZ has carried out thermal resistance testing of Temper Guard Insulation in accordance with AS/NZS 4859.1.

Other Investigations

- 19.1 An assessment of the durability of Temper Guard Insulation has been made by BRANZ technical experts.
- 19.2 The manufacturer's Technical Literature including installation instructions have been reviewed by BRANZ and found to be satisfactory.
- 19.3 Site inspections have been undertaken by BRANZ to assess the practicability of installation.



Quality

- 20.1 The manufacture of Temper Guard Insulation has been examined by BRANZ, including methods adopted for quality control. Details of the manufacturing processes, and quality and composition of the raw materials used were obtained and found to be satisfactory.
- 20.2 PIL Group Ltd is responsible for the quality of the product supplied.
- 20.3 Quality of installation of the product on site is the responsibility of the installer.
- 20.4 Quality of maintenance of the building to ensure the insulation material remains dry is the responsibility of the building owner.

Sources of Information

- AS/NZS 4859.1:2018 Thermal insulation materials for buildings - Part 1: General criteria and technical provisions.
- BRANZ Bulletin Number 525 Preventing moisture problems in timber-framed skillion roofs.
- BRANZ House Insulation Guide, Fifth Edition 2014.
- NZS 4214:2006 Method of determining the total thermal resistance of parts of buildings.
- NZS 4246:2016 Energy efficiency - installing bulk thermal insulation in residential buildings.
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.

Amendments

Amendment No. 1, dated 29 September 2021

This Appraisal has been amended to update the product range in Table 1 and to reflect building code updates relating to fire.



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In the opinion of BRANZ, **Temper Guard Insulation** 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 **PIL Group 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. **PIL Group 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 **PIL Group 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 **PIL Group Ltd** or any third party.

For BRANZ

Chelydra Percy

Chief Executive

Date of Issue:

09 November 2020