



BRANZ Appraised
Appraisal No. 1049 [2019]

ECOINSULATION GLASSWOOL



Appraisal No. 1049 [2019]

Amended 11 January 2023

BRANZ Appraisals

Technical Assessments of products
for building and construction.



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Product

- 1.1 **ecoinsulation** glasswool is a range of thermal insulating materials manufactured from ECOSE® Technology resin-bonded, glass wool fibres. The insulation is pre-cut to suit a range of thermal insulation requirements and framing set-outs in walls, ceilings and roofs of buildings.

Scope

- 2.1 **ecoinsulation** glasswool 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, **ecoinsulation** glasswool, 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 and B2.3.1 [b] 15 years. **ecoinsulation** glasswool meets these requirements. See Paragraphs 8.1 and 8.2.

Clause E3 INTERNAL MOISTURE: Performance E3.3.1. **ecoinsulation** glasswool contributes to meeting this requirement. See Paragraphs 13.1 and 13.2.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. **ecoinsulation** glasswool meets this requirement.

Clause H1 ENERGY EFFICIENCY: Performance H1.3.1 [a] and H1.3.2 E. **ecoinsulation** glasswool contributes to meeting these requirements. See Paragraphs 14.1 and 14.2.



Technical Specification

4.1 **eco**insulation glasswool is an ECOSE® Technology resin-bonded, fibrous glass wool insulation. It is manufactured from recycled and/or virgin glass and ECOSE® Technology resin and formed into segments, blankets and rolls. **eco**insulation glasswool is available as set out in Table 1.

Table 1: ecoinsulation glasswool product range

R-value	Nominal Thickness [mm]	Length [mm]	Width [mm]	Density [kg/m ³]
Wall Segments				
1.3	45	450	1160	20.5
2.2	90	580	1160	10.8
2.4	90	570	1160	14.6
2.6	90	430 or 580 or 600	1160	20.1
2.8	90	430 or 580	1160	30.7
4.1	140	580	1160	22.6
4.4	140	580	1160	30.7
Ceiling Segments				
3.3	155	430	1160	10.5
3.6	160	430	1160	10.0
4.2	180	430	1160	10.1
5.2	210	430	1160	11.4
6.3	275	580	1160	9.0
7.0	330	460	1160	8.0
Skillion Roof Segments				
3.2	105.0	430.0	1160.0	26.5
5.0	165.0	430.0	1160.0	29.0
6.0	215.0	430.0	1160.0	17.5
7.4	265.0	430.0	1160.0	18.0

4.2 **eco**insulation glasswool is brown in colour and is packaged in pre-printed plastic compressed bags with labelling in compliance with AS/NZS 4859.1.

4.3 Accessories used with **eco**insulation glasswool, which are supplied by the insulation installer, are plastic strapping and fixings.

Handling and Storage

5.1 **eco**insulation glasswool 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 under 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 **eco**insulation glasswool. 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** **eco**insulation glasswool is intended for use as thermal insulation to meet the requirements of the NZBC. **eco**insulation glasswool can be used to meet the minimum schedule method R-values of the NZBC Verification Methods H1/VM1, H1/VM2, NZBC Acceptable Solutions H1/AS1 or H1/AS2. 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** **eco**insulation glasswool R-values have been determined by testing to AS/NZS 4859.1.
- 7.3** **eco**insulation glasswool is designed to be friction-fitted between wall, ceiling or roof framing. It can also be laid directly on a ceiling lining, over ceiling battens, or joists/truss chords. In other horizontal situations, the insulation must be adequately supported by a suitable durable material. **eco**insulation glasswool skillion roof insulation is designed to be friction-fitted between rafters.
- 7.4** For new and existing buildings, the R7.0 ceiling product is designed to be friction-fitted between timber framing and spill above the timber framing to form a uniform insulation layer on the top.
- 7.5** When insulation is installed in a double layer over new or existing insulation, the possibility of compression of the bottom layer must be avoided or reduction of R-values for the bottom layer of the formed system must be taken into account.
- 7.6** 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.
- 7.7** Where the insulation is retrofitted in external walls without a wall underlay, and with direct-fixed 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.
- 7.8** Where the insulation is installed in a wall 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.
- 7.9** 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 the specifically designed skillion roof insulation products with a controlled thickness can assist with this requirement.
- 7.10** The building envelope must be constructed to ensure the insulation remains dry during installation and throughout the life of the building.
- 7.11** The clearance requirements for heating appliances and downlights must be met and reference made to the manufacturer's instruction and NZS 4246.

Durability

- 8.1** The durability assessment of **eco**insulation glasswool 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, **eco**insulation glasswool 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 **eco**insulation glasswool is considered a non-combustible material and need not be separated from heat sources such as fireplaces, flues and chimneys. However, when used in conjunction with or attached to heat sensitive materials, the heat sensitive material must be separated or protected from heat sources. Part 7 of NZBC Verification Method C/VM1 and Acceptable Solution C/AS1, and NZBC Acceptable Solution C/AS2 provide methods for separation and protection of combustible materials from heat sources.

Downlights

- 10.2 Recessed luminaires shall be one of the specified luminaire types and installed in accordance with NZBC Verification Method C/VM1 and NZBC Acceptable Solution C/AS1, Section 7.4.
- 10.3 Insulation materials must maintain a clearance of 100 mm to undefined recessed luminaires.

Fire Affecting Areas Beyond the Fire Source

- 11.1 **eco**insulation glasswool has a Group Number of 1-S. When used in an occupied space, **eco**insulation glasswool may or may not need to be enclosed by an internal lining, depending on the Risk Group. Refer to the relevant NZBC Acceptable Solutions C/AS1 and C/AS2 for specific internal surface finish requirements.

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 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 **eco**insulation glasswool 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 Methods H1/VM1, H1/VM2, NZBC Acceptable Solutions H1/AS1, or H1/AS2.
- 14.2 **eco**insulation glasswool R-values have been determined by BRANZ testing to AS/NZS 4859.1 and are given in Table 1.

Installation Information

Installation Skill Level Requirement

- 15.1 All design and building work must be carried out in accordance with **eco**insulation glasswool Technical Literature and this Appraisal. All building work must be undertaken by competent and experienced tradespersons conversant with **eco**insulation glasswool.

General

- 16.1 Installation of **eco**insulation glasswool 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 **eco**insulation glasswool 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 **eco**insulation glasswool is supplied in segments, blanket and roll form (Table 1) to suit framing layouts. The segment products are sized to fit between standard framing centres. The product is able to be cut to suit wall cavities and when fitted between roof or ceiling framing. The insulation must be neatly friction-fitted between framing members so that the potential for gaps and convective heat loss is reduced. In wall cavities, the insulation must be neatly friction-fitted between framing members to prevent sagging. In ceiling or roofs, the insulation may be fitted between framing members or fitted over framing members and butted tightly. The insulation must extend to the external wall top plate. The insulation must not be folded, tucked or compressed. A close, even fit provides the most efficient thermal performance. Whenever possible, the insulation should be fitted beneath wiring or plumbing.
- 16.5 For new and existing buildings, the R7.0 ceiling product is designed to be friction-fitted between timber framing and spill above the timber framing to form a uniform insulation layer on the top.
- 16.6 The clearance requirements for heating appliances, and downlights must be followed. Refer also to NZS 4246.

Inspections

- 16.7 The Technical Literature, this Appraisal and NZS 4246 must be referred to during the inspection of **eco**insulation glasswool installations.

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 **eco**insulation glasswool in accordance with AS/NZS 4859.1.
- 18.2 Tests have been carried out in accordance with AS 1530.1. The results have been reviewed by BRANZ technical experts.

Other Investigation

- 19.1 An assessment of the durability of **eco**insulation glasswool was made by BRANZ technical experts.
- 19.2 The Technical Literature has been examined by BRANZ and found to be satisfactory.
- 19.3 The fibre used to manufacture **eco**insulation glasswool is certified to the European Certification Board for Mineral Wool Products [EUCEB].



Quality

- 20.1 The manufacture of **eco**insulation glasswool 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 Eco Insulation Energy and Installation 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 1530.1:1994 Combustibility test for materials.
- AS/NZS 4859.1:2018 Thermal insulation materials for buildings.
- BRANZ Bulletin Number 610 Preventing moisture problems in timber-framed skillion roofs.
- BRANZ House Insulation Guide [Sixth Edition], 2022.
- 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 7 May 2020.

This Appraisal has been amended to update the product range in Table 1.

Amendment No. 2, dated 16 April 2021.

This Appraisal has been amended to update the Appraisal text.

Amendment No. 3, dated 11 January 2023.

This Appraisal has been amended to update the Appraisal Holder and contact details and building code updates relating to energy efficiency, as well updates to Table 1.



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12 March 2019

ECOINSULATION GLASSWOOL



In the opinion of BRANZ, **ecoinsulation glasswool** 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 **Eco Insulation Energy and Installation 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. **Eco Insulation Energy and Installation 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 **Eco Insulation Energy and Installation 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 **Eco Insulation Energy and Installation Ltd** or any third party.

For BRANZ

Chelydra Percy

Chief Executive

Date of Issue:

12 March 2019