BRANZ Appraised
Appraisal No. 873 [2016]

EARTHWOOL INSULATION

Appraisal No. 873 (2016)

This Appraisal replaces BRANZ Appraisal No. 648 [2009]

Amended 22 June 2020

BRANZ Appraisals

Technical Assessments of products for building and construction.

Knauf Insulation Pty Limited
Unit 1/44 Brothwick Avenue
Murarrie
Queensland 4172
Australia
Tel: + 61 7 3343 1989
Web: www.knaufinsulation.com.au

BRANZ
1222 Moonshine Rd,
RD1, Porirua 5381
Private Bag 50 908
Porirua 5240,
New Zealand
Tel: 04 237 1170
branz.co.nz

Product

1.1 Earthwool insulation is a range of thermal and acoustic insulating material manufactured from ECOSE Technology resin bonded glass wool fibres. The insulation is pre-cut to suit a wide range of thermal insulation requirements and framing set-outs in walls, roofs and ceilings of buildings.

Scope

2.1 Earthwool insulation has been appraised as a thermal and acoustic insulation material for framed or part-framed walls, ceilings and roofs of domestic and commercial buildings. In bushfire areas, the provisions of BCA Volume 2 Part 3.10.5 must be complied with.

Building Regulations

National Construction Code Series (NCC 2019) Building Code of Australia (BCA)

3.1 In the opinion of BRANZ, Earthwool insulation, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet the following provisions of the BCA:

BCA Volume 1 - Class 2 to 9 Buildings

Section J - Energy Efficiency: Performance Requirement JP1. Earthwool insulation will satisfy this requirement. See Paragraphs 13.1 and 13.5.

BCA Volume 2 - Class 1 and Class 10 Buildings

Part 2.6 Energy Efficiency: Performance Requirement P2.6.1. Earthwool insulation will satisfy this requirement. See Paragraphs 13.2 - 13.5.

Technical Specification

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

Table 1: Earthwool insulation product range

R-value	Nominal Thickness (mm)	Length (mm)	Width (mm)	Density (kg/m³)
Wall Batts				
1.5	75	1,160	430 or 580	8.1
2.0	90	1,160	430 or 580	9.5
2.0	75	1,160	430, 450, 580 or 600	17.3
2.1	90	1,160	580	10.8
2.5	90	1,160	430 or 580	20.3
2.7	90	1,160	430 or 580	30.7
Ceiling Batts				
3.0	145	1,160	430 or 580	7.9
3.5	175	1,160	430	7.3
3.5	175	1,200	580	7.3
4.0	195	1,160	430 or 580	7.7
5.0	210	1,160	430 or 580	11.2
6.0	275	1,160	430 or 580	9.0
Handy Rolls				
2.1	90	18,000	430 or 580	10.7
DriTherm^				
1.4	50	1,100	600	29.5
Commercial Rolls				
1.3	55	37,000	1,200	11.1
1.5	60	28,000	1,200	13.2
1.8	75	26,000	1,200	11.6
2.3	100	22,000	1,200	10.3
2.5	105	18,500	1,200	11.3
3.0	120	14,500	1,200	13.2
3.2	130	13,500	1,200	12.7

Note: ^ Products have been tested and comply with AS/NZS 4859.1: 2018. Design and installation for these products are not covered by this Appraisal. Refer to Knauf Insulation Pty Limited for further information.

4.2 Earthwool insulation is brown in colour and is packaged in pre-printed plastic compression bags with labelling in compliance with AS/NZS 4859.1.

4.3 Earthwool Acoustic insulation is available as set out in Table 2. *[Note: these products have not been tested to AS/NZS 4859.1.]*

Table 2: Earthwool Acoustic insulation product range

Nominal Thickness (mm)	Length (mm)	Width (mm)	Density (kg/m³)
Acoustic Insulation			
50	1160	430 or 580	11.0
50	2700	450 or 600	11.0
50	1160	430, 450, 580 or 600	14.0
75	1160	430 or 580	11.0
75	2700	450 or 600	11.0
75	1160	430, 450, 580, or 600	14.0
75	1200	600	14.0

4.4 Accessories used with Earthwool insulation, which are supplied by the insulation installer, are plastic strapping and fixings.

Handling and Storage

5.1 Earthwool 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 R-value.

Technical Literature

6.1 Refer to the Appraisal listing on the BRANZ website for details of the current Technical Literature for Earthwool 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 Earthwool insulation is intended for use as thermal insulation to meet the energy efficiency requirements of the BCA. Earthwool insulation can be used to meet the Deemed-to-Satisfy provisions of the BCA. Greater construction R-values can be achieved where specific design is used. Product R-values and dimensions are given in Table 1.

7.2 Earthwool insulation batt, blanket and roll products are designed to be friction-fitted between wall, ceiling or roof framing, or laid directly over the ceiling lining, ceiling battens or joist/truss chords. In other horizontal situations, the insulation must be adequately supported by a suitable durable material.

7.3 The insulation thickness should be selected to suit the framing cavity. Earthwool insulation must not be compressed into cavities less than the insulations nominal thickness. In walls the insulation should be a snug fit between the interior lining and the wall sarking. Support may be needed to prevent insulation encroaching into wall cavity spaces.

7.4 To prevent moisture transfer and provide roof ventilation, a separation of 25 mm minimum is required between the insulation and any rigid substrate or flexible roof sarking or underlay.

7.5 The building envelope must be constructed to ensure the insulation remains dry during installation and throughout the life of the building.

7.6 The clearance requirements for heating appliances and downlights must be met and reference made to the manufacturer's instructions and the BCA. See Paragraphs 10.1 and 15.6. The clearances must be taken into account in the assessment of BCA Energy Efficiency.

Sound Insulation

7.7 Earthwool Acoustic insulation can be used to contribute to the acoustic performance of existing or new constructions. The level of contribution will be dependent on the overall construction designa dn the specific acoustic properties of the insulation selected. Should a specific level of acoustic performance be required, an evaluation to confirm the acoustic performance should be undertaken by an acoustic consulation. The acoustic performance of Earthwool Acoustic insulation has not been considered by BRANZ and is outside the scope of this Appraisal. Further information regarding acoustic performance is available from Knauf Insulation Pty Ltd.

Durability

Serviceable Life

8.1 Where the building is maintained so that the Damp and Weatherproofing provisions of the BCA are met, and where the insulation is not crushed or exposed to conditions that will diminish its thermal performance, (e.g. moisture), Earthwool insulation can be expected to be fit for its intended purpose and have a serviceable life similar to other glasswool insulation products.

Maintenance

9.1 Insulation that has become damp must be removed and the cause of the dampness repaired. Cavities must be clean and dry before fitting new insulation of an equivalent thermal rating.

Fire Safety

10.1 The Technical Literature must be read for instructions on the required separation distances from sources of heat. The separation distances must be followed for compliance to the BCA.

10.2 Where Earthwool insulation is used in bushfire areas and is not protected by non-combustible building elements, consideration must be given to the provisions of BCA Volume 2 Part 3.10.5.

Damp and Weatherproofing

11.1 The total building envelope must comply with the Damp and Weatherproofing requirements of the BCA to ensure that the insulation remains dry in use.

11.2 The moisture content of the construction materials at the time of enclosing the insulation must meet the requirements of the lining manufacturer.

Internal Moisture

12.1 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.

Energy Efficiency

13.1 Earthwool insulation complies with AS/NZS 4859.1 as required by BCA Volume One Deemed-to-Satisfy Provision J1.2. Earthwool insulation satisfies BCA Volume One Performance Requirement JP1 through compliance with the Deemed-to-Satisfy Provisions of J1.1 to J1.6 where required.

13.2 Earthwool insulation complies with AS/NZS 4859.1 as required by BCA Volume Two Acceptable Construction Practice 3.12.1.1. Earthwool insulation satisfies BCA Volume Two Performance Requirement P2.6.1 through compliance with the provisions of Acceptable Construction Practice 3.12.1.1 to 3.12.1.5.

13.3 Contribution to the overall thermal performance and energy rating of houses needs to be considered. The individual thermal conductivity of the insulation contributes to the overall thermal energy rating, but thermal conductivity on its own cannot be used to determine the contribution to the overall energy rating and thermal efficiency of the house.

13.4 A thermal calculation method that complies with the ABCB Protocol for House Energy Rating Software must be used.

13.5 For details of State and Territory Variations, refer to the BCA.

Installation Information

Installation Skill Level Requirement

14.1 Installation of Earthwool insulation must be completed by an installer with an understanding of insulation installation.

General

15.1 Installation of Earthwool insulation must be in accordance with the Technical Literature, Installation Instructions and this Appraisal. AS 3999 should be used as a guide for installing insulation in residential buildings.

15.2 The product must be installed only when the building is enclosed and when construction materials have achieved the required maximum moisture content or less.

15.3 Earthwool 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.

15.4 Earthwool insulation is supplied in batt, blanket and roll form (Table 1). The batt products are sized to fit between standard framing centres. The product can be cut and fitted between framing centres to suit wall cavities and roof or ceiling framing. In wall cavities the insulation must be neatly friction-fitted between framing members to prevent sagging and thermal convection. In ceilings or roofs, the insulation must be continuous across the entire roof or ceiling plane between top plates of external walls, and fitted either between or over rafters, ceiling joists or truss chords. The insulation must be butted tightly so that the potential for gaps and convection heat loss is reduced.

15.5 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. Electrical installation requirements must be followed.

15.6 The clearance requirements for heating appliances and downlights must be followed and reference made to the BCA, local or national safety requirements.

Inspections

15.7 The Technical Literature, this Appraisal and AS 3999 must be referred to during the inspection of Earthwool insulation installations.

Health and Safety

16.1 When handling Earthwool insulation, it is recommended that installers follow the recommendations contained in the National Code of Practice for safe use of synthetic mineral fibres. A dust mask and eye protection is recommended when handling the product to provide protection from loose fibres and dust that may be disturbed. The Technical Literature contains additional health and safety information.

16.2 The fibre used to manufacture Earthwool glasswool insulation is certified to the European Certification Board for Mineral Wool Products (EUCEB).

Basis of Appraisal

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

Tests

17.1 BRANZ has carried out thermal resistance testing of Earthwool insulation in accordance with AS/NZS 4859.1.

17.2 Tests have been carried out in accordance with AS 1530.1. Earthwool insulation is not deemed combustible according to the test criteria. The results have been reviewed by BRANZ technical experts.

Other Investigations

18.1 An assessment of the durability of Earthwool insulation has been made by BRANZ technical experts.

18.2 The manufacturer's Technical Literature and Installation Instructions have been reviewed by BRANZ and found to be satisfactory.

Quality

19.1 The manufacture of Earthwool 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.

19.2 Knauf Insulation Pty Limited is responsible for the quality of the product supplied.

19.3 Quality of installation of the product on site is the responsibility of the installer.

19.4 Maintenance of the building is the responsibility of the building owner.

Sources of Information

- AS 1530.1: 1994 Combustibility test for materials.
- AS 3999: 2015 Bulk thermal insulation - Installation.
- AS/NZS 4859.1: 2018 Materials for the thermal insulation of buildings.
- BRANZ House Insulation Guide, Fifth Edition 2014.
- National Construction Code Series, Building Code of Australia 2019, Australian Building Codes Board.

Amendments

Amendment No. 1, dated 22 June 2020.

This Appraisal has been amended to update the product range in Table 1, and to include the Earthwool Acoustic Insulation range in Table 2. This Appraisal has also been amended to update the references to the Building Code of Australia from 2016 to 2019.

BRANZ

In the opinion of BRANZ, Earthwool 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 Knauf Insulation Pty 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. Knauf Insulation Pty 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 Knauf Insulation Pty 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 Knauf Insulation Pty Limited or any third party.

For BRANZ

Chelydra Percy
Chief Executive

Date of Issue:
01 December 2016