



BRANZ Appraised

Appraisal No. 301 [2016]

BRADFORD™ GOLD INSULATION

Appraisal No. 301 [2016]

This Appraisal replaces BRANZ Appraisal No. 301 [2008].



BRANZ Appraisals

Technical Assessments of products for building and construction.



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Product

- 1.1 Bradford™ Gold Insulation is a resin bonded fibrous glass insulating material for use in framed walls, ceilings and roofs of buildings. Bradford™ Gold Insulation is pre-cut to suit a range of framing spacings.

Scope

- 2.1 Bradford™ Gold Insulation has been appraised as a thermal insulation 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, Bradford™ Gold Insulation is 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. Bradford™ Gold Insulation will meet this requirement. See Paragraph 8.1.

Clause E3 INTERNAL MOISTURE: Performance E3.3.1. Bradford™ Gold Insulation will contribute to meeting this requirement. See Paragraphs 13.1 and 13.2.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Bradford™ Gold Insulation meets this requirement and will not present a health hazard to people.

Clause H1 ENERGY EFFICIENCY: Performance H1.3.1(a) and H1.3.2 E. Bradford™ Gold Insulation will contribute to meeting these requirements. See Paragraphs 14.1 and 14.2.

Technical Specification

4.1 Bradford™ Gold Insulation is a resin bonded fibrous glass insulation manufactured from recycled and/or virgin glass and phenol-formaldehyde resin. Bradford™ Gold Insulation is available as set out in Table 1.

Table 1: Bradford™ Gold Insulation Product Range

R-value	Nominal Thickness [mm]	Width [mm]	Length [mm]	Nett Area [m ²]	Density [kg/m ³]
Wall Segments					
1.8	90	580	1160	14.8	8.5
2.2	90	580	1160	10.8	12.6
2.4	90	580	1160	6.7	18.9
2.6	90	580	1160	5.4	24.0
2.8	90	580	1160	3.4	34.0
3.5	140	580	1160	6.7	13.6
Ceiling Segments					
1.8	95	430	1160	12.0	7.1
2.2	115	430	1160	12.0	7.8
2.7	145	430	1160	9.9	7.3
3.2	165	430	1160	8.0	7.8
3.6	185	430	1160	7.0	8.0
4.0	215	430	1160	6.0	7.3
5.0*	210	430	1160	4.0	13.4
6.0*	260	430	1160	3.0	12.6
Blanket					
1.3	60	1200	30,000	36.0	9.8
1.8	80	1200	15,000	18.0	11.3
2.2	90	1200	15,000	18.0	11.3
2.3	100	1200	15,000	18.0	11.3
2.6	120	1200	10,000	12.0	10.1
2.9	115	1200	8000	9.6	13.5
3.2	145	1200	10,000	12.0	10.8
3.2	145	1200	6000	7.2	10.8

*Bradford™ Gold High Performance Insulation

4.2 Bradford™ Gold Insulation is straw coloured and is packaged in yellow and green compression packaging or gold and green compression packaging for the Bradford™ Gold High Performance range. Each package is supplied with labelling in compliance with AS/NZS 4859.1.

4.3 Accessories used with Bradford™ Gold Insulation, which are supplied by the insulation installer, are plastic strapping and fixings.

Handling and Storage

5.1 Bradford™ Gold 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 Appraisals listing on the BRANZ website for details of the current Technical Literature for Bradford™ Gold 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.

Design Information

General

- 7.1 Bradford™ Gold Insulation is intended for use as thermal insulation to meet the requirements of the NZBC. Bradford™ Gold 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 BRANZ House Insulation Guide. Product R-values and dimensions are given in Table 1.
- 7.2 Bradford™ Gold Insulation thermal resistance [R-value] has been determined by testing to AS/NZS 4859.1, which is an acceptable method in NZBC Acceptable Solution H1/AS1.
- 7.3 Bradford™ Gold Insulation is intended to be friction-fitted between wall, ceiling or roof framing. Bradford™ Gold Insulation can also be laid directly over ceiling lining, over ceiling battens or joists/truss chords. In other horizontal situations, it must be adequately supported by galvanised wire netting or some other suitable durable material.
- 7.4 Where the insulation is installed in exterior walls, the thickness of the insulation material 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.
- 7.5 When 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.
- 7.6 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.
- 7.7 The building envelope must be constructed to ensure the insulation remains dry during installation and throughout the life of the building.
- 7.8 The clearance requirements for heating appliances and downlights must be met and reference made to the manufacturer's instructions and NZS 4246. See Paragraph 10.1 - 10.3.

Durability

Serviceable Life

- 8.1 Where the building is maintained so that provisions of the NZBC E2 and E3 Clauses are met, and where the insulation is not crushed or exposed to conditions that will diminish its thermal performance, Bradford™ Gold Insulation 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 Bradford™ Gold Insulation from heat sources such as fire places, heating appliances, flues and chimneys. Refer to Part 7 of NZBC Acceptable Solution C/AS1 to C/AS6 and NZBC Verification Method C/VM1.

Downlights

- 10.2 Recessed luminaries should be of type and be installed in accordance with NZBC Acceptable Solutions C/AS1 to C/AS6, Section 7.4.

- 10.3 Insulation materials must maintain a clearance of 100 mm to undefined recessed luminaries in existing buildings.

Control of Internal Fire and Smoke Spread

- 11.1 The completed wall and ceiling system, including the surface lining product enclosing the Bradford™ Gold Insulation from the adjacent occupied space, must achieve the Group Number for internal surface finish requirements as specified in the relevant NZBC Acceptable Solutions C/AS1 to C/AS6.

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 manufacturer.

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 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 Bradford™ Gold 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 Solutions H1/AS1. Refer to Paragraphs 7.1 - 7.7.
- 14.2 Bradford™ Gold 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 Installation of Bradford™ Gold Insulation must be completed by an installer with an understanding of insulation installation.

General

- 16.1 Installation of Bradford™ Gold 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 Bradford™ Gold 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 Bradford™ Gold Insulation are supplied in segment and blanket forms [see Table 1] to suit framing layouts. 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 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 Bradford™ Gold Insulation 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 Bradford™ Gold Insulation in accordance with AS/NZS 4859.1.

Other Investigation

19.1 An assessment of the durability of Bradford™ Gold 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.

Quality

20.1 The manufacture of Bradford™ Gold 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 CSR Bradford Insulation is responsible for the quality of the product supplied.

20.3 Quality of the 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: 2002 Materials for the thermal insulation of buildings.
- NZS 4246: 2016 Energy efficiency - Installing bulk thermal insulation in residential buildings.
- BRANZ House Insulation Guide, Fifth Edition 2014.
- Compliance Document for New Zealand Building Code Energy Efficiency Clause H1, Department of Building and Housing, Third Edition, October 2007 [including Amendment 2, October 2011].
- Ministry of Business, Innovation and Employment Record of Amendments for Compliance Documents and Handbooks.
- The Building Regulations 1992.



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BRANZ

In the opinion of BRANZ, **Bradford™ Gold 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 **CSR Bradford Insulation**, 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. **CSR Bradford Insulation:**
 - 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 **CSR Bradford Insulation**.
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 **CSR Bradford Insulation** or any third party.

For BRANZ

Chelydra Percy

Chief Executive

Date of Issue:

09 December 2016