

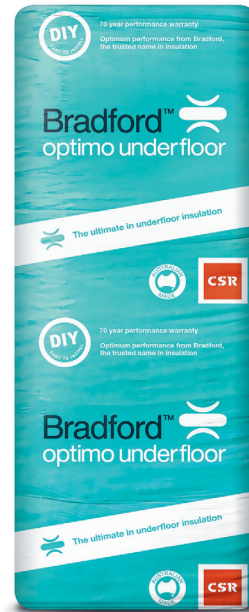


BRANZ Appraised
Appraisal No. 1094 [2020]

BRADFORD™ OPTIMO™ UNDERFLOOR INSULATION

Appraisal No. 1094 [2020]

Amended 08 December 2022



BRANZ Appraisals

Technical Assessments of products
for building and construction.



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Product

- 1.1 Bradford™ Optimo™ Underfloor Insulation is a high-density, resin-bonded, fibrous glass wool insulation, for use with suspended timber-framed floors. It is available in two R-values; R1.6 and R2.6, and two widths to fit standard floor joist spacings.

Scope

- 2.1 Bradford™ Optimo™ Underfloor Insulation has been appraised as a thermal insulating material for use with existing suspended timber-framed floors in new or existing domestic and commercial buildings.
- 2.2 Bradford™ Optimo™ Underfloor Insulation is suitable for use under floors which have an enclosed perimeter foundation as defined in NZS 4246. Bradford™ Optimo™ Underfloor Insulation can also be used in exposed subfloors when suitable lining material is used.

Building Regulations

New Zealand Building Code (NZBC)

- 3.1 In the opinion of BRANZ, Bradford™ Optimo™ Underfloor 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: B2.3.1 (b) not less than 15 years and B2.3.1 (c) 5 years. Bradford™ Optimo™ Underfloor Insulation meets these requirements. See Paragraphs 8.1 and 8.2.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Bradford™ Optimo™ Underfloor Insulation meets this requirement.

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

Technical Specification

4.1 Bradford™ Optimo™ Underfloor Insulation is a high-density, resin-bonded, fibrous glass wool insulation manufactured from recycled and/or virgin glass and resin. Bradford™ Optimo™ Underfloor Insulation is formed into segments and is available as set out in Table 1.

Table 1: Bradford™ Optimo™ Underfloor Insulation product range.

R-value	Nominal Thickness [mm]	Length [mm]	Width [mm]	Density [kg/m ³]
1.6	70	1,160	415 or 565	10.8
2.6	90	1,160	415 or 565	24.2

4.2 Bradford™ Optimo™ Underfloor Insulation is straw in colour and packaged in branded blue polythene bags with labelling in compliance with AS/NZS 4859.1.

4.3 Accessories used with Bradford™ Optimo™ Underfloor Insulation, which are supplied by the insulation installer, are Optimo™ Straps and nails or screws.

Handling and Storage

5.1 Bradford™ Optimo™ Underfloor 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 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 This Appraisal must be read in conjunction with:

- Bradford™ Optimo™ Underfloor Insulation Technical Data Sheet *[Note: Saddle system is excluded from this Appraisal.]* Revision level C, May 2020.
- Bradford™ Underfloor Insulation Installation Instructions, undated.
- Bradford™ Optimo™ Underfloor Insulation installation instructions [on bags]. *[Note: Installing Optimo™ using the saddle option [new build] is excluded from this Appraisal.]* 9558 Optimo BOP, 21 March 2016.

6.2 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 Bradford™ Optimo™ Underfloor Insulation is intended for use as thermal insulation to meet the requirements of the NZBC. Bradford™ Optimo™ Underfloor Insulation 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 Bradford™ Optimo™ Underfloor Insulation R-values have been determined by testing to AS/NZS 4859.1.

7.3 Bradford™ Optimo™ Underfloor Insulation is designed to be friction-fitted between floor joists in suspended timber-framed floors in new and retrofit installations, and must be supported with Optimo™ Straps. The sections are supplied in two widths to suit floor joist spacing.



- 7.4 Bradford™ Optimo™ Underfloor Insulation is suitable for use under floors which have an “enclosed perimeter foundation” as defined by NZS 4246. Where the subfloor area is not enclosed and subject to wind, such as in pole houses and raised floors, the insulation shall be protected by a suitable lining material.
- 7.5 The building envelope must be constructed to ensure that 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 NZS 4246.

Durability

- 8.1 The durability assessment of Bradford™ Optimo™ Underfloor Insulation to meet the requirements of the NZBC is based on 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 the 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, Bradford™ Optimo™ Underfloor Insulation is expected 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. Flooring and framing must be clean and dry before fitting new insulation with 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 the Bradford™ Optimo™ Underfloor Insulation from heat sources such as heating appliances and light fittings. Part 7 of NZBC Verification Method C/VM1 and Acceptable Solution C/AS1, and 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 Bradford™ Optimo™ Underfloor Insulation has not been assessed for use in locations where 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 flooring 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.

Energy Efficiency

- 14.1 Bradford™ Optimo™ Underfloor Insulation will contribute to meeting the requirements of NZBC Clause H1 Performance H1.3.1 (a) and H.3.2 E by compliance with NZBC Verification Methods H1/VM1, H1/VM2, NZBC Acceptable Solutions H1/AS1 or H1/AS2. Refer to Paragraphs 7.1-7.6.
- 14.2 Bradford™ Optimo™ Underfloor 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 Requirement

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

General

- 16.1 Installation of Bradford™ Optimo™ Underfloor 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 Bradford™ Optimo™ Underfloor Insulation 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™ Optimo™ Underfloor 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™ Optimo™ Underfloor Insulation is installed friction-fitted between the floor joists of timber-framed floors. The installation is critical so that the potential for gaps and convective heat loss is reduced. Bradford™ Optimo™ Underfloor Insulation Technical Literature must be referred to for installation details.
- 16.5 Optimo™ Straps are fixed to the timber joists at no greater than 500 mm, and are then swivelled to run in parallel to the joists. Bradford™ Optimo™ Underfloor Insulation is friction-fitted between the floor joists and the Optimo™ Straps are swivelled 90° so the strap extends into the floor cavity between the floor joists. The straps are then bent upwards to support the insulation, and the fixing of the strap is tightened.
- 16.6 A minimum of 100 mm gap must be maintained between Bradford™ Optimo™ Underfloor Insulation and plumbing downpipe work. This gap will also ensure that there is adequate access for servicing.
- 16.7 The clearance requirements for heating appliances and downlights must be followed. Refer also to NZS 4246.

Inspections

- 16.8 The Technical Literature, this Appraisal and NZS 4246 must be referred to during the inspection of Bradford™ Optimo™ Underfloor 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 investigation carried out:

Tests

- 18.1 BRANZ has carried out thermal resistance testing of Bradford™ Optimo™ Underfloor Insulation in accordance with AS/NZS 4859.1.

Other Investigations

- 19.1 An assessment of the durability of Bradford™ Optimo™ Underfloor Insulation has been made by BRANZ technical experts.
- 19.2 Site inspections were carried out by BRANZ to examine the practicability of installation.
- 19.3 The manufacturer's Technical Literature has been reviewed by BRANZ and found to be satisfactory.

Quality

- 20.1 The manufacture of Bradford™ Optimo™ Underfloor 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 Building Products (NZ) 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 remains dry and in place is the responsibility of the building owner.

Sources of Information

- AS/NZS 4859.1:2018 Thermal insulation materials for buildings.
- BRANZ House Insulation Guide [Sixth Edition], 2022.
- NZS 4246:2016 Energy efficiency - Installing bulk thermal insulation in residential buildings.
- Ministry of Business, Innovation and Employment Records of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.

Amendments

Amendment No. 1, dated 01 November 2021.

This Appraisal has been amended to reflect building code updates relating to fire.

Amendment No. 2, dated 08 December 2022.

This Appraisal has been amended to reflect building code updates relating to energy efficiency.



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15 September 2020

BRADFORD™ OPTIMO™
UNDERFLOOR INSULATION



In the opinion of BRANZ, **Bradford™ Optimo™ Underfloor 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 Building Products [NZ] 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. **CSR Building Products [NZ] 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 **CSR Building Products [NZ] 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 **CSR Building Products [NZ] Ltd** or any third party.

For BRANZ

Chelydra Percy

Chief Executive

Date of Issue:

15 September 2020