



BRANZ Appraised

Appraisal No.620 [2008]

BRANZ Appraisals

Technical Assessments of products
for building and construction

BRANZ APPRAISAL No. 620 (2008)

Amended 1 October 2008.

NOVAFLOOR POLYESTER THERMAL INSULATION

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Product

Novafloor is a medium density polyester fibre insulation used as an underfloor thermal insulating material in buildings.

The insulation is pre-cut to suit a wide range of floor joist spacings.

NOVAFLOOR



insulation help-line 0800 100 007 www.novatherm.co.nz

polyester insulation

Scope

2.1 Novafloor has been appraised as a thermal insulation material for under floors of buildings within the following scope:

- timber framed floors in new or existing domestic and commercial buildings; and,
- installed where the insulation remains dry during its serviceable life.

2.2 Novafloor must be installed in accordance with the manufacturer's Technical Literature to meet the stated thermal performance rating of the insulation. See Paragraph 6.1.

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, Novafloor 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. Novafloor will meet these requirements. See Paragraph 8.1.

Clause E3 INTERNAL MOISTURE: Performance E3.3.1. Novafloor will contribute to meeting this requirement. See Paragraph 12.1.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Novafloor 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. Novafloor will contribute to meeting these requirements. See Paragraphs 13.1 – 13.8.

3.2 This is an Appraisal of an **Acceptable Solution** in terms of New Zealand Building Code compliance. Novafloor thermal resistance (R-Value) has been determined by testing to AS/NZS 4859.1 which is an acceptable method.

Technical Specification

4.1 Novafloor is manufactured from non-woven thermally bonded polyester fibres. The fibres are blended, carded and thermally bonded to produce blankets, which are machine slit to the required width and cut to length. The strips and packers are then packed into plastic bags.

4.2 Novafloor pre-cut sizes - all strips and packers are a nominal 55 mm in thickness and are 1.2 m in length. The strips supplied at nominal widths to suit a wide range of floor joist spacings. Novafloor packers are supplied at a nominal width of 200 mm.

4.3 Novafloor insulation is off-white / grey in colour and is packaged in a clear plastic packaging.

4.4 Novafloor has a nominal R-Value of R1.4 and each packet is supplied with labelling in compliance with AS/NZS 4859.1.

Handling and Storage

5.1 Novafloor 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. The longer they are stored, the longer it will take for them to recover to their natural loft after unpacking.

5.3 Although the recovery is accelerated by temperatures above 35°C, Novafloor may not recover its full loft, and therefore may not achieve its R-value, if it is stored for more than 6 months in its compression pack.

Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for Novafloor. 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 Novafloor is designed to be used as thermal insulation to meet the energy efficiency and other NZBC insulation requirements, or to provide greater ratings when required by the designer, when installed in buildings as underfloor insulation.

7.2 The building envelope must be constructed to ensure the insulation remains dry during installation and throughout the life of the building. Where exposed to high winds, underfloors must be lined.

7.3 Novafloor is intended to be friction fitted between floor joists in new or existing buildings. The strips are supplied in sizes and thicknesses for this purpose. Novafloor **must not** be mechanically fixed.

7.4 The R-value of 1.4 m² °C/W is designed to meet the minimum requirements of NZS 4218.

7.5 The clearances specified in the installation instructions, or specified by the manufacturer of heating appliances and floor vent openings must be adhered to. This factor must be taken into account in the assessment of compliance with NZBC Clause H1 Energy Efficiency.

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 (e.g. moisture), then it can expect to have a serviceable life of at least 50 years. Novafloor must be installed in dry, protected construction spaces.

Maintenance

9.1 The building must be maintained weatherproof at all times. If, during normal routine maintenance it is discovered that moisture has entered the building envelope, or that dampness has occurred because of leaking plumbing or some other source, then that source must be repaired immediately. Wet or damp insulation must be removed and then replaced with new insulation of an equivalent thermal rating. Spaces must be clean, dry and free of all contaminants and mould before fitting new insulation. NZS 4246 Paragraph 3.3 gives guidance on thermal insulation maintenance due to water damage.

Outbreak of Fire

10.1 Novafloor must be separated or protected from sources of heat such as chimneys, fireplaces, flues and fuel burning appliances in accordance with the requirements of NZBC Acceptable Solution C/AS1 Part 9.

External Moisture

11.1 The total building envelope must comply with the requirements of NZBC Clause E2 to ensure that the insulation remains dry in use.

11.2 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 11.2(a), or a lower moisture content if required by the flooring manufacturer.

Internal Moisture

12.1 Buildings other than Communal Non-residential, Commercial, Industrial, Outbuildings or Ancillary buildings, must be constructed with an adequate combination of thermal resistance, ventilation, and space temperature provided to all habitable spaces, bathrooms, laundries and other spaces where moisture may be generated or may accumulate.

Energy Efficiency

Building Thermal Envelope

13.1 NZBC Verification Method H1/VM1 can be used for Housing, Communal Residential, Communal Non-residential and Commercial buildings.

Modelling of Housing and Smaller Buildings

13.2 The modelling method described in NZS 4218 Section 3.3 (as modified by NZBC Verification Method H1/VM1 Paragraphs 1.1.2 and 1.1.3) is a Verification Method for NZBC Clause H1.3.1(a) for the following types of buildings:

- a) Housing, regardless of total floor area (the method is also a means of compliance with Clause H1.3.2 E, which applies only to housing), and
- b) Small buildings other than housing having a net lettable area no greater than 300 m².

Building Performance Index for Housing

13.3 Compliance with NZBC Clause H1.3.2 E (Building Performance Index or BPI) satisfies Clause H1.3.1(a).

Modelling of Large Buildings Other Than Housing

13.4 The modelling method described in NZS 4243.1 Section 4.4 is a Verification Method for NZBC Clause H1.3.1(a) for buildings other than Housing having a net lettable area greater than 300 m².

Determining Thermal Resistance

13.5 The thermal resistance (R-values) of building elements may be verified by using NZS 4214.

The BRANZ 'House Insulation Guide' Third Edition provides thermal resistances of common building elements and is based on calculations from NZS 4214.

Building Thermal Envelope

13.6 NZBC Acceptable Solution H1/AS1 can be used for Housing, Communal Residential, Communal Non-Residential and Commercial buildings.

Housing and Small Buildings

13.7 Construction in accordance with NZS 4218 Sections 3.1 or 3.2 (as modified by NZBC Acceptable Solution H1/AS1 Paragraphs 2.1.3 and 2.1.4) satisfies NZBC H1.3.1 (a) for housing of any size and all buildings having a net lettable area no greater than 300 m².

13.8 Construction in accordance with NZS 4218 sections 3.1 or 3.2 (as modified by NZBC Acceptable Solution H1/AS1 Paragraphs 2.1.3 and 2.1.4) satisfies NZBC H1.3.2 E for housing of any size, including the external walls of multi-unit dwellings. (Note that common walls between household units of multi-unit dwellings need not comply with NZS 4218.)

Installation Information

Installation Skill Level Requirements

14.1 Installation of Novafloor must be completed by an installer with an understanding of insulation installation, in accordance with the instructions given within the Technical Literature, Installation Instructions and this Appraisal.

General

15.1 Installation of Novafloor must be in accordance with the manufacturer's Technical Literature, Installation Instructions and this Appraisal. NZS 4246 should be used as a guide for installing insulation in residential buildings. Novafloor is not designed to be mechanically fastened and must be cut with specialised tooling.

15.2 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, to ensure the insulation does not become wet.

15.3 Novafloor is installed by friction fitting the insulation strips between the floor joists. A long edge of the Novafloor strip is first held against the internal corner formed by the joist and floor junction. The body of the Novafloor strip is then press fit hard up under the floor. The trailing (opposite from the first long edge) edge is folded down so that the friction fit is complete. The folded edge can be up to 75mm long without compromising the thermal performance of the Novafloor. There must be no gaps between subsequent installed strips otherwise the thermal performance will be compromised.

15.4 When fitting Novafloor into floor joist spans wider than the Novafloor strips, place a Novafloor packer against the inside edge of a floor joist, butt the edge of the Novafloor strip against

the edge of the Novafloor strip, then pressure fit the body of the Novafloor strip hard up under the floor, folding the trailing edge down.

15.5 Where a single joist thickness becomes a double joist thickness, make a right angle cut and fit the Novafloor strip.

15.6 Where Novafloor is installed in a brick veneer building or a building with ventilated cavity in walls, fit the Novafloor sheets to the last exterior floor joist. Do not insulate over the ventilated cavity as it may undermine air circulation and result in excessive moisture in the wall.

15.7 A minimum 100 mm gap must be maintained between plumbing pipe work and fittings and the Novafloor blanket in case there are water leaks. This gap will also ensure there is adequate access for a serviceman repairing damaged pipes and fittings.

Inspections

15.8 The Technical Literature must be referred to during the inspection of Novafloor installations.

Health and Safety

16.1 Novafloor is easy to handle. NZS 4246 gives guidance for 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

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

Other Investigations

18.1 An assessment of the durability of Novafloor 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.

18.3 Site inspections have been undertaken by BRANZ to assess the practicability of installation.

Quality

19.1 The manufacture of Novafloor 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 Insulpro Manufacturing (NZ) Ltd 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 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.
- BRANZ House Insulation Guide, Third Edition 2007.
- NZS 4218: 2004 Energy efficiency – housing and small building envelope.
- NZS 4243: 1996 Energy efficiency – large buildings.
- NZS 4246: 2006 Energy efficiency – Installing Insulation In Residential Buildings.
- Compliance Document for New Zealand Building Code Energy Efficiency Clause H1, Department of Building and Housing, Third Edition, August 2007.
- New Zealand Building Code Handbook and Approved Documents, Department of Building and Housing May 2007.
- The New Zealand Building Regulations 1992, up to, and including June 2007 Amendment.



BRANZ

In the opinion of BRANZ, Novafloor Polyester Thermal 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 Insulpro Manufacturing (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. [Insulpro Manufacturing \(NZ\) 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.
3. 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.
4. 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 [Insulpro Manufacturing \(NZ\) Ltd](#).
5. 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.
6. BRANZ provides no certification, guarantee, indemnity or warranty, to [Insulpro Manufacturing \(NZ\) Ltd](#) or any third party.

For BRANZ

P Burghout
Chief Executive

Amendment No. 1, dated 1 October 2008.

The Appraisal has been amended to update reference to NZBC Clause H1 made effective 30 September 2008.

Date of issue: 8 September 2008