



BRANZ Appraised

Appraisal No.430 [2008]

BRANZ Appraisals

Technical Assessments of products
for building and construction

**BRANZ
APPRAISAL
No. 430 (2008)**

This Appraisal replaces BRANZ
Appraisal No. 430 (2003) dated
14 November 2003.

Amended 22 June 2011.

**NOVATHERM
POLYESTER THERMAL
INSULATION**

Insulpro Manufacturing Ltd

PO Box 204 289

Highbrook

Auckland

Tel: 09 273 2308

Insulation Helpline: 0800 100 007

Fax: 09 273 2309

Email: info@insulpro.co.nz

Web: www.insulpro.co.nz



BRANZ

BRANZ Limited
Private Bag 50 908
Porirua City
New Zealand
Tel: +64 4 237 1170
Fax: +64 4 237 1171
www.branz.co.nz



Product

1.1 Novatherm is a range of polyester fibre insulation used as thermal and acoustic insulating material in walls, roofs and ceilings of buildings.

InsulPro

NOVATHERM

creating better environments



Scope

2.1 Novatherm has been appraised as thermal and acoustic insulating material in walls, roofs and ceilings of buildings within the following scope:

- framed or part-framed domestic and commercial buildings where the insulation remains dry during its serviceable life.

2.2 Novatherm must be installed in accordance with the relevant requirements of NZS 4246, the Technical Literature and this Appraisal, 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, Novatherm 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. Novatherm will meet this requirement. See Paragraph 8.1.

Clause E3 INTERNAL MOISTURE: Performance E3.3.1. Novatherm will contribute to meeting this requirement. See Paragraphs 12.1 – 12.2.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Novatherm 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. Novatherm 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. Novatherm thermal resistance (R-Value) has been determined by AS/NZS 4859.1 which is an acceptable method.

Technical Specification

Polyester Insulation

4.1 Novatherm 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 blankets are then compression packed into plastic bags.

4.2 The product is available as set out in Table 1.

Table 1: Product Range

Product	R Value	Size W x L (mm)	Nominal Thickness (mm)	Rolls per pack	Density kg/m ³	m ² /pack	Pack weight (Kg)
Ceiling	R1.8	870 x 11490	115	2	7.82	20	18
	R2.6	870 x 8620	175	2	7.14	15	18.75
	R2.8	870 x 8620	175	2	8.0	15	21
	R2.9	870 x 8620	185	2	7.6	15	21
	R3.2	870 x 8620	200	2	8.0	15	24
	R3.6	870 x 7470	225	2	6.9	15	23.4
Wall	R2.0	580 x 12930	90	2	16.7	15	22.5
	R2.2	580 x 8620	90	2	21.7	10	19.5
	R2.5	580 x 10000	90	1	35.0	5.8	18.27

Note: Insulation must not be fitted into sealed cavities that are less than the labeled insulation nominal thickness.

4.3 Novatherm Insulation is white in colour and is packaged in a double layer clear tube compression packaging.

Each packet is supplied with labelling in compliance with AS/NZS 4859.1

4.4 Accessories used with Novatherm which are supplied by the Insulation Installer are :

- Plastic strapping – Where plastic strapping is used to control the insulation material from movement that would affect the performance of the thermal insulation, strapping that meets the requirements of NZBC Clause B2 DURABILITY: Performance B2.3.1(a) 50 years, must be used.
- Plastic strapping fixings – Plastic strapping fixings such as hot dipped galvanised clouts or zinc plated staples that meet the requirements of NZBC Clause B2 DURABILITY: Performance B2.3.1(a) 50 years.

Handling and Storage

5.1 Novatherm 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.

Design Information

General

7.1 Novatherm Insulation 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 building walls, roofs, ceilings and floors.

7.2 The building envelope must be constructed to meet the requirements of the NZBC. The insulation must remain dry during installation and throughout the life of the building.

7.3 To prevent moisture transfer to Novatherm Insulation, a separation (minimum 25 mm) is required between Novatherm Insulation and any flexible roof underlay. Where there is a rigid sheathing or roofing substrate such as plywood, provided there is no design requirement for roof space ventilation, a separation between Novatherm Insulation and the sheathing or substrate is not required.

7.4 The clearances specified in the installation instructions, or specified by the manufacturer of heating appliances and recessed light fittings must be met. The use of recessed light fittings may, therefore, reduce the thermal performance of insulated ceilings. This factor must be taken into account in the assessment of compliance with NZBC Clause H1 Energy Efficiency.

7.5 Where the insulation material is not laid directly on a ceiling lining or over ceiling battens or joists, it must be adequately supported by galvanised wire netting or some other suitable corrosion resistant material. This applies to commercial buildings.

7.6 When the insulation is installed in a wall with a drained cavity 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.

Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for Novatherm. 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.

7.7 Where the insulation is installed in exterior walls, it is preferable for the insulation material nominal thickness to be selected to provide a snug close fit of the insulation between building wrap and the interior wall lining (reference note Paragraph 4.2).

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), and where the material is accessible then Novatherm can expect to have a serviceable life of at least 15 years. Novatherm can also expect to have a serviceable life of 50 years when installed in dry, non-accessible enclosed construction cavities.

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. Cavities 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 Novatherm 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 E2 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 NZBC Acceptable Solution E2/AS1, or lower moisture content if required by the lining 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 must be provided to all habitable spaces, bathrooms, laundries and other spaces where moisture may be generated or may accumulate.

12.2 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 E3/AS1 than that to satisfy the energy efficiency provisions alone.

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 4243:2007 parts 1 and 2 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' Fourth 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 Novatherm 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 Novatherm must be in accordance with the manufacturer's Technical Literature, Installation Instructions and this Appraisal. Installation is to be carried out by trained installers only. NZS 4246 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 the construction materials have achieved the required maximum moisture content or less, to ensure the insulation does not become wet.

15.3 After release from the packaging, and its installation, Novatherm will require some time to fully re-loft to its correct thickness. The time taken to completely loft will depend upon the length of time the product has been packaged and stored and the ambient temperature.

15.4 Novatherm is manufactured in roll sizes to allow product to be torn to length to suit wall floor and ceiling framing spaces. (See Table 1)

15.5 Novatherm tears across the roll to fit into cavities where required.

15.6 Where Novatherm is cut to fit wall cavities, the wall cavities must be completely filled to prevent sagging and thermal convection.

15.7 The insulation must be neatly fitted between framing members and linings and staple fixed so that the potential for gaps and convective heat loss is reduced. The material must not be folded, tucked or compressed. A close, even fit provides the most efficient thermal performance.

15.8 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. Wherever possible the insulation should be fitted beneath wiring or plumbing.

Recessed Light fittings

15.9 The use of recessed light fittings installed as down-lights in insulated ceilings or roof-spaces is not recommended. Down-lights cannot be covered with insulation. Where they are present, the thermal performance of the ceilings/roofspaces will be reduced, and the overheating risk of materials in the ceiling will be increased. Compensation for the gaps required around lights must be made in order to meet the requirements of clause H1. A minimum clearance of 100 mm between down-lights and insulation must be maintained unless the manufacturer of the down-light can verify a lesser clearance is appropriate.

Inspections

15.10 The Technical Literature, NZS 4246 and this Appraisal must be referred to during the inspection of Novatherm installations.

Health and Safety

16.1 Novatherm is safe to handle without protective clothing. However, it is recommended that a dust mask and eye protection be worn when installing the product to provide protection from dust that may be disturbed.

Quality

19.1 The manufacture of Novatherm 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 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, Department of Building and Housing, Third Edition, September 2010.
- The New Zealand Building Regulations 1992, up to, and including June 2007 Amendment.

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 Novatherm in accordance with AS/NZS 4859.1: 2002.

Other Investigations

18.1 An assessment of the durability of Novatherm 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.



BRANZ

In the opinion of BRANZ, **Novatherm 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 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 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 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 Ltd** or any third party.

For BRANZ

C Preston
Chief Executive

Date of issue: 31 March 2008

Amendment No. 1, dated 1 October 2008.

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

Amendment No. 2, dated 23 December 2009.

The Appraisal has been amended to update the product range table.

Amendment No. 3, dated 25 May 2011.

The Appraisal has been amended to remove floors and update the product range.

Amendment No. 4, dated 22 June 2011.

The Appraisal has been amended to update the product range.