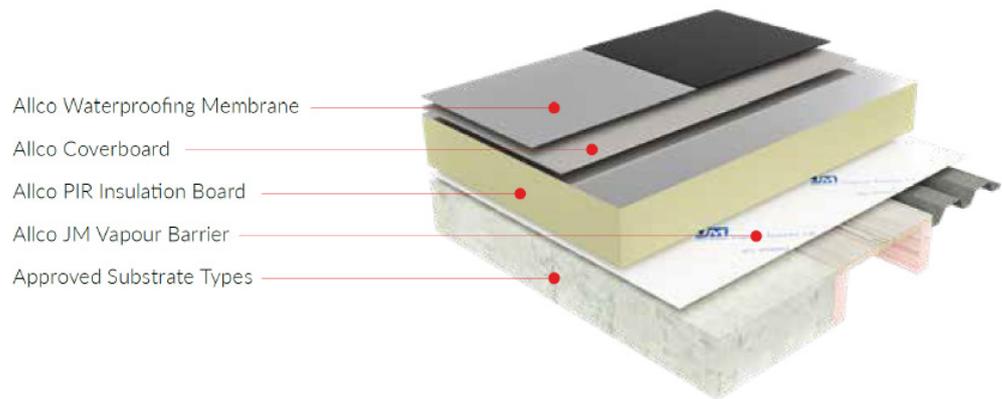


BRANZ Appraised
Appraisal No. 1166 [2021]

ALLCO ALLTHERM WARMROOF SYSTEM



Appraisal No. 1166 (2021)

Amended 13 July 2023

BRANZ Appraisals

Technical Assessments of products for building and construction.



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Product

- 1.1 Allco Alltherm Warmroof System is an insulating roofing system for limited access flat roofs and decks with concrete, timber or steel substrates. It consists of a thermal insulation layer and a waterproofing membrane roof finish.

Scope

- 2.1 Allco Alltherm Warmroof System has been appraised for use as an insulating roof or deck on buildings within the following scope:
 - the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regard to building height and maximum floor plan areas; and,
 - on limited access flat roofs with concrete, timber or steel structural decks subject to specific structural design; and,
 - with roofs and decks constructed to drain water to gutters and drainage outlets complying with the NZBC; and,
 - with roofs and decks constructed to suitable falls [Refer Paragraphs 15.3 and 15.4]; and,
 - with no steps within the deck, no integral roof gardens and no downpipes directly discharging to the deck; and,
 - situated in NZS 3604 Wind Zones up to, and including, Extra High.
- 2.2 Allco Alltherm Warmroof System has also been appraised for durability and thermal performance as an insulated roofing and deck system on buildings that are the subject of specific design with no building height restriction. Building designers are responsible for the building design and for the incorporation of the Allco Alltherm Warmroof System into their design, in accordance with the declared properties and instructions of Allco Waterproofing Solutions Ltd.
- 2.3 Allco Alltherm Warmroof System must be installed by Allco Waterproofing Solutions Ltd approved and trained installers.



Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, Allco Alltherm Warmroof System, 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 [b] 15 years. The Allco Alltherm Warmroof System meets this requirement. See Paragraphs 10.1 and 10.2.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.1 and E2.3.2. Allco Alltherm Warmroof System meets these requirements. See Paragraphs 15.1–15.9.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Allco Alltherm Warmroof System meets this requirement.

Clause H1 ENERGY EFFICIENCY: Performance H1.3.1 [a]. Allco Alltherm Warmroof System will contribute to meeting this requirement. See Paragraph 14.1.

Technical Specification

4.1 Allco Alltherm Warmroof System is an insulating roofing for flat roofs. The thermal layer is a polyisocyanurate board available in a number of thicknesses to suit design requirements. The insulation board is adhesive-bonded on limited access flat roofs and decks of concrete, timber and steel substrates. The roof and deck finish is either a modified bitumen or TPO waterproofing membrane which is either torch-applied or adhesive-fixed to the insulation board or fibre cement cover board.

4.2 Materials supplied by Allco Waterproofing Solutions Ltd are as follows:

- Allco Casali Dermafil Cap Sheet
- Allco Casali Dermabit Extra Cap Sheet
- Allco Casali Aderix SA Base Sheet
- Allco JM TPO
- Allco Cover Board
- Allco PIR Insulation [Conqueror]
- Allco JM TPO Vapour Barrier SA
- Allco JM Membrane Primer
- Allco JM Urethane Adhesive
- Allco Roof-Tac Contact Adhesive

Handling and Storage

5.1 Handling and storage of all materials, whether on-site or off-site, is under the control of the Allco Waterproofing Solutions Ltd approved and trained installers. Dry storage must be provided for all products and the rolls of membrane must be stored in an upright position.

Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for the Allco Alltherm Warmroof System. 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 Allco Alltherm Warmroof System is a roof and deck system which provides thermal insulation and waterproofing. It is for use on limited access flat roofs and decks subject only to light foot traffic for maintenance purposes. The insulation board is adhesive-bonded to concrete, timber or metal structural decks which are subject to specific structural design. The insulation board is available in several thicknesses to suit various thermal insulation designs.
- 7.2 The system can be used on new or existing roofs and decks subject to the suitability of the substrate of existing roofs.
- 7.3 The waterproofing membrane system is either a fully bonded adhesive-fixed TPO membrane with heat welded joints, or a double-layer, torch-applied, modified bitumen sheet.
- 7.4 The vapour control membrane, JM Vapour Barrier, is self-adhesive and applied over the structural deck before the installation of the insulation board.
- 7.5 The effective control of internal moisture must be considered at the design stage due to the impermeability of the membrane. Refer to the BRANZ Good Practice Guide: Membrane Roofing.

Structure

- 8.1 The fully bonded Allco Alltherm Warmroof System is suitable for buildings situated in NZS 3604 Wind Zones up to, and including, Extra High.
- 8.2 For buildings subject to specific design, the structural designer must confirm that the adhesive fixing has adequate adhesion to the substrates.

Substrates

Plywood

- 9.1 Plywood must be treated to H3 [CCA treated]. LOSP treated plywood must not be used. Plywood must be a minimum of 17 mm to comply with AS/NZS 2269, at least CD Grade Structural, with the sanded C face upwards.

Concrete

- 9.2 Concrete substrates must be to a specific engineering design meeting the requirements of the NZBC, such as concrete construction to NZS 3101.

Steel

- 9.3 The steel substrate must be G550 aluminium-zinc AZ150 to AS1397.

Existing Construction

- 9.4 A thorough inspection of the substrate must be made to ensure it is in fit condition.
- 9.5 Repairs must be undertaken, where applicable, to ensure the substrate is sound. Plywood and steel substrates must be checked for screw fixings, and if necessary, refixed as for new plywood and steel.

Durability

Serviceable Life

- 10.1 Allco Alltherm Warmroof System is expected to have a serviceable life of at least 15 years, provided it is designed, used, installed and maintained in accordance with this Appraisal and the Technical Literature.

Chemical Resistance

- 10.2 Industrial air pollutants and windborne salt deposits should not significantly affect the durability of the membrane. However, the long term properties of the material may be affected by contact with petroleum-based products such as oils, greases and solvents.



Maintenance

- 11.1 The membrane roof system, including any areas with an ultraviolet (UV) coating applied, must be regularly [at least annually] checked for damage, rubbish and debris or coating breakdown. Damage, such as small punctures and tears, must be repaired and coatings reapplied as recommended by Allco Waterproofing Solutions Ltd.
- 11.2 Special care must be taken when inspecting the membrane roof system to ensure the continuing prevention of moisture ingress, and repairs must be undertaken where required.
- 11.3 Drainage outlets must be maintained to operate effectively.

Prevention of Fire Occurring

- 12.1 Separation or protection must be provided to Allco Alltherm Warmroof System from heat sources such as fireplaces, heating appliances, flues and chimneys. 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.

Control of Internal Fire and Smoke Spread

- 13.1 Allco Alltherm Warmroof System meets the flame propagation criteria of AS 1366 as specified in NZBC Acceptable Solution C/AS1, Paragraph 4.3 and NZBC Acceptable Solution C/AS2, Paragraph 4.17.
- 13.2 The Conqueror PIR 50 mm insulation board has been tested in accordance with ISO 9705 and achieved a Group Number of 2-S. Refer to Table 4.1 of NZBC Acceptable Solution C/AS2 to determine where the product may be used when exposed to view from interior spaces according to its Group Number.

Energy Efficiency

- 14.1 Thermal resistance [R-value] of building elements may be verified by using NZS 4214. The R-value for the Allco PIR Insulation 80 mm thick is R3.40.

External Moisture

- 15.1 Roofs must be designed and constructed to shed precipitated moisture. They must also take account of snowfalls in snow prone areas. A means of meeting code compliance with NZBC Clause E2.3.1 is given in the Technical Literature which aligns with details in NZBC Acceptable Solution E2/AS1.
- 15.2 When installed in accordance with this Appraisal and the Technical Literature, Allco Alltherm Warmroof System will prevent the penetration of water and will therefore meet code compliance with NZBC Clause E2.3.2. The membrane is impervious to water and will give a weathertight roof.
- 15.3 Roof and deck falls must be built into the substrate.
- 15.4 The minimum fall is 1 in 30 for plywood roofs, 1 in 60 for concrete roofs, and 1 in 100 for gutters. The minimum fall for decks is 1 in 40. All falls must slope to an outlet. Inadequate falls will allow moisture to collect and increase the risk of deterioration of the membrane. *[Note: Where possible BRANZ recommend a fall of 1:60 for gutters].*
- 15.5 Allowance for deflection and settlement of the substrate must be made in the design of the roof to ensure falls are maintained and no ponding of water can occur.
- 15.6 Allco Alltherm Warmroof System is impermeable, therefore a means of dissipating construction moisture must be provided in the building design and construction to meet code compliance with NZBC Clause E2.3.6.
- 15.7 Drainage flanges must be used for any outlet and must be fitted with a grate or cage to reduce potential sources of blockages. An overflow must be provided where the roof does not drain to an external gutter or spouting.
- 15.8 Penetrations and upstands of the membrane must be raised above the level of any possible flooding caused by the blockage of roof drainage.
- 15.9 The design of details not covered by the Technical Literature is subject to specific weathertightness design and is outside the scope of this Appraisal.



Condensation Control

16.1 Allco JM Vapour Barrier must be installed over the substrate prior to installing the insulation.

Water Supplies

17.1 Allco Alltherm Warmroof System has not been assessed for roofs used for the collection of potable water.

Installation Information

Installation Skill Level Requirement

18.1 Installation must always be carried out in accordance with Allco Alltherm Warmroof System Technical Literature and this Appraisal by, or under the supervision of, a Licensed Building Practitioner [LBP] with the relevant Licence Class.

18.2 Installation and finishing of components and accessories supplied by Allco Waterproofing Solutions Ltd and its approved applicators must be completed by trained applicators, approved by Allco Waterproofing Solutions Ltd.

18.3 Installation of the accessories supplied by the building contractor must be carried out in accordance with Allco Alltherm Warmroof System Technical Literature and this Appraisal by, or under the supervision of, a Licensed Building Practitioner [LBP] with the relevant Licence Class.

Preparation of Substrates

19.1 Substrates must be dry, clean and stable before installation commences.

19.2 The relative humidity of concrete substrates must be 75% or less before membrane application. The concrete can be checked for dryness by using a hygrometer, as set out in BRANZ Bulletin No. 585.

19.3 The moisture content of the plywood and timber substructure must be a maximum of 20% and the plywood sheets must be dry at time of membrane application.

System Installation

20.1 Allco Alltherm Warmroof System must be installed in accordance with the Technical Literature.

20.2 The vapour layer is installed onto the substrate followed by the insulation. The insulation is set out in a brick bond fashion and is screwed down using the screws and washers as defined in the Technical Specification.

20.3 The membrane double layer system is then installed over the insulation or Allco Cover Board; generally the membrane must be unrolled without tension onto the prepared substrate and allowed to 'relax' for at least 30 minutes prior to installation.

20.4 The membrane is then installed from the lowest point and each layer is installed across the roof or deck fall allowing a 80 mm side overlap and a 150 mm end overlap. The cap sheet layer must be offset against the base sheet layer.

Inspections

21.1 Critical areas of inspection for waterproofing systems are:

- Construction of substrates, including crack control and installation of bond breakers and movement control joints.
- Moisture content of the substrate prior to the application of the system.
- Acceptance of the substrate by the system installer prior to application of the system.
- Installation of the system to the Technical Literature.

Health and Safety

22.1 Safe use and handling procedures for Allco Alltherm Warmroof System are provided in the Technical Literature. The products must be used in conjunction with the relevant Material Safety Data Sheets for each product.

Basis of Appraisal

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

Tests

- 23.1 The following is a summary of the testing and test reports on Allco Alltherm Warmroof System:
- Assessment by Belgian Union for Technical Approval [UBAtc] and granted "Technical Approval with Certification" under ATG certificate numbers 1924 and 2850. The testing covered tensile strength, elongation, peel resistance [joints], joint strength, low temperature flexibility, fatigue resistance, nail hold, resistance to heat aging, static load, indentation resistance and peel resistance [substrate].
 - Assessment by BRANZ for tensile adhesive strength of Allco Alltherm Warmroof System.

The above test methods and results have been reviewed by BRANZ and found to be satisfactory.

Other Investigations

- 24.1 A durability opinion has been provided by BRANZ technical experts.
- 24.2 Installation of the insulation and membranes has been assessed by BRANZ for practicability of installation and found to be satisfactory.
- 24.3 The Technical Literature has been examined by BRANZ and found to be satisfactory.

Quality

- 25.1 The manufacture of the components of the system has not been examined by BRANZ, but details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory.
- 25.2 The quality of the supply of products to the New Zealand market is the responsibility of Allco Waterproofing Solutions Ltd.
- 25.3 Quality on-site is the responsibility of the Allco Waterproofing Solutions Ltd trained and approved installers.
- 25.4 Designers are responsible for the building design, and building contractors are responsible for the quality of construction of substrate systems in accordance with the instructions of Allco Waterproofing Solutions Ltd and this Appraisal.
- 25.5 Building owners are responsible for the maintenance of the membrane system in accordance with the instructions of Allco Waterproofing Solutions Ltd and this Appraisal.

Sources of Information

- AS/NZS 1170:2002 Structural design actions - General principles.
- AS/NZS 2269:2012 Plywood - structural.
- BRANZ Bulletin No. 585 Measuring Moisture in Timber and Concrete.
- BRANZ Good Practice Guide: Membrane Roofing, reprint October 2015.
- ISO 9705:1993 Fire tests - Full scale room test for surface products.
- NZS 3101:2006 The design of concrete structures.
- NZS 3604:2011 Timber-framed buildings.
- NZS 4214:2006 Methods of determining the total thermal resistance of parts of buildings.
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.

Amendments

Amendment No. 1, dated 13 July 2023.

This Appraisal has been amended to add a fibre cement cover board and to change the name of the system.



BRANZ Appraised
Appraisal No.1166 [2021]

BRANZ Appraisal
Appraisal No. 1166 [2021]
24 May 2021

ALLCO ALLTHERM
WARMROOF SYSTEM



In the opinion of BRANZ, **Allco Alltherm Warmroof System** 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 **GL Imports 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. **GL Imports 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 **GL Imports 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 **GL Imports Ltd** or any third party.

For BRANZ

Chelydra Percy

Chief Executive

Date of Issue:

24 May 2021