



BRANZ Appraised

Appraisal No. 647 [2017]

CASALI DERMABIT/ DERMAFIL ROOF AND DECK MEMBRANE SYSTEMS

Appraisal No. 647 [2017]

This Appraisal replaces BRANZ
Appraisal No. 647 [2009]

Amended 16 Month 2019



BRANZ Appraisals

Technical Assessments of
products for building and
construction.



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Product

- 1.1 Casali Dermabit/Dermafил Roof and Deck Membrane Systems are waterproofing membranes for nominally flat and pitched roofs and decks. They are installed as a multi-layer system with a mineral chip finish.

Scope

- 2.1 Casali Dermabit/Dermafил Roof and Deck Membrane Systems have been appraised as roof and deck waterproofing membranes on buildings within the following scope:
 - the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; or,
 - the scope of limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regards to building height and floor plan area when subject to specific structural design; and,
 - with substrates of plywood, fibre cement compressed sheet or suspended concrete slab; and,
 - with minimum falls for plywood roofs of 1:30, concrete roofs of 1:60 and decks of 1:40; and,
 - with deck size limited to 40 m²; and,
 - situated in NZS 3604 Wind Zones, up to, and including Extra High.
 - situated in specific design wind pressures up to a maximum design differential Ultimate Limit State [ULS] of 6.0 kPa with the weathertightness detailing subject to specific design.
- 2.2 Roofs and decks must be designed and constructed with no steps within the deck level, no integral roof gardens, and no downpipe discharging directly onto the deck.
- 2.3 Deck membranes must be continually protected from physical damage and UV light by tiles, pavers or timber, resting on an approved pedestal protection system.
- 2.4 The design and construction of the substrate and movement and control joints is specific to each building, and is therefore the responsibility of the building designer and building contractor and is outside the scope of this Appraisal.
- 2.5 The membranes must be installed by trained applicators, approved by Allco Waterproofing Solutions Ltd.

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, Casali Dermabit/Dermafil Roof and Deck Membrane Systems, 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 and B2.3.2. Casali Dermabit/Dermafil Roof and Deck Membrane Systems meet this requirement. See Paragraph 10.1.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.1 and E2.3.2. Casali Dermabit/Dermafil Roof and Deck Membrane Systems meets these requirements. See Paragraphs 13.1 – 13.9.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Casali Dermabit/Dermafil Roof and Deck Membrane Systems meet this requirement and will not present a health hazard to people.

Technical Specification

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

- **Casali Dermabit Extra 30160** - 3 mm thick APAO modified bitumen, torch applied sheet waterproofing membrane used as a base layer in a double layer system. The lower face has a polyethylene film which is torched off during application and the upper face is finished with a sanded or polyethylene finish. It is supplied in 1 m x 10 m rolls.
- **Casali Dermabit Extra 43170 Ardesiato (Slated)** - 4 mm thick APAO modified bitumen, torch applied sheet waterproofing membrane used as a cap sheet in a double layer system. The lower face has a polyethylene film which is torched off during application and an upper face finished with slate chips. It is supplied in 1 m x 10 m rolls.
- **Casali Olympia** - 3 mm thick APP modified bitumen, torch applied sheet waterproofing membrane used as a base layer in a double layer system. The lower face has a polyethylene film which is torched off during application and the upper face is finished with a sanded or a polyethylene finish. It is supplied in 1 m x 10 m rolls.
- **Casali Dermafil** - Nominally 4 mm thick APP modified bitumen, torch applied sheet waterproofing membrane used as a cap sheet in a double layer system. The lower face has a polyethylene film which is torched off during application and an upper face finished with slate chips. It is supplied in 1 m x 10 m rolls.
- **Dermaprimer** - Solvent-based bituminous primer for priming all substrates prior to the installation of the membrane. It is available in 5, 10 and 20 litre containers.
- **Reflex AR** - Protective, reflecting aluminium filled coating for reducing the effects of UV. It is supplied in 10 and 20 litre containers.
- **Acrytop** - Protective acrylic coating for reducing the effect of UV. It is supplied in 20 kg containers.

Handling and Storage

5.1 Handling and storage of all materials whether on or off site is under the control of the Allco Waterproofing Solutions Ltd Licensed 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 Casali Dermabit/Dermafil Roof and Deck Membrane Systems. 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 Casali Dermabit/Dermafил Roof and Deck Membrane Systems are installed as multi-layer systems with either a mineral chip finish or a sand finished layer with a UV protective paint. Decks are to be protected with a pedestal system. The membranes are cold glued/heat welded to the substrate with heat welded joints.
- 7.2 When the Casali Dermabit/Dermafил Roof and Deck Membrane Systems are used for specifically designed buildings as detailed within Paragraph 2.2 of this Appraisal, only the bond of the membranes to the substrate and the durability of the membranes are within the scope of this Appraisal. All other aspects of the building, including weathertightness detailing of junctions, need to be specifically designed and are outside the scope of this Appraisal.
- 7.3 Casali Dermabit/Dermafил Roof and Deck Membrane Systems are for use on roofs, gutters, parapets and decks where an impervious waterproof membrane is required to prevent damage to building elements and adjoining areas. The products can be used on new or existing buildings. Allco Waterproofing Solutions Ltd should be consulted as to the suitability of any existing substrates prior to using Casali Dermabit/Dermafил Roof and Deck Membrane Systems.
- 7.4 The effective control of internal moisture must be considered at the design stage due to the impermeability of the membranes. Refer to BRANZ publication Good Practice Guide - Membrane Roofing.
- 7.5 There are a number of different base sheets and cap sheets contained within the Casali Dermabit/Dermafил Roof and Deck Membrane Systems. Generally the cap sheets have a slate finish for UV protection. All the systems require a pedestal protection system for when anything other than irregular maintenance foot traffic is expected. When the deck membrane system is two layers of plain membrane, this system requires UV protection as well as the pedestal protection system. Allco Waterproofing Solutions Ltd should be consulted for the best system to meet the design requirements.
- 7.6 NZBC Acceptable Solution limits the size of decks to 40 m². Casali Dermabit/Dermafил Roof and Deck Membrane Systems are suitable for use on decks larger than 40 m². These decks are subject of specific design in accordance with Paragraph 2.2.
- 7.7 Allco Waterproofing Solutions Ltd recommends the use of the EFVM[®] leak detection system for detecting capillary defects or breaches in the membrane system. *[Note: this system has not been assessed by BRANZ and is outside the scope of this Appraisal.]*

Structure

- 8.1 Casali Dermabit/Dermafил Roof and Deck Membrane Systems fully bonded double layer systems are suitable for use in areas subject to maximum wind pressures of 6 kPa Ultimate Limit State.

Substrates

Plywood

- 9.1 Plywood must be treated to H3 [CCA treated]. LOSP treated plywood must not be used. Plywood must comply with NZBC Acceptable Solution E2/AS1, Paragraph 8.5.3 and 8.5.5. Where specific design is used [i.e. outside the scope of E2/AS1] the plywood thickness and fixing size may increase and centres may decrease to meet specific wind loadings. Timber framing must comply with NZS 3604, or where specific engineering design is used, the framing shall be of at least equivalent stiffness to the framing provisions of NZS 3604, or comply with the serviceability criteria of AS/NZS 1170. Timber framing supporting the substrates must be constructed such that deflections do not exceed 1/360th of the span. Where NZS 3604 is used, the allowable joist spans given in Table 7.1 shall be reduced by 20%. In all cases, framing must be provided so that the maximum span of the substrate as specified by the substrate manufacturer is met and all sheet edges are fully supported.



Concrete

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

Fibre Cement Compressed Sheet

- 9.3 Fibre cement compressed sheet must be manufactured to comply with the requirements of AS/NZS 2908.2 and must be specified by the manufacturer as being suitable for use as an external decking substrate. The fibre cement sheet must be of a thickness to meet specific structural design requirements and must be secured to the structure to resist wind uplift and all other forces acting on the deck, such as deflection from gravity and live loads. Installation must be in accordance with the instructions of the manufacturer.

Existing Construction

- 9.4 A thorough inspection of the substrate must be made to ensure it is in fit condition and does not contain any materials that will adversely affect the performance of the membrane.
- 9.5 Repairs must be undertaken, where applicable, to ensure the substrate is sound, the joints are sealed, and the flashings are sound. Plywood substrates must be checked for screw fixings, and if necessary refixed as for new plywood.

Durability

Serviceable Life

- 10.1 Casali Dermabit/Dermafil Roof and Deck Membrane Systems, when subjected to normal conditions of environment and use, are expected to have a serviceable life of at least 15 years and be compatible with ceramic or stone tiling finishes with a design service life of 15-25 years.

Chemical Resistance

- 10.2 Industrial air pollutants and windborne salt deposits should not significantly affect the durability of the membranes. 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 and deck systems, including any areas with a UV coating applied, must be regularly [at least annually] checked for damage, rubbish, 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 and deck systems 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 Casali Dermabit/Dermafil Roof and Deck Membrane Systems from heat sources such as fire places, heating appliances, flues and chimneys. Part 7 of NZBC Acceptable Solutions C/AS1, C/AS2 and NZBC Verification Method C/VM1 provide methods for separation and protection of combustible materials from heat sources.



External Moisture

- 13.1 Roofs and decks 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 by the Technical Literature which aligns with details in NZBC Acceptable Solution E2/AS1.
- 13.2 When installed in accordance with this Appraisal and the Technical Literature, Casali Dermabit/ Dermafil Roof and Deck Membrane Systems will prevent the penetration of water and will therefore meet code compliance with NZBC Clause E2.3.2. The membranes are impervious to water and will give a weathertight roof or deck.
- 13.3 Roof and deck falls must be built into the substrate.
- 13.4 The minimum fall to plywood roofs is 1 in 30, concrete roofs is 1 in 60, decks is 1 in 40 and gutters are 1 in 100. 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 a fall of 1 in 60 in the gutters is preferred.]*
- 13.5 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.
- 13.6 Casali Dermabit/Dermafil Roof and Deck Membrane Systems are 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.
- 13.7 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.
- 13.8 Penetrations and upstands of the membranes must be raised above the level of any possible flooding caused by the blockage of roof drainage.
- 13.9 The design of details not covered by the Technical Literature is subject to specific weathertightness design and is outside the scope of this Appraisal.

Water Supplies

- 14.1 Water is not contaminated by Casali Dermabit Roof and Deck Membrane Systems which comply with AS/NZS 4020.
- 14.2 The first 25 mm of rainfall from a newly installed Casali Dermabit Roof and Deck Membrane Systems roof must be discarded before drinking water collection starts. This is to remove residues which may have developed in the processes involved in the production of a Casali Dermabit Roof and Deck Membrane Systems membrane roof.
- 14.3 Though Casali Dermabit Roof and Deck Membrane Systems have been shown to comply with AS/NZS 4020, it must be noted that all water collected off roof surfaces made from any material is considered to be non-potable due to possible contamination from other sources. Water collection in this way can only be considered potable if it has been passed through a suitable sterilization system. Sterilization systems such as this have not been assessed and are outside the scope of this Appraisal. It is strongly recommended a suitably qualified water treatment system expert is consulted on the design of an appropriate water treatment system for this type of application.

Installation Information

Installation Skill Level Requirement

- 15.1 Installation of the membranes must be completed by Allco Waterproofing Solutions Ltd Licensed and Trained Installers.
- 15.2 Installation of substrates must always be carried out in accordance with the Casali Dermabit/ Dermafil Roof and Deck Membrane Systems Technical Literature and this Appraisal by, or under the supervision of, a Licensed Building Practitioner [LBP] with the relevant Licence Class.



Preparation of Substrates

- 16.1 Substrates must be dry, clean and stable before installation commences. Surfaces must be smooth and free from nibs, sharp edges, dust, dirt or other materials such as oil, grease or concrete formwork release agents. All surface defects must be filled to achieve an even and uniform surface.
- 16.2 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.
- 16.3 The moisture content of the plywood and timber substructure must be a maximum of 20% and the plywood and fibre cement compressed sheets must be surface dry at time of membrane application. This will generally require plywood and fibre cement compressed sheets to be covered until just before the membrane is laid, to prevent rain wetting.
- 16.4 All substrates must be primed with Dermaprimer and left to dry [4-5 hours] before the membrane is installed.

Membrane Installation

- 17.1 The membranes must be installed in accordance with the Technical Literature.
- 17.2 All roof and deck to wall junctions must have a 20 mm x 20 mm wooden fillet installed at the junction. Concrete substrate junctions must have a 20 mm x 20 mm cement mortar fillet installed. All external edges must be chamfered to a 5 mm radius to remove sharp edges.
- 17.3 The membrane must be unrolled without tension onto the prepared substrate and allowed to 'relax' for at least 30 minutes prior to installation.
- 17.4 The membrane is installed from the lowest point and each layer is installed across the roof fall allowing a 100 mm side overlap and a 200 mm end overlap. The cap sheet layer must be offset against the base sheet layer.

Inspections

- 18.1 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 membrane.
 - Acceptance of the substrate by the membrane installer prior to application of the membrane.
 - Installation of the membrane to the manufacturer's instructions.

Health and Safety

- 19.1 Safe use and handling procedures for Casali Dermabit/Dermafil Roof and Deck Membrane Systems are provided in the Technical Literature. The products must be used in conjunction with the relevant Material Safety Data Sheets for each membrane.

Basis of Appraisal

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

Tests

- 20.1 The following is a summary of the testing and test reports on Casali Dermabit/Dermafil Roof and Deck Membrane Systems:
 - ICITE for polyester reinforcement, coating mass, tensile strength, elongation, tear strength, dimensional stability, low temperature flexibility, heat resistance, unrolling at low temperatures, slip resistance, water pressure, static and dynamic indentation, fatigue cycling, peel resistance, air pressure and tensile strength of joints.
 - British Board of Agrément evaluation for the issue of the current BBA Certificate covering these products.
 - BRANZ for adhesion to plywood substrates.

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



Other Investigations

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

Quality

- 22.1 The manufacture of the membranes 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.
- 22.2 The quality of the supply of products to the New Zealand market is the responsibility of Allco Waterproofing Solutions Ltd.
- 22.3 Quality on site is the responsibility of trained and licensed installers, approved by Allco Waterproofing Solutions Ltd.
- 22.4 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.
- 22.5 Building owners are responsible for the maintenance of the membrane systems and tiling/timber protection systems in accordance with the instructions of Allco Waterproofing Solutions Ltd and this Appraisal.

Sources of Information

- AS/NZS 1170: 2002 Structural design actions.
- AS/NZS 2269: 2012 Plywood – structural.
- AS/NZS 2908.2: 2000 Cellulose-cement products - Flat sheet.
- AS/NZS 4020: 2005 Testing of products for use in contact with drinking water.
- BBA Certificate No. 11/4861.
- BRANZ Bulletin No. 585 Measuring Moisture in Timber and Concrete [R515].
- BRANZ Good Practice Guide, Membrane Roofing, October 2015.
- NZS 3101: 2006 The design of concrete structures.
- NZS 3604: 2011 Timber-framed 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 10 October 2017.

This Appraisal has been amended to add Casali Olympia and Casali Dermafil.

Amendment No. 2, dated 16 October 2019.

This Appraisal has been amended to update product name and changes made to C/AS1 - CAS6.



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01 September 2017

CASALI DERMABIT/ DERMAFIL
ROOF AND DECK MEMBRANE
SYSTEMS



In the opinion of BRANZ, **Casali Dermabit/ Dermafil Roof and Deck Membrane Systems** are fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided they are used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to **Allco Waterproofing Solutions 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. **Allco Waterproofing Solutions 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 **Allco Waterproofing Solutions 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 **Allco Waterproofing Solutions Ltd** or any third party.

For BRANZ

Chelydra Percy

Chief Executive

Date of Issue:

01 September 2017