BRANZ Appraised
Appraisal No.776 [2013]

BRANZ Appraisals

Technical Assessments of products for building and construction

BRANZ APPRAISAL No. 776 (2013)

Amended 21 July 2014

DANOSA TORCH-ON ROOF WATERPROOFING MEMBRANE

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Product

1.1 Danosa Torch-on Roof Waterproofing Membrane is a waterproofing membrane for nominally flat, pitched and curved roofs, gutters and parapets. It is installed as a multi-layer system with a mineral chip finish.

1.2 The product is supplied as a torch-on, reinforced, polymer-modified bitumen sheet in roll form.

Scope

2.1 Danosa Torch-on Roof Waterproofing Membrane has been appraised as a roof waterproofing membrane on buildings within the following scope:

- with building structures designed and constructed to meet the requirements of the BCA; and,
- with roof supporting structures of timber framing with substrates of plywood; and,
- with substrates of suspended concrete slabs; and,
- subjected to maximum wind pressures (refer Paragraph 8.1); and,
- with the weathertightness design of all junctions being the subject of specific design by the designer.

Note: The design of these junctions has not been appraised by BRANZ and is outside the scope of this Appraisal.

2.2 Roofs waterproofed with Danosa Torch-on Roof Waterproofing Membranes must be designed and constructed in accordance with the following limitations:

- nominally flat, curved or pitched roofs constructed to drain water to gutters and drainage outlets complying with the BCA; and,
- constructed to suitable falls (Refer Paragraph 14.1 - 14.3); and,
- with no integral roof gardens.

2.3 The design and construction of the substrate and movement and control joints is specific to each building, and therefore is the responsibility of the building designer and building contractor and is outside the scope of this Appraisal.

2.4 The membranes must be installed by Grace (Australia) Pty Ltd Licensed and Trained Installers.

Readers are advised to check the validity of this Appraisal by referring to the Valid Appraisals listing on the BRANZ website, or by contacting BRANZ.

Building Regulations

National Construction Code (NCC 2013) Building Code of Australia

3.1 In the opinion of BRANZ, the Danosa Torch-on Roof Waterproofing Membrane, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet the following provisions of the BCA 2012:

BCA 2013 Volume 1 - Class 2 to 9 Buildings

Section F1 - Damp and waterproofing. Performance FP 1.4. See Paragraph 14.1 - 14.3.

BCA 2013 Volume 2 - Class 1 and 10 Buildings

Section 2 - Damp and weatherproofing. Performance P2.2.2. See Paragraph 14.1 - 14.3.

Technical Specification

4.1 Materials supplied by Grace (Australia) Pty Ltd are as follows:

Esterdan 40 P Pol - an APP polymer-modified bitumen sheet waterproofing membrane, reinforced with polyester felt used as a base layer in a double layer system with polyethylene film on both sides. It is supplied as a roll 3.5 mm thick, 1 metre wide and 10 metres long.

Esterdan 50 GP Pol - an APP polymer-modified bitumen 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 upper face is finished with slate chips (light grey). It is supplied as a roll 4.0 mm thick, 1 metre wide and 8 metres long.

Maxdan Caucho 25 - is a bituminous emulsion primer for priming all substrates. It is available in 5 and 25 kg containers.

Handling and Storage

5.1 Handling and storage of all materials whether on or off site is under the control of the Grace (Australia) Pty 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 Danosa Torch-on Roof Waterproofing Membrane. 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 Danosa Torch-on Roof Waterproofing Membrane is for use on roofs, gutters and parapets where an impervious waterproof membrane is required to prevent damage to building elements and adjoining areas. The product can be used on new or existing buildings. Grace (Australia) Pty Ltd should be consulted as to the suitability of any existing substrates prior to using Danosa Torch-on Roof Waterproofing Membrane.

7.2 The effective control of internal moisture must be considered at the design stage due to the impermeability of the membrane. Refer to BRANZ publication "Good Practice Guide - Membrane Roofing".

Structure

8.1 Danosa Torch-on Roof Waterproofing Membrane is a fully bonded double layer system suitable for use in areas subject to maximum wind pressures of 4 kPa Ultimate Limit State.

Substrates

9.1 Structural plywood must be a minimum of 17 mm thick complying with AS/NZS 2269. The structural plywood must be supported with joists at maximum spacing as detailed AS 1684.3, Table 5.3, fixing shall be as per "Technical Note on the Use of EWPAA Branded Structural Plywood as Exterior Decking".

Note: LOSP treated plywood must not be used.

9.2 Concrete substrates must be designed accordance with BCA 2012.

Existing Construction

9.3 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.

9.4 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 Danosa Torch-on Roof Waterproofing Membrane is expected to have a serviceable life of at least 15 years, provided they are 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 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 system 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 Grace (Australia) Pty Ltd.

11.2 Special care must be taken when inspecting the membrane roof 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.

Outbreak of Fire

12.1 Danosa Torch-on Roof Waterproofing Membrane must be protected or separated from fireplaces, heating appliances, chimneys and flues in accordance with the requirements of BCA 2013 Volume 1, Part GP 2.1 and Part G2 and BCA 20123 Volume 2, Part P 2.3.3 and Part 3.7.3

Fire Hazard Properties

13.1 Danosa Torch-on Roof Waterproofing Membrane has not been assessed for fire hazard properties and is therefore outside the scope of this Appraisal.

External Moisture

14.1 Roofs must be designed and constructed to meet code compliance with Part F1 - Damp and waterproofing, Performance FP1.4 and Part 2.2 - Damp and weatherproofing, Performance P2.2.2. They must also take into account of snowfalls in snow prone areas.

14.2 When installed in accordance with this Appraisal and the Technical Literature, Danosa Torch-on Roof Waterproofing Membrane will prevent the penetration of water and will therefore meet code compliance with Part F1 - Damp and waterproofing, Performance FP1.4 and Part 2.2 - Damp and weatherproofing, Performance P2.2.2. The membrane is impervious to water and will give a weathertight roof capable of accepting minor structural movements.

14.3 Danosa Torch-on Roof Waterproofing Membrane is impermeable, therefore a means of dissipating construction moisture must be provided in the building design and construction to meet code compliance with Part F1 - Damp and waterproofing, Performance FP1.4 and Part 2.2 - Damp and weatherproofing, Performance P2.2.2.

14.4 Roof falls must be built into the substrate and not created with mortar screeds applied over the membrane.

14.5 BRANZ recommends a minimum fall to roofs of 1 in 30 and all falls must slope to an outlet. Inadequate falls will allow moisture to collect and increase the risk of deterioration of the membrane.

14.6 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.

14.7 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.

14.8 Penetrations and upstands of the membrane must be raised above the level of any possible flooding caused by the blockage of roof drainage.

14.9 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

15.1 Danosa Torch-on Roof Waterproofing Membrane has not been assessed for roofs used for the collection of potable water.

Installation Information

Installation Skill Level Requirement

16.1 Installation of the membrane must be completed by Grace (Australia) Pty Ltd and Trained Installers.

16.2 Installation of substrates must be completed by tradespersons with an understanding of roof construction, in accordance with instructions given within the Grace (Australia) Pty Ltd Technical Literature and this Appraisal.

Preparation of Substrates

17.1 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.

17.2 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. 424.

17.3 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. This will generally require plywood sheets to be covered until just before the membrane is laid, to prevent rain wetting.

17.4 All substrates must be primed with Maxdan Caucho 25 and left to dry for at least 4-5 hours before the membrane is installed.

Membrane Installation

18.1 The membrane must be installed in accordance with the Technical Literature.

18.2 All roof and wall junctions must have a 20 mm x 20 mm fillet installed at the junction. Plywood substrates must use a wooden fillet and concrete substrate junctions have a cement mortar fillet installed. All external edges must be chamfered to a 5 mm radius to remove sharp edges.

18.3 The membrane must be unrolled without tension onto the prepared substrate and allowed to 'relax' for at least 30 minutes prior to installation.

18.4 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

19.1 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

20.1 Safe use and handling procedures for Danosa Torch-on Roof Waterproofing Membrane is 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

21.1 The following is a summary of the testing and test reports on Danosa Torch-on Roof Waterproofing Membrane:

- Tensile strength, elongation, watertightness, resistance to impact, resistance to static load, dimensional stability, pliability at low temperature, peel resistance, joint shear resistance, tear resistance, resistance to heat aging, resistance to elevated temperatures, UV resistance, granule adhesion, water absorption and water vapour permeability.

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

Other Investigations

22.1 A durability opinion has been provided by BRANZ technical experts.

22.2 Installation of the membranes has been assessed by BRANZ for practicability of installation and found to be satisfactory.

22.3 The Technical Literature has been examined by BRANZ and found to be satisfactory.

Quality

23.1 The manufacture of the membrane 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. The manufacturer of Danosa Torch-on Roof Waterproofing Membrane has been assessed and registered as meeting the requirements of ISO 9001: 2008.

23.2 The quality of the supply of products to the Australian market is the responsibility of Grace (Australia) Pty Ltd.

23.3 Quality on site is the responsibility of the Grace (Australia) Pty Ltd Licensed and Trained Installers.

23.4 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 Grace (Australia) Pty Ltd and this Appraisal.

23.5 Building owners are responsible for the maintenance of the membrane systems in accordance with the instructions of Grace (Australia) Pty Ltd and this Appraisal.

Sources of Information

- AS/NZS 1170: 2002 Structural design actions.
- AS/NZS 2269: 2012 Plywood - structural.
- BRANZ Good Practice Guide - Membrane Roofing, reprint October 2003.
- National Construction Code Series, Building Code of Australia 2013, Australian Building Codes Board.
- Technical Note on the Use of EWPAA Branded Structural Plywood As Exterior Decking - PAA Engineered Wood Products Association of Australasia.

Amendment No. 1, dated 21 July 2014.
This Appraisal has been amended to update marketing company name.

BRANZ

In the opinion of BRANZ, Danosa Torch-on Roof Waterproofing Membrane 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 Derivados Asfalticos Normalizados S.A (Danosa), 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. Derivados Asfalticos Normalizados S.A (Danosa):
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 Derivados Asfalticos Normalizados S.A (Danosa).
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 Derivados Asfalticos Normalizados S.A (Danosa) or any third party.

For BRANZ

P Burghout
Chief Executive

Date of issue: 23 January 2013