BRANZ Appraised
Appraisal No. 689 [2021]

SOPREMA DUO ROOF MEMBRANE SYSTEMS

Appraisal No. 689 (2021)

This Appraisal replaces BRANZ Appraisal No. 689 (2016)

Amended 24 May 2024

BRANZ Appraisals

Technical Assessments of products for building and construction.

Soprema nv
Bouwelven 5
B-2280 Grobbendonk
Belgium
Tel (NZ): 021 800 407

Marketed By:
Enduroflex Pty Ltd
30/5 Ponderosa Parade
Warriewood
NSW 2102
Australia
Tel: +61 2 9979 5670
Email: sales@enduroflex.com.au
Web: www.enduroflex.com.au

BRANZ
1222 Moonshine Rd,
RD1, Porirua 5381
Private Bag 50 908
Porirua 5240,
New Zealand
Tel: 04 237 1170
branz.co.nz

Product

1.1 Soprema DuO Roof Membrane Systems are torch-on bitumen modified waterproofing membranes for roofs.

Scope

2.1 Soprema DuO Roof Membrane Systems have been appraised for use as roof waterproofing membranes on buildings designed within the following scope:

- with building structures designed and constructed to meet the requirements of the Building Code of Australia (BCA); and,
- with roof supporting structures of timber framing with substrates of plywood; and,
- with substrates of suspended concrete slab; and,
- subjected to maximum wind pressures (refer to 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. Refer to the Appraisal Holder.)*

2.2 Roofs waterproofed with Soprema DuO Roof Membrane Systems 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 to Paragraphs 14.4-14.6); 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 Enduroflex Pty Ltd certified applicators.

Building Regulations

National Construction Code (NCC)

3.1 In the opinion of BRANZ, Soprema DuO Roof Membrane Systems, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet the following provisions of the NCC:

NCC 2022 Volume One - Building Code of Australia

Part F1 SURFACE WATER MANAGEMENT, RISING DAMP AND EXTERNAL WATERPROOFING: Performance F1P2 and F1D5. Soprema DuO Roof Membrane Systems meets these requirements. See Paragraphs 14.1–14.8.

Part F3 ROOF AND WALL CLADDING: Performance F3P1. Soprema DuO Roof Membrane Systems. See Paragraphs 14.1–14.8.

NCC 2022 Volume Two - Building Code of Australia

Part H2 DAMP AND WEATHERPROOFING: Performance H2P2. Soprema DuO Roof Membrane Systems See Paragraphs 14.1–14.8.

Technical Specification

4.1 Materials supplied by Enduroflex Pty Ltd are as follows:

- **DeboPlast 2.5 mm T/F C175** - a 2.5 mm thick, APP modified bitumen-based sheet waterproofing membrane with a mixture of talcum and sand on the upper surface and an ultra-thin polyethylene foil on the under layer used as a base layer in multi-layer systems. It has a composite reinforcement of 175 g/m² polyester and glass and is supplied in 1 m x 10 m rolls.
- **DeboFlex 2.5 mm T/F C175** - a 2.5 mm thick, SBS modified bitumen-based sheet waterproofing membrane with a mixture of talcum and sand on the upper surface and an ultra-thin polyethylene foil on the under layer used as a base layer in multi-layer systems. It has a composite reinforcement of 175 g/m² polyester and glass and is supplied in 1 m x 10 m rolls.
- **SOPRASTICK TF** - a 2.5 mm thick, SBS modified bitumen-based sheet waterproofing membrane with a mixture of talcum and sand on the upper surface and a self-adhesive under layer used as a base layer in multi-layer systems. It has a composite reinforcement of 175 g/m² polyester and glass and is supplied in 1 m x 10 m rolls.
- **SOPRASTICK VENTI**- a 2.5 mm thick, SBS modified bitumen-based sheet waterproofing membrane with a mixture of talcum and sand on the upper surface and the under layer of heat resistant polypropylene fleece with self-adhesive bitumen strips 55 mm wide to create partial bonding to the substrate. It is used as a base layer in multi-layer systems. It has a composite reinforcement of 175 g/m² and is supplied in 1 m x 10 m rolls.
- **DuO HT 4 Slates/F C180 Firecare** - a nominal 4 mm thick TPO/SBS composite bitumen torch-applied sheet waterproofing membrane with a coloured slate granule upper surface finish and a polyethylene under-finish used as a cap sheet in a multi-layer system. It has a composite reinforcement of polyester and glass of 180 g/m². It is supplied in 1 m x 8 m rolls.
- **DuO HT 4 Slates/F C180 Aero Firecare** - a nominal 4 mm thick TPO/SBS composite bitumen torch-applied sheet waterproofing membrane with a coloured slate granule upper surface finish and an under layer of pure SBS strips with polyethylene foil finish to allow vapour distribution under the waterproofing, used as a cap sheet in a single-layer system. It has a composite reinforcement of polyester and glass of 180 g/m². It is supplied in 1 m x 8 m rolls.
- **DuO HT 4 Slates/F C180 Firecare Mecano** - a nominal 4 mm thick TPO/SBS composite bitumen sheet waterproofing membrane with a coloured slate granule upper surface finish and an under-finish of polyethylene foil which is designed to be mechanically fastened to the roof, used as a single-layer system on concrete, or as a cap sheet in a multi-layer system. It has a composite reinforcement of polyester and glass of 180 g/m². It is supplied in 1 m x 8 m rolls.

- **DuO HT 4 Slates/PP C180 Firecare No Flame** - a nominal 4 mm thick TPO/SBS composite bitumen sheet waterproofing membrane with a coloured slate granule upper surface finish and an under-finish of polypropylene fleece which can be partially or fully bonded without heat, used as a cap sheet in a multi-layer system. It has a composite reinforcement of polyester and glass of 180 g/m^2. It is supplied in 1 m x 8 m rolls.
- **DuO B&T 5 Gran/F C250/ Anti-Rock** - a nominal 5 mm TPO/SBS composite bitumen, torch-applied sheet waterproofing membrane with a grey granule upper surface finish and an under-finish of polyethylene foil. It has a composite reinforcement of polyester and glass of 250 g/m^2 to provide a higher reinforcement level for greater heat resistance, elongation and strength, used as a cap sheet under hot applied asphalt mixes. It is supplied in 1 m x 8 m rolls.
- **DuO HT 4 Slates/F C180 Firecare Landscape** - a nominal 4 mm TPO/SBS composite bitumen torch-applied sheet waterproofing membrane with a coloured slate upper surface finish and an under-finish of polyethylene foil. It has a composite reinforcement of polyester and glass of 180 g/m^2. It is root-resistant according to EN13948 and applicable for green roofs. It is used as a cap sheet in multi-layer systems. It is supplied in 1 m x 8 m rolls.
- **DuO HT 4 Slates/F C180 Firecare** - a nominal 4 mm TPO/SBS composite bitumen, torch-applied sheet waterproofing membrane with a coloured slate granule upper surface finish and an under-finish of polyethylene foil. It has a composite reinforcement of polyester and glass of 180 g/m^2. It is designed for fire-resistant applications and used a cap sheet in multi-layer systems. It is supplied in 1 m x 8 m rolls.
- **DuO Primer, Sopradere Quick** - a solvent-based, bituminous varnish used to prime dry and porous surfaces. It is supplied in 25 L containers.
- **DuO Primer, Aquadere** - a water-based, bituminous primer used to prime dry and porous surfaces. It is supplied in 25 L containers.
- **DuO Kit Sealant, Alsan Mastic 2200** - a bituminous adhesive/sealant used for cold bonding and sealing when necessary. It is a black paste, supplied in 310 ml cartridges.
- **DuO Fix PU Cold Adhesive** - a PU cold adhesive for adhering DuO No Flame waterproofing membranes.
- **DuO Cold Glue** - a bituminous cold adhesive for adhering DuO No Flame waterproofing membranes. It is supplied in 25 kg cans.
- **Permabase Deck Roof Cover Board** - a lightweight cement roof cover board for modified bitumen waterproofing membranes. It is supplied as a 2,400 mm x 1,200 mm x 9 mm thick board.
- **Alsan Flashing Quadro** - a single-component polyurethane resin for waterproofing junctions between horizontal surfaces, upstands and various roof details. It's used in conjunction with SOPREMA modified-bitumen membranes and supplied in 5 kg pails. It's used in combination with the Alsan Fleece 165 P.
- **Alsan Fleece 165 P** - a non-woven perforated polyester fleece for use with the Alsan Flashing Quado. It is supplied in rolls 200, 250, 300 and 1,050 mm wide by 50 m long.

Handling and Storage

5.1 Handling and storage of all materials whether on-site or off-site is under the control of the Enduroflex Pty Ltd certified applicators. Dry storage must be provided for all products and the rolls of membrane must be stored in an upright position.

Technical Literature

6.1 This Appraisal must be read in conjunction with:

- De Boer DuO Cold Roof on Concrete
  - DBCRC-DO Roof Built Up, 10/08/2016
  - DBCRC-D1 Parapet Detail, 10/08/2016
  - DBCRC-D3.1 De Boer PE Roof Drain with Leaf Catcher, 11/08/2016
  - DBCRC-D3.2 Allproof Dome Clamp Ring Drain, 17/08/2016
  - DBC1.1.1 Product Installation Step Procedure, 1/11/08
  - DBC2.1.1a Typical Outlet, 24/03/10
  - DBC2.1.3 Scupper Outlet, 8/07/09
  - DBC2.2.1 Vent Pipe Detail, 06/04/05
  - DBC3.1.1a Verge Details, 26/03/10
  - DBC4.1.1a Sill Flashing Detail, 26/03/10
  - DBC4.1.2 Chased Turn up Detail, 06/04/05
  - DBC7.1.1 Abseil System Fixing Detail, 12/06/08
- De Boer DuO Cold Roof on Plywood
  - DBCRP-DO Roof Built Up, 10/08/2016
  - DBCRP-D1 Parapet Detail, 10/08/2016
  - DBCRP-D3.1 De Boer PE Roof Drain with Leaf Catcher, 11/08/2016
  - DBCRP-D3.2 Allproof Dome Clamp Ring Drain, 17/08/2016
  - DBCRP-D11 Ventilation Pipe Detail, 25/10/2016
  - DBP1.1.1 Product Installation Step Procedure, 03/08/09
  - DBP2.1.2 Edge Gutter Detail, 8/07/09
  - DBP2.1.3a Central Gutter Detail, 26/03/10
  - DBP2.1.4 Scupper Outlet Detail, 8/07/09
  - DBP2.1.5a Internal Gutter Detail, 30/03/2010
  - DBP2.1.6a Skylight Flashing Detail, 26/03/10
  - DBP3.1.1a Eaves and Verge Detail, 30/03/2010
  - DBP4.1.1a Sill Flashing Detail, 26/03/10
  - DBP4.1.2a Threshold Detail, 26/03/10

6.2 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 Soprema DuO Roof Membrane Systems are for use on roofs, gutters and parapets 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. Enduroflex Pty Ltd should be consulted as to the suitability of any existing substrates prior to using Soprema DuO Roof Membrane Systems.

7.2 Soprema DuO Roof Membrane Systems are normally applied as double-layer systems, with a base layer and cap layer. There are a number of different options available, Enduroflex Pty Ltd should be consulted for the best option depending on performance requirements.

7.3 The effective control of internal moisture must be considered at the design stage because of the impermeability of the membranes. Refer to the BRANZ Good Practice Guide: Membrane Roofing.

Structure

8.1 Soprema DuO Roof Membrane Systems fully bonded double-layer systems are suitable for use in areas subject to maximum wind pressures of 4 kPa ultimate limit state (ULS).

Substrates

Plywood

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 a maximum spacing as detailed in AS 1684.3, Table 7.3. Fixings 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.)*

Concrete

9.2 Concrete substrates must be designed in accordance with the BCA.

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 re-fixed as for new plywood.

Durability

Serviceable Life

10.1 Soprema DuO Roof Membrane Systems will have a durability of at least 15 years and an expected serviceable life of over 25 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 Soprema DuO Roof Membrane Systems must be regularly (at least annually) checked for damage, rubbish or debris. Damage, such as small punctures and tears, must be repaired as recommended by Enduroflex 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.

Heating Appliances, Fireplaces, Chimneys and Flues

12.1 Soprema DuO Roof Membrane Systems must be protected or separated from fireplaces, heating appliances, chimneys and flues in accordance with the requirements of NCC Volume One, Performance G2P1 and NCC Volume Two, Performance H7P3.

Fire

13.1 The Soprema DuO Roof Membranes are combustible materials. Designers must take this into account when undertaking the fire design for the building.

External Moisture

14.1 Roofs must be designed and constructed to meet code compliance with NCC Volume One, Performance F3P1 and NCC Volume Two, Performance H2P2. They must also take account of snowfalls in snow prone areas.

14.2 When installed in accordance with this Appraisal and the manufacturer's Technical Literature, Soprema DuO Roof Membrane Systems will prevent the penetration of water and will therefore meet code compliance with NCC Volume One, Performance F3P1 and NCC Volume Two, Performance H2P2. The membranes are impervious to water and will give a weathertight roof capable of accepting minor structural movements.

14.3 Soprema DuO Roof 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 NCC Volume One, Performance F3P1 and NCC Volume Two, Performance H2P2.

14.4 The minimum service fall for roofs , decks and gutters is 1:100 as per AS4654.2:2002, Paragraph 2.5.2 and that all falls must slope to an outlet. Inadequate falls will allow moisture to collect and increase the risk of deterioration of the slate finish. Where possible BRANZ recommends a design fall of 1:50 for roofs and decks.

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

14.6 Allowance for deflection and settlement of the substrate must be made in the design of the roof.

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.

14.8 Penetrations and upstands of the membranes 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 Water is not contaminated by Soprema DuO Roof Membrane Systems.

15.2 The first 25 mm of rainfall from a newly installed Soprema DuO Roof Membrane Systems roof must be discarded before water collection starts. This is to remove residues which may have developed in the processes involved in the production of a Soprema DuO Roof Membrane Systems roof.

15.3 Though Soprema DuO Roof Membrane Systems will not contaminate water, 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 sterilisation system and tested. Sterilisation systems such as this have not been assessed and are outside the scope of this Appraisal.

Installation Information

Installation Skill Level Requirement

16.1 Installation of Soprema DuO Roof Membrane Systems must be completed by Enduroflex Pty Ltd certified applicators.

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. 585.

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 DuO Primer and left to dry before the membrane is installed.

Membrane Installation

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

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

18.3 The membrane is installed from the lowest point and each layer is installed across the roof fall allowing a 80 mm side overlap and a 100 mm end overlap. The cap sheet layer must be offset against the base sheet layer. *[Note: These are minimum overlap widths. Please refer to the Technical Literature for the specific overlap widths for the product being specified.]*

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.

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 Soprema DuO Roof Membrane Systems:

- Physical properties included tensile strength, elongation, tear strength, dimensional stability.
- Service performance testing included low temperature flexibility, heat resistance, static and dynamic indentation, fatigue cycling and peel resistance.
- Testing by SGS for dimensional stability, tear resistance, tensile strength, elongation at break, low temperature flexibility, heat resistance and tensile shear at joints.
- British Board of Agrément No. 98/3537.

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 have 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 Soprema DuO Roof Membrane Systems has been assessed and registered as meeting the requirements of ISO 9001.

22.2 The quality of the supply of products to the Australian market is the responsibility of Enduroflex Pty Ltd.

22.3 Quality on-site is the responsibility of the Enduroflex Pty Ltd certified applicators.

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 Enduroflex Pty Ltd and this Appraisal.

22.5 Building owners are responsible for the maintenance of the membrane systems in accordance with the instructions of Enduroflex Pty Ltd and this Appraisal.

Sources of Information

- AS 1684.3:2010 Residential timber-framed construction - Cylonic area.
- AS/NZS 1170:2002 Structural design actions.
- AS/NZS 2269:2012 Plywood – Structural.
- BRANZ Good Practice Guide: Membrane Roofing (Second Edition), October 2015.
- National Construction Code 2022 - Australian Building Codes Board.
- Technical Note on the Use of EWPAA Branded Structural Plywood As Exterior Decking - PAA Engineered Wood Products Association of Australasia.

Amendments

Amendment No. 1, dated 24 May 2024

This Appraisal has been amended to update acceptable falls as defined by AS4654.2:2002, update product names, update NCC to 2022 references and update durability to 25 years.

BRANZ

In the opinion of BRANZ, Soprema DuO Roof 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 Soprema nv, 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. Soprema nv:
   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 Soprema nv.
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 Soprema nv or any third party.

For BRANZ

Chelydra Percy
Chief Executive

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