



BRANZ Appraised

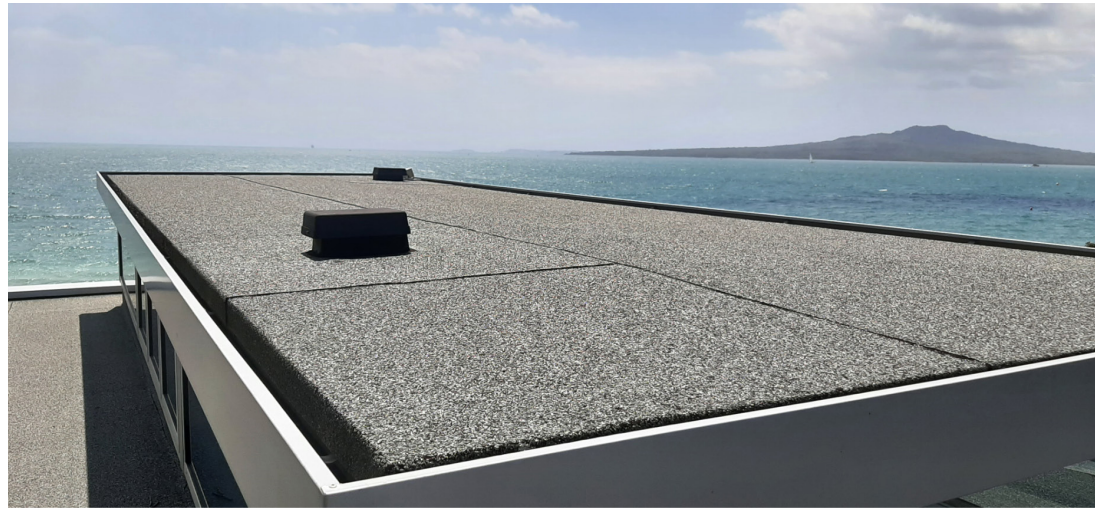
Appraisal No. 520 [2019]

NOVA-SK, NOVAFLEX AND POLIBIT ROOF AND DECK WATERPROOFING MEMBRANES

Appraisal No. 520 [2019]

This Appraisal replaces BRANZ
Appraisal No. 520 [2013].

Amended 08 June 2023



BRANZ Appraisals

Technical Assessments of
products for building and
construction.



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Product

- 1.1 Nova-SK, Novaflex and Polibit Roof and Deck Waterproofing Membranes are waterproofing membranes for nominally flat, pitched and curved roofs, gutters, parapets and decks. The products are installed as double layer systems on roofs with mineral chip or paint finish, and on decks with a mineral chip finish and protected by a raised deck system. On concrete roofs and decks, the products are installed as a single layer system and protected by paving slabs or screed.
- 1.2 The products are supplied as torch-on or self adhesive, reinforced, polymer-modified bitumen sheets in roll form.

Scope

- 2.1 Nova-SK, Novaflex and Polibit Roof and Deck Waterproofing Membranes 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 with respect to building height and maximum floor plan areas; and,
 - with building structures designed and constructed to meet the requirements of the NZBC; and,
 - with roof and deck supporting structures of timber framing with substrates of plywood or fibre cement sheet; and,
 - with substrates of suspended concrete slabs; and,
 - situated in NZS 3604 Wind Zones up to, and including, Extra High; and,
 - with decks that have a maximum area of 40 m² [refer to Paragraph 7.4].
- 2.2 Nova-SK, Novaflex and Polibit Roof and Deck Waterproofing Membranes have also been appraised for use as roof and deck waterproofing membranes on specifically designed buildings within the following scope:
 - with building structures designed and constructed to comply with the NZBC; and,
 - with roof and deck supporting structures of timber framing with substrates of plywood, cross laminated timber [CLT] or fibre cement sheet; 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.]



- 2.3 Roofs and decks waterproofed with Nova-SK, Novaflex and Polibit Roof and Deck Waterproofing Membranes must be designed and constructed in accordance with the following limitations:
- nominally flat, curved or pitched roofs, and decks constructed to drain water to gutters and drainage outlets complying with the NZBC; and,
 - constructed to suitable falls [refer to Paragraphs 13.3 and 13.4]; and,
 - with no integral roof gardens; and,
 - no steps in level within the deck area, except into gutters; and,
 - no downpipes directly discharging to decks; and,
 - with the membranes on decks protected from physical damage and ultraviolet (UV) light by ceramic or stone tile finishes or timber, resting on approved pedestal support system or Soprema Kraitec Step rubber tiles.
- 2.4 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.
- 2.5 The membranes must be installed by Equus Industries Ltd licensed and trained installers.

Building Regulations

New Zealand Building Code (NZBC)

- 3.1 In the opinion of BRANZ, Nova-SK, Novaflex and Polibit Roof and Deck Waterproofing Membranes, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet the following provisions of the NZBC:

Clause B2 DURABILITY: Performance B2.3.1 [b] 15 years. Nova-SK, Novaflex and Polibit Roof and Deck Waterproofing Membranes meet this requirement. See Paragraph 10.1. Performance B2.3.1 [c] 5 years. Alumaticote, Enviroflect Aluminium, Colour-It, or Aquaseal meet this requirement. See Paragraph 10.2.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.1 and E2.3.2. Nova-SK, Novaflex and Polibit Roof and Deck Waterproofing Membranes meet these requirements. See Paragraphs 13.1-13.9.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Nova-SK, Novaflex and Polibit Roof and Deck Waterproofing Membranes meet this requirement.

Technical Specification

- 4.1 Materials supplied by Equus Industries Ltd are as follows:
- **Novaflex Membrane** - a 3 or 4 mm thick modified bitumen, torch-applied sheet waterproofing membrane with a sanded upper surface primarily used as a base layer in a double layer system. It is supplied in 1 m x 10 m rolls.
 - **Novar-WS FLL Membrane** - a 4 mm thick modified bitumen, torch-applied sheet waterproofing membrane with an upper layer of mineral chip [black diamond] and a lower face of thermo-fusible polyolefinic film with a special root resistant reinforcement. It is supplied in 1 m x 10 m rolls.
 - **Nova-SK** - a 3 mm thick modified bitumen sheet waterproofing membrane with composite reinforcement. The upper surface is coated with thermo-fusible polyolefinic film or non-woven polypropylene. The lower surface and selvedge are protected with an anti-adhesive removable film. It is supplied in 1 m x 10 m rolls.
 - **Nova-SK Mineral** - a 4.5 kg/m² modified bitumen sheet, self-adhesive waterproofing membrane with composite reinforcement. The upper surface is coated with coloured slate chips. The lower surface and selvedge are protected with an anti-adhesive removable film. It is supplied in 1 m x 10 m rolls.



- **Polibit Membrane** - a 3 or 4 mm thick modified bitumen, torch-applied sheet waterproofing membrane with an upper layer of either sand or mineral chip and a lower face of thermo-fusible polyolefinic film. The sand finished membrane can be used as a base layer of a double layer system, or as both layers in a double layer finish with UV protection. The mineral finish is used as a cap sheet in a double layer system. It is supplied in 1 m x 10 m rolls.
- **Polibit H-P** - a 4 mm thick APP-modified bitumen, torch-applied sheet waterproofing membrane with an upper layer of black diamond mineral chip finish.
- **Polibit S-P** - a 4 mm thick APP-modified bitumen, torch-applied sheet waterproofing membrane with an upper layer of coloured mineral chip finish.
- **Nova-Per** - a perforated [199 holes/m²], modified bitumen sheet membrane, for use when partially bonded waterproofing system is required. This system allows equalising of pressure in order to avoid blisters, dimensional stability of the waterproofing system and reduction of possible fatigue in the completed membrane caused by cyclic movement or microcracking. It is supplied in 1 m x 30 m rolls.
- **Novaglass™ Enviroflect** - a water-based, bituminous aluminium paint for protecting new and old modified bituminous waterproofing membranes.
- **Novaglass™ Vernice Aluminium** - a water-based, bituminous aluminium coating to use in conjunction with new and old bitumen membranes
- **Novaglass™ Easygum/Soprema Easy Flashing** - a water-based, bituminous coating to use in conjunction with new and old bitumen membranes.
- **Sopradere Quick bitumen primer** - a solvent-based cutback bitumen primer for substrates prior to the installation of the membrane.
- **Equus Peel & Stick Primer** - a rubber-based adhesive solvent solution which is specifically formulated to improve the adhesion of self-adhesive waterproofing membranes
- **Aquadere bitumen primer** - a water-based cutback bitumen primer for substrates prior to the installation of the membrane.
- **Alsan Mastic 2200 sealant** - a bituminous sealant for detailing membrane terminations and penetrations.
- **Alsan Flashing Quadro** - a single-component polyurethane resin for waterproofing roof details. It is compatible to mineral finished Novaglass waterproofing membranes.
- **Permabase Dek** - 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.
- **Equus Fix Plus Pedestal** - an adjustable pedestal protection system.
- **Equus Bitumen Fillets** - pre-formed bitumen angle fillets.

Handling and Storage

- 5.1 Handling and storage of all materials, whether on-site or off-site, is under the control of the Equus Industries 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 Nova-SK, Novaflex and Polibit Roof and Deck Waterproofing Membranes. 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 Nova-SK, Novaflex and Polibit Roof and Deck Waterproofing Membranes 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. Equus Industries Ltd should be consulted as to the suitability of any existing substrates prior to using Nova-SK, Novaflex and Polibit Roof and Deck Waterproofing Membranes.
- 7.2 The effective control of internal moisture must be considered at the design stage due to the impermeability of the membranes. Refer to the BRANZ Good Practice Guide: Membrane Roofing.
- 7.3 The 3 mm or 4 mm thick Novaflex, Nova-SK or Nova-SK Mineral membranes are designed for use on roofs, decks and gutters as the first layer of a double layer system, and all areas requiring detailing such as upstands, protrusions, rainwater heads and outlets. The Polibit membranes can be used as the top layer of a double layer system, or as a single layer system, see Table 1.
- 7.4 NZBC Acceptable Solution E2/AS1 limits the size of decks to 40 m², as covered by the scope of this Appraisal. Nova-SK, Novaflex and Polibit Roof and Deck Waterproofing Membranes are suitable for use on decks larger than 40 m². These decks are the subject of specific design and are outside the scope of this Appraisal.
- 7.5 Nova-SK, Novaflex and Polibit Roof and Deck Waterproofing Membranes, when used on decks, require a pedestal protection system such as the Equus Fix Plus pedestal system. Equus Industries Limited should be contacted for the best system to meet design requirements.

Structure

- 8.1 Nova-SK, Novaflex and Polibit Roof and Deck Waterproofing Membranes 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, Paragraphs 8.5.3 and 8.5.5. Where specific design is used, [i.e. outside the scope of NZBC Acceptable Solution 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. 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.

Cross Laminated Timber [CLT]

- 9.2 The CLT must be installed in accordance with the manufacturer's instruction.

Concrete

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

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.



Table 1: Nova-SK, Novaflex and Polibit Roof and Deck Waterproofing Membrane Systems

System	Area	Single Layer	Double Layer	Protection Required
Single layer sand finished system	Roof [concrete only]	4 mm top layer		Paving slabs or cement screeds
Double layer sand finished system	Roof		3 or 4 mm base layer with 3 or 4 mm top layer	Enviroflect Aluminium, Colour-It/Aquaseal or paving slabs
Double layer mineral finished system	Roof		3 or 4 mm base layer with 4 mm mineral chip top layer	Standard finish of material
Double layer mineral finished system	Deck		3 or 4 mm base layer with 4 mm mineral chip top layer	Ceramic or stone tile finishes or timber on a raised deck system
Single layer Mineral finished system	Deck [concrete only]	4 mm		Paving slabs on approved pedestals

Durability

Serviceable Life

- 10.1 Nova-SK, Novaflex and Polibit Roof and Deck Waterproofing Membranes are 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.
- 10.2 Novaglass™ Enviroflect, or Novaglass™ Vernice Aluminium or Novaglass™ Easygum are expected to have a serviceable life of at least 5 years, provided they are used, installed and maintained in accordance with this Appraisal and the Technical Literature.

Chemical Resistance

- 10.3 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 Nova-SK, Novaflex and Polibit Roof and Deck Waterproofing Membranes, 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 Equus Industries 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.

Prevention of Fire Occurring

- 12.1 Separation or protection must be provided to Nova-SK, Novaflex and Polibit Roof Waterproofing Membranes from heat sources such as fireplaces, heating appliances, flues and chimneys. Part 7 of NZBC Verification Method C/VM1 and NZBC Acceptable Solution C/AS1, and NZBC Acceptable Solution C/AS2 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 in 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, Nova-SK, Novaflex and Polibit Roof and Deck Waterproofing Membranes 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 and not created with mortar screeds applied over the membrane.
- 13.4 The minimum fall to roofs is 1 in 30, decks 1 in 40, concrete substrates 1 in 60 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.
- 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 Nova-SK, Novaflex and Polibit Roof and Deck Waterproofing Membranes 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 Nova-SK, Novaflex and Polibit Roof and Deck Waterproofing Membranes, and they comply with the provisions of NZBC G12.3.1. Nova-SK, Novaflex and Polibit Roof and Deck Waterproofing Membranes have been tested against, and shown to comply with AS/NZS 4020.
- 14.2 The first 25 mm of rainfall from a newly installed Nova-SK, Novaflex and Polibit Roof and Deck Waterproofing Membranes 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 Nova-SK, Novaflex and Polibit Roof and Deck Waterproofing Membranes roof.
- 14.3 Though Nova-SK, Novaflex and Polibit Roof and Deck Waterproofing Membranes 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.



Installation Information

Installation Skill Level Requirement

- 15.1 Installation must always be carried out in accordance with the Nova-SK, Novaflex and Polibit Roof and Deck Waterproofing Membranes Technical Literature and this Appraisal, by, or under the supervision of, a Licensed Building Practitioner [LBP] with the relevant Licence Class.
- 15.2 Installation and finishing of components and accessories supplied by Equus Industries Ltd and its licensed and trained installers must be completed by licensed and trained installers, approved by Equus Industries Ltd.
- 15.3 Installation of the accessories supplied by the building contractor must be carried out in accordance with the Nova-SK, Novaflex and Polibit Roof and Deck Waterproofing Membranes 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 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.
- 16.4 Substrates must be primed with Sopradere Quick or Aquadere bitumen primer 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, deck and wall junctions must have a 20 mm x 20 mm wooden or bitumen 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. Alternatively, bitumen fillets of 25 mm x 25 mm can be used.
- 17.3 The membranes must be unrolled without tension onto the prepared substrate and allowed to 'relax' for at least 30 minutes prior to installation.
- 17.4 The membranes are installed from the lowest point and each layer is installed across the roof or deck falls allowing a 75 mm side overlap and a 150 mm end overlap. The cap sheet layer of a double layer system must be offset against the base sheet layer. Note: It is allowable to install the membranes following the roof or deck falls.

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 Equus Industries Ltd instructions.



Health and Safety

- 19.1 Safe use and handling procedures for Nova-SK, Novaflex and Polibit Roof and Deck Waterproofing Membranes 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 Nova-SK, Novaflex and Polibit Roof and Deck Waterproofing Membranes:
- Istituto per le Tecnologie della Construzione (ITC) for tensile and elongation, tear resistance, flexibility at low temperature, resistance to static loading, resistance to dynamic loading, dimensional stability, flow resistance at elevated temperatures, adhesion of granules and watertightness.
 - ICITE for polyester reinforcement, coating mass, tensile strength, elongation, tear strength, dimensional stability, low temperature flexibility, heat resistance, sliding resistance, watertightness, static and dynamic indentation, fatigue cycling, peel resistance, air pressure and tensile strength of joints.
- 20.2 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 BRANZ has taken note of Technical Assessments and certifications covering quality aspects associated with the product.
- 22.3 The quality of the supply of products to the New Zealand market is the responsibility of Equus Industries Ltd.
- 22.4 Quality on-site is the responsibility of the Equus Industries Ltd licensed and trained installers.
- 22.5 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 Equus Industries Ltd and this Appraisal.
- 22.6 Building owners are responsible for the maintenance of the membrane systems in accordance with the instructions of Equus Industries Ltd and this Appraisal.



Sources of Information

- AS/NZS 1170:2002 Structural design actions.
- AS/NZS 2269:2012 Plywood – structural.
- AS/NZS 4020:2018 Testing of products for use in contact with drinking water.
- BRANZ Good Practice Guide: Membrane Roofing, 2nd Edition, 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 26 March 2021

This Appraisal has been amended to update the Appraisal holder and update the technical specifications.

Amendment No. 2 dated 08 June 2023

This Appraisal has been amended to update the Appraisal title, manufacturer details and update the technical information.



BRANZ Appraised
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23 May 2019

NOVA-SK, NOVAFLEX AND
POLIBIT ROOF AND DECK
WATERPROOFING MEMBRANES



In the opinion of BRANZ, **Nova-Sk, Novaflex and Polibit Roof And Deck Waterproofing Membranes** 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 **Equus Industries 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. **Equus Industries 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 **Equus Industries 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 **Equus Industries Ltd** or any third party.

For BRANZ

Chelydra Percy

Chief Executive

Date of Issue:

23 May 2019