

Viking Epiclاد (EPDM) Rubber Waterproofing Membrane



BRANZ Appraised
Appraisal No. 307 [2019]

**BUTYLCLAD, EPICLAD
AND EPICLAD FBS
ROOF MEMBRANES**

Product Description

Viking Epiclاد is a synthetic rubber waterproofing membrane system made from EPDM rubber polymer. Epiclاد is supplied as a single-ply, flexible synthetic rubber sheet in roll form.

Epiclاد is highly resistant to UV, ozone and weathering. It possesses strong elasticity, tensile and elongation properties - a timber building's substrate will flex and move, especially during the change in seasons. Epiclاد will not split or tear under this kind of movement. It is known as its 'elongation at break' property (480%) which means it copes significantly better than other membranes put under equal duress.

Epiclاد has wide-sheets (fewer seams), so it is ideal for more expansive, open commercial and residential projects, such as roofs, waterproofing under decks, balconies, parapets, wider gutters, pond liners and reservoirs. It is particularly useful for areas with irregular angles, curves and contours as it is a very pliable material and can readily mould to difficult designs and shapes. Epiclاد is formulated to suit a wide-range of climatic conditions, including inland and coastal.

Epiclاد is potability certified, meaning drinking water can safely be collected off an Epiclاد roof. Other features:

- BRANZ Appraised No. 307 (2013).
- Backed by a 20-yr product warranty, and is eligible for Viking's Full System Warranty, which covers the product and installation warranties in one document. (*conditions apply)
- Available in black.
- 1.14mm and 1.52mm thicknesses, roll length 15.2m, roll width, 3.0m, 6.0m.
- Can be painted with approved paint systems - design flexibility.
- Manufactured in the USA by Carlisle Syntec Systems Inc. - the USA's largest EPDM sheet rubber manufacturer.

Scope of Use:

Viking Epiclاد Membrane has been appraised for use as a waterproofing membrane for buildings within the following scope:

- Scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; and,
- With timber supporting structures designed and constructed in accordance with the NZBC; and,
- With nominally flat or pitched roofs constructed to drain water to gutters and drain outlets complying with NZBC; and,
- With substrates of plywood sheet.

Viking Epiclاد Membrane has also been appraised for use as a waterproofing membrane for external reinforced

concrete and plywood roofs and decks for buildings within the following scope:

- Up to 3 storeys with a maximum height from ground to eaves of 10m and with a floor plan area limited only by seismic and structural control joints.

New Zealand Building Code (NZCB):

The product will, if employed in accordance with the supplier's installation and maintenance requirements, assist with meeting the following provisions of the building code:

- Clause B2 Durability: Performance B2.3.1, B2.3.1(b)
- Clause E2 External moisture: Performance E2.3.1, E2.3.2
- Clause F2 Hazardous building materials: Performance F2.3.1

Product Criteria

Design Requirements

Product specification and incorporation of Viking Epiclad Membranes into the building design shall be carried out by a designer/architect/engineer or a building professional who:

- Is qualified to design the buildings covered under the 'Scope' of use of this product.
- Has ready access to the technical specifications including installation details and standards referenced in the BRANZ Appraisal No. 307 (2013) where the design limitations are outlined for the scope of this PTS.

The Viking Epiclad system comes with a range of accessories including sumps, scuppers and overflows.

Installation Requirements

- Installation shall be carried out only by a Viking Roofspec trained and licensed installer.
- Installation shall be undertaken in accordance with all relevant technical information related to the selected installation method, including information contained within the BRANZ Appraisal No. 307 (2013).
- Long term properties of the material may be affected by contact with petroleum-based products such as oils, greases and solvents.

Maintenance Requirements

- No maintenance of the membrane is normally required provided significant substrate movement does not occur.
- In the event of damage to the membrane, the membrane must be repaired by removing the damaged portion and applying a patch as for new work.
- Drainage outlets must be maintained to operate effectively.

Warranties

Viking Epiclad is backed by a 20-year product warranty. For specific projects, Epiclad can be eligible to be covered by Viking's Full System Warranty. This warranty covers the product and installation in one document.

Company Product Information

Environmental

Epiclad has a potable water certificate - drinking water can be collected off an Epiclad roof.

CAD Details

Please visit our website www.vikingroofspec.co.nz or our masterspec listing for our latest CAD Roofing details.

Physical Properties

Both the 1.14mm and 1.52mm thick EPDM membranes are available in standard (STD) and Fire Retardant (FR), which may be utilised to comply with specific Underwriters Laboratories (UL) code requirements. Refer to the Carlisle Code Approval Guide, published separately, for specific UL approved assemblies.

Physical Property	Test Method	Spec.Metric (Pass)	Standard	FR
Tolerance on nominal Thickness, %	ASTM D 412	± 10	± 10	± 10
Tensile Strength, min (MPa)	ASTM D 412	9	10.7	10.7
Elongation, Ultimate, min, %	ASTM D 412	300	480	480
Tear Strength, min, %	ASTM D 624 (Die C)	26.3	35.0	35.0
Factory Seam Strength, min	Modified ASTM D 816	Membrane Rupture	Membrane Rupture	Membrane Rupture
Resistance to Heat Ageing* Properties after 4 weeks @ 116° Tensile Strength, min, (MPa)	ASTM D 573	8.3	10.3	10.3
Elongation, Ultimate, min, %	ASTM D 412	200	225	225
Tear Strength, min (kN/m)	ASTM 624	21.9	37.6	37.6
Linear Dimensional Change, max, %	ASTM D 1204	±1	- 0.4	- 0.4
Ozone Resistance* Condition after exposure to 100 pphm Ozone in air for 168 hours @ 40°F Specimen is at 50% strain	ASTM D 1149	No Cracks	No Cracks	No Cracks
Brittleness Temp, max (deg C)	ASTM D 746	- 45	- 55	- 55
Resistance to Water Absorption* After 7 Days in immersion @70°C Change in mass, max %	ASTM D 471	+ 8 - 2	2.0	2.0
Water Vapour Permeability* Max, perm-mils	ASTM E 96 (Proc B or BW)	0.10	0.05	0.05
Resistance to Outdoor (Ultraviolet) Weathering * Xenon-Arc 7560 kj/m ²	ASTM G 26	No Cracks	No Cracks	No Cracks
total radiant exposure at 0.70 W/M ² irradiance, 80°C black panel temperature	No Crazing	No Crazing	No Crazing	

* Not a Quality Control Test due to the time required for the test or the complexity of the test. However, all tests are run on a statistical basis to ensure overall long-term performance of the sheeting.



BRANZ Appraised
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BUTYLCLAD, EPICLAD AND EPICLAD FBS ROOF MEMBRANES

Appraisal No. 307 [2019]

This Appraisal Replaces BRANZ
Appraisal No. 307 [2013].



BRANZ Appraisals

Technical Assessments of
products for building and
construction.



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Product

- 1.1 Butylclad, Epiclad and Epiclad FBS Roof Membranes are synthetic rubber waterproofing membranes designed to be used on roofs, decks, balconies, parapets and gutters.
- 1.2 These products are supplied as single-ply, flexible synthetic rubber sheet in roll form and installed as single layer systems.

Scope

- 2.1 Butylclad, Epiclad and Epiclad FBS Roof Membranes have been appraised for use as waterproofing membranes for buildings within the following scope:
 - scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; and,
 - with timber supporting structures designed and constructed in accordance with the NZBC; and,
 - with nominally flat or pitched roofs constructed to drain water to gutters and drain outlets complying with NZBC; and,
 - with substrates of plywood sheet; and,
 - with decks that have a maximum size of 40 m².
- 2.2 Butylclad, Epiclad and Epiclad FBS Roof Membranes have also been appraised for use as waterproofing membranes for external reinforced concrete and plywood roofs and decks for buildings within the following scope:
 - up to 3 storeys with a maximum height from ground to eaves of 10 m and with a floor plan area limited only by seismic and structural control joints; and,
 - with the reinforced concrete structure designed and constructed in accordance with the NZBC; and,
 - with timber supporting structures designed and constructed in accordance with the NZBC; and,
 - with nominally flat, curved or pitched roofs constructed to drain water to gutters and drain outlets complying with the NZBC.
- 2.3 This Appraisal is limited to roofs and decks within the following scope:
 - constructed to suitable falls [Refer Paragraph 12.1 – 12.9]; and,
 - with no steps within a deck level, no integral roof gardens and no down pipe discharging directly onto a deck.
- 2.4 The design and construction of the substrate and movement and control joints is specific to each building, and 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 Viking Roofspec.

Building Regulations

New Zealand Building Code (NZBC)

3.1 **In the opinion of BRANZ, Viking Butylclad, Epiclad and Epiclad FBS 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 NZBC:**

Clause B2 DURABILITY: Performance B2.3.1 [b] 15 years. Viking Butylclad, Epiclad and Epiclad FBS Roof Membrane Systems meet this requirement. See Paragraph 9.1.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.1 and E2.3.2. Roofs, decks, balconies, parapets and gutters incorporating Viking Butylclad, Epiclad and Epiclad FBS Roof Membrane Systems meet these requirements. See Paragraphs 12.1 – 12.9.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Viking Butylclad, Epiclad and Epiclad FBS Roof Membrane Systems meet this requirement and will not present a health hazard to people.

Technical Specification

4.1 Materials supplied by Viking Roofspec are as follows:

Membrane Type	Colour	Thickness [mm]	Roll Lengths [m]	Roll Widths [m]
Butylclad	Black or Grey	1.0	25	1.35
	Black or Grey	1.5	20	1.35
Epiclad	Black	1.14	15.2*	3.0, 6.0
	Black	1.5	15.2*	3.0, 6.0
Epiclad FBS	Black	1.14	15.2*	3.0
	Black	1.52**	15.2*	3.0

* Roll lengths of 30 metres are available on indent

** Available on indent

- **Viking BMA [Butylclad Membrane Adhesive]** - A specially formulated solvent-based adhesive for all Butylclad applications. Supplied in 20 litre containers.
- **Viking Epiclad EPDM Adhesive** - A specially formulated solvent-based adhesive for all Epiclad applications. Supplied in 20 litre drums.
- **Carlisle FAST™ Adhesive Dual Cartridge** - Is a two-component, polyurethane adhesive used to bond the material to the substrate. Supplied as a dual cartridge with a total volume of 1.5 litres.
- **BMA Solvent** - A toluene based solvent used to clean substrates or when mixed 50/50 with Viking BMA adhesive as a primer for all substrates. Supplied in 20 litre drums.
- **Viking Lap Primer** - A primer to provide a clean surface for Epiclad EPDM and Butylclad prior to the application of lap and flashing tapes. Supplied in 1 litre drums.
- **Viking Superseal Self Adhesive Lap Tape** - A self adhesive blend of rubbers and inert fillers that can be used when lapping either Butylclad, Epiclad or Epiclad FBS. Supplied in 76 mm x 30 m lengths.
- **Viking Lap Sealant** - A tough, durable elastomeric joint sealant suitable for use over a wide range of external and internal building applications and sealing the edges of either Butylclad or Epiclad EPDM membrane. Supplied in a 300 ml cartridge.
- **Butylclad/Epiclad Flashing Tape** - A self adhesive semi-cured Butyl tie gum that is very elastic for moulding or flashing of details work. Supplied as a 150 mm wide x 30.4 m roll.
- **Epiclad FBS Overlay Tape** - A self adhesive tape that is used to overlay Epiclad FBS butt jointed sheets. Overlay tape can also be used for repair of Butylclad or Epiclad lap joints. Supplied as a 150 mm wide x 30.4 m roll.

Handling and Storage

- 5.1 Handling and storage of all materials whether on or off site is under the control of the Viking Roofspec trained installers. Dry storage must be provided for all products.

Technical Literature

- 6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for the Butylclad, Epiclad and Epiclad FBS Roof 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 Butylclad, Epiclad and Epiclad FBS Roof Membranes are for use on roofs and decks where an impervious waterproof membrane is required to prevent damage to building elements and adjoining areas.
- 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 to Membrane Roofing".
- 7.3 Timber framing systems 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 that all sheet edges are fully supported.
- 7.4 When fully bonded to continuous substrates, Butylclad, Epiclad and Epiclad FBS Roof Membranes will be suitable for use on roofs, decks and balconies on buildings in NZS 3604 Wind Zones, up to and including Extra High.
- 7.5 Butylclad, Epiclad and Epiclad FBS Roof Membranes have adequate resistance to wear caused by foot traffic associated with normal membrane installation and maintenance. Thicker grades will perform better on decks or other areas subject to regular foot traffic.
- 7.6 Where the products are likely to be subject to heavier use and there is the risk of damage, the membrane must be protected by covering with decking, pavers or by other suitable means.
- 7.7 Epiclad FBS membrane is particularly suited for over-cladding existing roofs, bitumen-based coverings and other situations where a higher level of preparation of the substrate to receive the membrane is not possible. Viking Roofspec should be consulted as to the suitability of an existing substrate prior to using Epiclad FBS membrane.

Substrates

Plywood

- 8.1 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 NZBC E2/AS1], the plywood thickness and fixing size may increase and centres may decrease to meet specific wind loadings.

Concrete

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

Durability

Serviceable Life

- 9.1 Butylclad, Epiclad and Epiclad FBS Roof Membranes when subjected to normal conditions of environment and use, are expected to have a serviceable life of at least 20 years.

Maintenance

- 10.1 No maintenance of the membranes is normally required provided significant substrate movement does not occur.
- 10.2 In the event of damage to the membrane, the membrane must be repaired by removing the damaged portion and applying a patch as for new work.
- 10.3 Drainage outlets must be maintained to operate effectively.

Prevention of Fire Occurring

- 11.1 Separation or protection must be provided to the membranes from heat sources such as fire places, heating appliances and chimneys. Part 7 of NZBC Acceptable Solutions C/AS1 – C/AS6 and NZBC Verification Method C/VM1 provide methods for separation and protection of combustible materials from heat sources.

External Moisture

- 12.1 Roofs, decks and balconies 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 matches details in NZBC Acceptable Solution E2/AS1.
- 12.2 When installed in accordance with this Appraisal and the Technical Literature, Butylclad, Epiclad and Epiclad FBS Roof Membranes will prevent the penetration of water and will therefore meet code compliance with Clause E2.3.2. The membranes are impervious to water and will give a weathertight roof, deck, or balcony.
- 12.3 The minimum fall to roofs is 1 in 30, decks are 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.
- 12.4 Butylclad, Epiclad and Epiclad FBS Roof Membranes are impermeable; therefore a means of dissipating construction moisture must be provided in the building design and construction to meet code compliance with Clause E2.3.6.
- 12.5 Roof and deck falls must be built into the substrate and not created with mortar screeds applied over the membrane.
- 12.6 Allowance for deflection and settlement of the substrate must be made in the design of the deck to ensure falls are maintained and no ponding of water can occur.
- 12.7 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 deck or balcony does not drain to an external gutter or spouting.
- 12.8 Penetrations and upstands of the membranes must be raised above the level of any possible flooding caused by blockage of deck drainage.
- 12.9 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

- 13.1 Butylclad, Epiclad and Epiclad FBS Roof Membranes have not been appraised for roofs used for the collection of potable water. Viking Roofspec must be consulted for advice if the roof is intended for the collection of potable water supplies.



Installation Information

Installation Skill Level Requirement

- 14.1 Installation of the membranes must be completed by trained applicators, approved by Viking Roofspec.
- 14.2 Installation of substrates must always be carried out in accordance with the Butyclad Epiclad and Epiclad FBS Roof 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

- 15.1 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.
- 15.2 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.
- 15.3 The moisture content of the plywood and the timber substructure must be a maximum of 20% and plywood sheet 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.
- 15.4 Substrates must be primed with a 50/50 solution of Viking BMA and BMA Solvent and left to dry before the membrane is installed.

Membrane Installation

- 16.1 The membrane must be installed in accordance with the Technical Literature.
- 16.2 Plywood joints must be taped with 25 mm wide PVC pressure sensitive tape.
- 16.3 The membrane must be unrolled without tension onto the prepared substrate and allowed to 'relax' for at least 20 minutes prior to installation.
- 16.4 Adhesive must be applied to both the membrane and the substrate, one half at a time. When the adhesive is tack dry, the sheet is rolled onto the substrate. The process is then repeated for the other half of the sheet. All joints require lap bonding using Viking Superseal Lap Tape.

Inspections

- 17.1 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

- 18.1 Safe use and handling procedures for the membrane systems are provided in the Technical Literature. The products must be used in conjunction with the relevant Material Safety Data Sheet for each membrane.

Basis of Appraisal

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

Tests

- 19.1 Tests have been carried out on Butylclad membrane for material thickness, tensile strength, elongation at break, water absorption, water vapour permeance and heat ageing followed by tensile and elongation as detailed in NZBC Acceptable Solution E2/AS1, Paragraph 8.5.4 [b]. Results and test methods have been reviewed by BRANZ and found to be satisfactory.
- 19.2 Tests have been carried out on the Epiclad and Epiclad FBS membranes. This testing covered tensile strength, elongation, tear resistance, factory seam strength, resistance to heat ageing, brittleness point, ozone resistance, water absorption, water vapour permeability and resistance to UV exposure.
- 19.3 The adhesives, primers and seam tapes used with Butylclad, Epiclad and Epiclad FBS Roof Membranes meet the intended performance requirements of NZBC Acceptable Solution E2/AS1, Paragraph 8.5.4 [c].

Other Investigations

- 20.1 Site visits have been carried out by BRANZ to assess the practicability of installation, and to examine the performance of Butylclad on installations completed as early as 1973.
- 20.2 The Technical Literature has been examined by BRANZ and found to be satisfactory.
- 20.3 Reported information on the performance of Butyl and EPDM rubber and its resistance to accelerated and natural weathering, and the long-term field experience with Butyl and EPDM rubber roof membranes in New Zealand and overseas has been examined.

Quality

- 21.1 The manufacture of the Butylclad membrane has been inspected by BRANZ, and details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory.
- 21.2 The quality of manufacture of the Butylclad membrane is the responsibilities of Viking Roofspec.
- 21.3 The manufacture of the Epiclad and Epiclad FBS membranes has not been inspected by BRANZ but details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory.
- 21.4 The quality of manufacture of Epiclad and Epiclad FBS membranes is the responsibility of Carlisle Syntec Systems Inc. Carlisle Syntec Systems Inc. has been assessed and accredited as meeting the requirements of BS EN ISO 9001: 2015 by BSI Management Systems.
- 21.5 The quality of supply of the products to the market is the responsibility of Viking Roofspec.
- 21.6 Quality on site is the responsibility of the Viking Roofspec trained applicators.
- 21.7 Designers are responsible for the substrate design, and building contractors are responsible for the quality of construction of substrate systems in accordance with the instructions of the substrate manufacturer, Viking Roofspec and this Appraisal.



Sources of Information

- AS/NZS 1170: 2002 Structural design actions.
- AS/NZS 2269: 2012 Plywood – Structural.
- ASTM E96-02 Water vapour transmission of materials in sheet form.
- ASTM D297-93 Test methods for rubber products – chemical analysis.
- ASTM D746-79 Test method for brittleness temperature of plastics and elastomers by impact.
- ASTM D4637-87 Standard specification for vulcanized rubber sheet used in single-ply roofing.
- BS 903:1989, Part A2 Method of testing vulcanized rubber. Determination of tensile cross grain properties.
- BS 903:1989, Part A3 Methods for testing vulcanized rubber. Determination of tear strength.
- NZS 3101: 2006 The design of concrete structures.
- NZS 3109: 1997 Concrete construction.
- NZS 3604: 2011 Timber-framed buildings.
- Acceptable Solutions and Verification Methods for New Zealand Building Code External Moisture Clause E2, Ministry of Business, Innovation and Employment, Third Edition July 2005 [Amendment 8, 30 November 2018].
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.
- BRANZ Good Practice Guide – Membrane Roofing, 2nd Edition October 2015.



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09 May 2019

BUTYLCLAD EPICLAD AND
EPICLAD FBS ROOF MEMBRANES



In the opinion of BRANZ, **Butylclad, Epiclاد and Epiclاد FBS Roof 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 **Viking Roofspec**, 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. **Viking Roofspec**
 - 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 **Viking Roofspec**.
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 **Viking Roofspec** or any third party.

For BRANZ

Chelydra Percy

Chief Executive

Date of Issue:

09 May 2019

- Ensure concrete substrate has been allowed to fully cure – at least 28 days from pour
- If the concrete is less than 28 days old and a concrete surface sealer has been used or a rapid curing compound, you must identify the product and verify correct curing has taken place prior to laying
- Relative humidity of concrete substrates must be 75% or less before application. (This can be verified with the use of hygrometer). Viking Roofspec recommends the use of two coats of **Viking Surface Sealer** to control moisture within the substrate prior to the waterproofing membrane installation
- Fill hollows or holes with a cement plaster, or FLC
- Surface to be smooth, clean, dry and free of debris or release agents
- Venting installed as required. Contact Viking Roofspec if a venting specification has not been provided
- Use minimum 50mm bond-breaker tapes over expansion joints
- Minimum 20mm triangular fillets required at the base of upstands for Butylclad and Epiclad. Not required for Enviroclad
- All drains and outlets are membrane compatible. Confirm with Viking Roofspec if required
- Ensure minimum required falls are met. E2/AS1 2011 states **2° for roofs** (1:30 or **34mm/mt**), **1.5° for decks** (1:40 or **25mm/mt**)* and **1:100 (10mm/mt) for internal gutters**
* a minimum of 2° is required in Auckland
- Please ensure you have ordered the correct membrane, colour and thickness for your project

NOTES:

- Cover the substrate to keep it dry, ensuring the waterproofing membrane can be installed when needed. Communicate early with your Viking Approved Applicator on the project scheduling to ensure weather exposure is kept to a minimum. Consider the use of the Viking Surface Sealer for shower protection
- Correct substrate installation is critical to durability and performance of the membrane. Failure to strictly comply with substrate specification may affect product warranty
- All constructions should comply with the New Zealand Building Code. Contact your local council for further advice
- Communication between the Applicator and Construction Company will assist to ensure specification is met
- Information regarding our products, specifications and warranties is available at **www.vikingroofspec.co.nz** If you have a query regarding this substrate specification please call Viking on **0800 729 799**

- Framing supports at 400mm centres (in one direction). All plywood edges must also be supported. **Do not use tongue and groove plywood.** Viking Roofs^{spec} can accept the maximum support spacing provided in Table 15C of CCH Ecoply Specification Guide
- Minimum thickness 17mm, F8, CCA H3.2 treated, structural plywood (not LOSP treated)
- Minimum CD grade with the sanded C face upwards
- Plywood laid with face grain at right angles to supports
- Plywood is to be laid with staggered joints in a brick-bond pattern with a 3mm expansion gap between sheets. 25mm bond-break tape is recommended over ply sheet joints prior to membrane application. **If roof is visual consider using the Viking Dec-K-ing substrate checklist to minimise plywood movement within 50m² areas**
- Plywood screw-fixed with 10g x 50mm S/S counter-sunk screws at 150mm centres at all sheet edges and 200mm centres through the body of the sheet. All screws to be counter sunk 1-2mm
- Chamfer all external edges with a minimum radius of 5mm
- Plywood is to be kept dry at all times during construction. Blow/torch drying the plywood surface prior to membrane application does not comply. Plywood and framing supports to be at no more than **20% moisture content**
- For roofs and roof decks over living spaces, all insulated cavities must be ventilated in accordance with E2/AS1 8.5.2. No cavity ventilation is required for a Viking WarmRoof system that meets or exceeds the minimum R-value requirements of the climate zone
- All outlets and overflows are membrane compatible. Note that TPO membranes cannot be welded to stainless steel scuppers or sumps. Outlets/overflows must have clamped grates
- Ensure compliant falls. E2/AS1 8.5.1. limitations state **2° for roofs (1:30 or 34mm/mt), 1.5° for decks (1:40 or 25mm/mt) and 1:100 (10mm/mt)* for internal gutters**
* a minimum of 2° is required in Auckland
- Please ensure you have ordered the correct membrane, colour and thickness for your project

NOTES:

- Cover the substrate to keep it dry, ensuring the waterproofing membrane can be installed when needed. Communicate early with your Viking Approved Applicator on the project scheduling to ensure weather exposure is kept to a minimum
- Correct substrate installation is critical to durability and performance of the membrane
- Failure to strictly comply with substrate specification may affect product warranty
- All constructions should comply with the New Zealand Building Code. Contact your local council for further advice
- Communication between the Applicator and Construction Company will assist to ensure specification is met
- Information regarding our products, specifications and warranties is available at **www.vikingroofs^{spec}.co.nz** If you have a query regarding this substrate specification please call Viking on **0800 729 799**

STRANDSARKING SUBSTRATE CHECKLIST - ENVIROCLAD, EPICLAD, BUTYLCLAD & WARMROOF

- StrandSarking, 3.600 x .800mt x 16.3mm, square edge H3.1 treated substrate, refer BRANZ Appraisal No. 946
- For use as a roof substrate with a minimum slope of 2°. Can be used for internal gutters with 1:100 falls. Not for use under trafficable decks. Not for use as a diaphragm roof structure
- Framing supports at 400mm centres maximum (in one direction). **All sheet edges must also be supported**
- StrandSarking sheets must be laid continuous over at least two spans (three framing members). When used over a single span, then blocking (nogs) must be used under each unsupported edge
- To be laid with staggered joints in a brick-bond pattern with a 3mm expansion gap between all sheet edges. 5mm minimum clearance must be left between StrandSarking panels and any other elements protruding through the roof such as vent pipes. Greater clearances than this may be required around flues and chimneys
- Screw-fixing requirements, 10g x 50mm S/S counter-sunk screws, to be counter-sunk 1-2mm, no closer than 10mm from the sheet edges. **For screw spacings refer to Table 3 of the StrandSarking BRANZ Appraisal No. 946**
 - 'Very-High and Extra-High' wind-zones **100mm centres** throughout body of sheet, 150mm centres at all sheet edges
 - 'High' wind-zone 150mm centres throughout body of sheet, 150mm centres at all sheet edges
- Chamfer all external edges with a minimum radius of 5mm
- For roofs and roof decks over living spaces, all insulated cavities must be ventilated in accordance with E2/AS1 8.5.2. No cavity ventilation is required for a Viking WarmRoof system that meets or exceeds the minimum R-value requirements of the climate zone
- StrandSarking is to be kept dry at all times during construction.** Blow/torch drying the surface prior to membrane application does not comply. Substrate and framing supports to be at maximum **20% moisture content**
- StrandSarking has a maximum exposure period of eight weeks, before being clad with the roofing membrane. It is recommended for the waterproofing membrane to be installed as soon as the StrandSarking is laid
- All outlets and overflows are membrane compatible. Note that TPO membranes cannot be welded to stainless steel scuppers or sumps. Outlets and overflows must have clamped grates
- Please ensure you have ordered the correct membrane, colour and thickness for your project

NOTES:

- Cover the substrate to keep it dry, ensuring the waterproofing membrane can be installed when needed. Communicate early with your Viking Approved Applicator on the project scheduling to ensure weather exposure is kept to a minimum
- Correct substrate installation is critical to durability and performance of the membrane.
- Failure to strictly comply with substrate specification may affect product warranty
- All constructions should comply with the New Zealand Building Code. Contact your local council for further advice
- Communication between the Applicator and Construction Company will assist to ensure specification is met
- Information regarding our products, specifications and warranties is available at **www.vikingroofspec.co.nz** If you have a query regarding this substrate specification please call Viking on **0800 729 799**

Correct, regular maintenance of your membrane roof or deck will ensure the best, long-term performance of the Viking Epiclad system.

GENERAL CARE

Following is a list of maintenance recommendations for the Viking Epiclad system

- a) **Provide proper drainage.** Keep the roof surface clean of debris - leaves, twigs, paper or accumulated dirt - particularly around drains to avoid clogging. Ponding water on the surface of the membrane increases the risk of moisture ingress at membrane laps, or in the event of a puncture or cut in the membrane
- b) **Avoid membrane exposure to chemicals,** petroleum products and solvents, grease and oils (including kitchen fat)
- c) **Foot traffic.** The Viking Epiclad membrane should be protected from regular foot traffic. Viking Roofspec recommends installing extra protection in those areas. **For more information please contact Viking Roofspec on 0800 729 799 or email info@vikingroofspec.co.nz**
- d) **Exercise care with tools and equipment.** Where it is necessary for workers to be on the roof to service units, care should be taken when placing doors, lids or sharp objects directly onto the membrane surface. When moving units or equipment, avoid damage by using protective boards over the membrane prior to moving equipment
- e) **Remove debris,** such as glass, bolts, nails, screws, metal shavings etc. and any other material that may cause punctures or cuts to the membrane
- f) **Repairs.** Arrange for immediate repair of any damage using a Viking Approved Applicator. **To find a Viking Approved Applicator visit www.vikingroofspec.co.nz/find-an-applicator/** page

CLEANING

Viking Epiclad membrane roofs should be cleaned at least annually, using a neutral detergent and water. Caustic or acidic cleaners should be avoided. If the roof is highly exposed to organic debris (leaves and branches), it should be cleaned more regularly. Viking Roofspec recommend using **Viking Weathered Membrane Cleaner** for hard to remove stains.

INSPECTIONS

A regular inspection programme should be established. Viking Epiclad membrane roof inspections should be conducted at least twice a year after installation. Inspections should include high-risk areas such as hatches, drains and around roof top equipment, as well as a general inspection of the entire membrane area. Where possible, inspections should also include the examination from the underside for evidence of leaks, structural issues or movement and other deficiencies. Parapets, flashings and edging should also be examined for evidence of deterioration or moisture infiltration.

Additionally, Viking Epiclad membrane inspections should also be conducted:

- a) After severe weather conditions; such as strong winds, hail or continued heavy rain, examine the roof for ponding, debris or damage to other building elements
- b) After repair or replacement of roof top equipment (e.g. satellite dish, air conditioning units etc.), or when the roof is exposed to work where damage may occur.

WARRANTIES

Viking Roofspec Epiclad membrane system is warranted for 20-years. The Viking Approved Applicator named in the Certificate of Workmanship underwrites the workmanship for installation of a Viking Epiclad system for ten-years for a residential project, or for an agreed period of time for a commercial project. In the event of an issue, these warranties will cover the cost of labour and materials to correct any problem caused by a fault in workmanship or materials supplied by Viking Roofspec.

In some cases the Viking Epiclad system may be installed in conjunction with other components not manufactured or supplied by Viking Roofspec, or terminated to building components that may cause or contribute to a leak. Materials not supplied by Viking Roofspec are excluded from the Product Warranty.

LEAKS

In order to retain warranty cover, any material or workmanship failure must be advised to Contractor, Approved Applicator or Viking Roofspec within 14 days of the leak or failure being identified. First contact should be to the Viking Approved Applicator who installed the membrane. If the issue is related to workmanship then the Approved Applicator will make good any fault (within the warranty period stated in the Certificate of Workmanship). If the issue is related to the Product Warranty, the Approved Applicator will communicate this to Viking Roofspec or the building owner can contact Viking Roofspec direct. Viking Roofspec will assign a technical representative to the project to assess the damage and plan the appropriate step to rectification.

For any further information relating to membrane maintenance or information regarding our products, specifications and warranties are available at www.vikingroofspec.co.nz call Viking Roofspec on **0800 729 799**



Viking Epiclad Membrane System Product Warranty

Viking Roofspec offers this Warranty for the Viking Membrane System for 20 years from the Warranty Commencement Date ("Warranty Period").

1. Viking Roofspec warrants that the Membrane System will, subject to the terms set out below, retain its waterproofing and weatherproofing for the Warranty Period provided that the Membrane System has been properly installed by a Viking Approved Applicator in accordance with all Viking Roofspec specifications current at the time of installation, including, but not restricted to the technical data and standard details as listed on the Viking Roofspec Website at www.vikingroofspec.co.nz and training provided by Viking Roofspec ("Viking Specifications").
2. This Warranty covers only materials supplied by Viking Roofspec as the Membrane System, including the membrane, proprietary accessories and adhesives; provided materials were new and unused at the time of installation and have not been disturbed thereafter.

3. Warranty Commencement Date _____

(Date of completion of Membrane System installation)

4. The Membrane System

Membrane type: Viking Epiclad

Membrane thickness: 1.14mm / 1.52mm

Membrane colour: Black

5. The Building

Project address _____

Area of application (e.g. roof, deck) _____

Installed by _____

6. This Warranty covers only the waterproofing and weatherproofing properties of the Membrane System. Viking Roofspec will not be liable for any failure of the Membrane System or damage resulting from any failure that has been caused in part or in whole by the Membrane System not being installed in accordance with the Viking Specifications. Viking Roofspec does not give any warranty as to the suitability of any installer and will not, in any circumstances be liable for the actions or omission of any installer. Viking Roofspec requires that all Viking Approved Applicators provide a separate Workmanship Warranty covering any defects in the installation of the Membrane System.
7. The Membrane System is not warranted against, and Viking Roofspec shall not be liable for loss of waterproofing properties or damage caused by:
 - objects penetrating the sheeting, or mechanical damage;
 - chemical or substance (save those specifically approved for use by Viking Roofspec);
 - any shifting or altering of the Membrane System after installation;

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- infiltration or condensation of moisture in, around, or above the walls of the Building or the failure of other Building components;
 - the lack of positive drainage (ponded water);
 - the lack of adequate ventilation;
 - environmental factors including dirt, pollutants and biological agents, fungi, bacteria or spores; accident or intentional or negligent acts, misuse, abuse, vandalism or civil disobedience or the like; or
 - Acts of God which include, but are not limited to, acts of nature without human intervention, such as earthquakes, storms, floods, lightning strikes, and explosions.
8. In addition to the above limitations, this Warranty will be void and Viking Roofspec will not be liable under it if;
- any alteration or repair is made on or through the Membrane System (including, but not limited to: structures, fixtures or utilities) without prior written authorisation from Viking Roofspec;
 - any alteration or repair is made to the Membrane System by a person other than a Viking Approved Applicator;
 - the owner of the Building fails to use reasonable care in maintaining the Membrane System, such maintenance to include (but not be limited to) those items listed in the Membrane Care and Maintenance information, as amended and updated from time to time. Current Membrane Care and Maintenance information is available from our website at www.vikingroofspec.co.nz. You acknowledge that Viking Roofspec has no obligation to notify you of changes to the Membrane Care and Maintenance information; or
 - the Building is moved from the site at which the Membrane System was originally installed.
9. Change in the aesthetics, colour or finish of the Membrane System, or "Tenting" of the Membrane System due to substrate movement, are not covered by this Warranty.
10. Viking Roofspec shall not be liable under this Warranty (or any implied warranties which are not excluded under clause (16) for any consequential, indirect or special loss or damage of any kind whatsoever, or loss of profits, whether under contract, tort or otherwise.
11. Viking Roofspec's liability is in any circumstances limited to (at the option of Viking Roofspec) either;
- providing for the repair of the original Membrane System,
 - or providing a credit to be applied towards the purchase of a new Membrane System, calculated *pro rata*, based upon the number of remaining months of the unexpired Warranty Period, using the current material prices for the Membrane System. The maximum *pro rata* value allowed by Viking Roofspec for repair or credit shall not exceed the original purchase price of the product supplied.
12. The obligations under this Warranty shall only be enforceable against Viking Roofspec upon completion of the installation of the Membrane System; completion of the installation contract; and once payment in full has been received for the product supplied.
13. Should any defect occur which requires a remedy under the terms of this Warranty, then the defect must be notified to Viking Roofspec in writing within fourteen (14) days of discovery. By notifying Viking Roofspec you authorise Viking Roofspec to investigate the Warranty claim to assess whether it falls within the terms of this Warranty. Should our investigation of the claim find that the cause is outside the terms of this Warranty, then you acknowledge and agree that Viking Roofspec may charge you its reasonable investigation costs. You agree to provide Viking Roofspec free access to the Membrane System in order to investigate or to affect repairs under this Warranty during normal business hours.
14. Any remedial work required under this Warranty shall be as determined by Viking Roofspec and shall be carried out in accordance with the Viking Specifications by a contractor nominated by Viking Roofspec. Viking Roofspec does not accept liability for delay in sourcing or inability to match repair materials exactly to those originally installed.

- 15. Nothing in this Warranty shall require Viking Roofspec to shift any fixtures, plant, equipment, flashings or other items so as to allow access to part of any Membrane System to be repaired or replaced. Neither shall Viking Roofspec be liable for any costs involved in such shifting or reinstallation.
- 16. This Warranty represents the limit of Viking Roofspec's liability for the Membrane System. All other warranties, express or implied, are hereby excluded to the maximum extent permitted by applicable law.
- 17. Notwithstanding any other provisions of this Warranty, nothing in this Warranty is intended to limit any condition, warranty, right or remedy available under or imposed by any applicable legislation (including, for the avoidance of doubt but without limitation, the Building Act 2004, the Fair Trading Act 1986 and the Consumer Guarantees Act 1993) except to the extent permitted by such legislation.
- 18. This Warranty shall be governed according to the laws of New Zealand and any disputes shall be decided in the courts of New Zealand.

Warranty Workmanship no

Viking Warranty No

For Viking Roofspec

Date issued



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