

Viking WarmSpan System



Product Description

Viking WarmSpan is a full proprietary warm-roof-on-steel tray system comprising of a wide spanning steel deck (with an integral flashing system); Kingspan Polyisocyanurate rigid insulation panels adhered on top and Viking Roofspec's Torch-on or Enviroclad TPO sheet waterproofing membrane systems.

WarmSpan's simplicity removes unnecessary components to create the markets most cost-effective and energy-efficient warm roof system. When required it can incorporate an integrated vapour barrier and doesn't require a cover board for point-load resistance, as it is suitable for use on access roofs subject to limited foot traffic. For extra protection, such as trade roof entrance or plantrooms a Viking supplied HD coverboard and / or proprietary Viking walkway mat can be used. WarmSpan utilises Kingspan's polyiso (PIR) insulation panel with a test rating of 150kPa. Viking WarmSpan also provides:

- Highest possible fire rating - Group 1S from the ISO9705 'room test'
- Spanning ability - up to 3.6m between purlins
- Savings est. at 2/3rds on supporting timber framing compared to traditional substrate requirements
- No mechanical fasteners = no thermal bridging
- 6kPa (ULS) Wind uplift resistance - F.A.S.T. adhesive system rivals uplift of any fastener

Higher energy efficiencies are provided by greater R-values per thickness and full thermal coverage of the roof. The system's thermal performance helps achieve Green Star points for a building (see 'Environmental' section). WarmSpan is NZ's only engineer-certified warm roof system, as it has been developed and tested to meet the wind and snow loadings specified within the building code.

Suitable for all residential, commercial and industrial projects, WarmSpan is classified as a low-slope roof, with a recommended roof pitch of 2 degrees.

Other features:

- BRANZ Appraised No. 713
- Backed by a 20-year product warranty, and for specific projects when registered with Viking Roofspec may be eligible for [Viking's Full System Warranty](#), which covers the product and installation in one document. Contact Viking Roofspec as conditions apply
- Coated-Glass Tissue facings on both sides allowing Vikings Torch-on applied membranes
- Tapered panel option – Aiding watershed
- Polyiso sheets: 25mm, 50mm, 75mm, 100mm thicknesses, 1.2m wide x 2.27m long
- Steel Deck: 0.55g S&T or Metalcraft profiles (alternatives may be used if certified by the project architect or engineer)
- Highest R-value Insulation Board- maximum Return on Investment

Scope of Use:

The Viking WarmSpan System is designed for use as an insulating roof on buildings within the following scope:

- The scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regards to building height and maximum floor plan areas; and,
- On limited access flat roofs with steel structural decks subject to specific structural design; and,
- with roofs constructed to drain water to gutters and drainage outlets complying with the NZBC; and,
- With roofs constructed to suitable falls (refer paragraph 15.3 and 15.4 of the Warm Roof BRANZ Appraisal); and,
- With no integral roof gardens; and,
- Situated in NZS 3604 Building Wind Zones, up to, and including Extra High.

The Viking WarmSpan System has also been appraised for durability and thermal performance as an insulated roofing system on buildings that are the subject of specific design with no building height restriction. Situated in specific design wind pressures up to a maximum design differential ultimate limit state (ULS) of 6kPa.

Building designers are responsible for the building design and for the incorporation of the Viking WarmSpan System into their design in accordance with the declared properties and instructions of Viking Roofspec. The Viking WarmSpan System must be installed by Viking Roofspec Licensed and Trained installers.

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 B1 Structure: Performance B1.3.1
- 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
- Clause H1 Energy efficiency: Performance H1.3.1, H1.3.1(a)

Supporting Evidence

The product has and can make available, the following additional evidence to support the above statements:

- Branz Appraisal No. 713
- WarmSpan Engineering Summary
- Branz Test report DAD0480-003-3
- Branz ISO9705 Fire Test

Product Criteria

Design Requirements

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

- Is qualified to design the building under the 'Scope' of use of this product.
- Has ready access to the technical specifications including installation details and standards referenced in the current BRANZ Appraisal No. 713 where the design limitations are outlined for the scope of this PTS.

Installation Requirements

Installation shall be carried out 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 current BRANZ Appraisal No. 713. Long term properties of the material may be affected by contact with petroleum-based products such as oils, greases and solvents.

Maintenance Requirements

The membrane roof system must be regularly checked (twice annually) for damage, rubbish and debris particularly around drainage points. Damage, such as small punctures and tears must be repaired and coatings reapplied as recommended by Viking Roofspec Ltd. Special care must be taken when inspecting the membrane roof systems to ensure the continuing prevention of moisture ingress, and repairs must be undertaken when required. Drainage outlets must be maintained to operate effectively.

Warranties

The Viking WarmSpan System is backed by a 20-year product warranty. For specific projects, when registered with Viking Roofspec, Viking WarmSpan can be eligible to be covered by [Viking's Full System Warranty](#), which covers the product and installation in one document. (Conditions apply).

Company Product Information

Environmental

- Reduction in energy consumption - less energy required for cooling or heating of the interior.
- The thermal performance of the WarmSpan system helps towards achieving Green Star points for a building.
- As a WarmSpan roof is insulated from the outside of the building, thermal performance is increased and condensation is not formed within cold cavities
- WarmSpan polyiso has an R-value of 1.00 per 25mm thickness when new, with a (LTTR) Long Term Thermal Resistance of 0.95 per 25mm thickness.
- No CFC's in the manufacture of WarmSpan.
- Various other environmental benefits as a result of using Viking Enviroclad membrane. For a list of these, check the 'Environmental' section of the Enviroclad PTS.

Specification

MASTERSPEC 4422VS WarmSpan

- Visit nextgen or masterspec for the online version of our specification.
- Viking Enviroclad or Viking Torch-on can be selected with WarmSpan Masterspec specification 4422VS

Viking Roofspec compatible waterproofing membranes for Viking WarmSpan

- Viking Enviroclad – download Enviroclad PTS and details
- Viking Torch-on – download Torch-on PTS and details

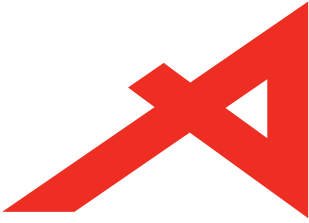
Quality Assurance

ISO 9001 (Quality Management)

Relationships

Member of New Zealand Green Building Council





BRANZ Appraised
Appraisal No. 713 [2018]

VIKING WARM ROOF/ WARMSPAN SYSTEM

Appraisal No. 713 [2018]

This Appraisal replaces BRANZ
Appraisal No. 713 [2011].

Amended 26 September 2019



BRANZ Appraisals

Technical Assessments of products
for building and construction.



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Product

- 1.1 The Viking Warm Roof/WARMSPAN System is an insulating roofing system for limited access flat roofs with concrete, plywood or steel structural decks. It consists of a thermal insulation layer and a roof finish of either a thermoplastic polyolefin (TPO) waterproofing sheet membrane or a torch-applied modified bitumen membrane.

Scope

- 2.1 The Viking Warm Roof/WARMSPAN System has been appraised for use as an insulating roof on buildings within the following scope:
 - the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regards to building height and maximum floor plan areas; and,
 - on limited access flat roofs with concrete, plywood or steel structural decks subject to specific structural design; and,
 - with roofs constructed to drain water to gutters and drainage outlets complying with the NZBC; and,
 - with roofs constructed to suitable falls (Refer Paragraph 15.3 and 15.4); and,
 - with no integral roof gardens; and,
 - situated in NZS 3604 Building Wind Zones, up to, and including Extra High.
- 2.2 The Viking Warm Roof/WARMSPAN System has also been appraised for durability and thermal performance as an insulated roofing system on buildings that are the subject of specific design with no building height restriction. Situated in specific design wind pressures up to a maximum design differential ultimate limit state (ULS) of 6kPa.
- 2.3 Building designers are responsible for the building design and for the incorporation of the Viking Warm Roof/WARMSPAN System into their design in accordance with the declared properties and instructions of Viking Roofspec.
- 2.4 The Viking Warm Roof/WARMSPAN System must be installed by Viking Roofspec Licensed and Trained installers.



Building Regulations

New Zealand Building Code [NZBC]

3.1 In the opinion of BRANZ, the Viking Warm Roof/WARMSPAN System, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet or contribute to meeting the following provisions of the NZBC:

Clause B2 DURABILITY: Performance B2.3.1 (b), 15 years. The Viking Warm Roof/WARMSPAN System meets this requirement. See Paragraph 10.1.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.1 and E2.3.2. The Viking Warm Roof/WARMSPAN System meets these requirements. See Paragraphs 15.1 – 15.9.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. The Viking Warm Roof/WARMSPAN System meets this requirement and will not present a health hazard to people.

Clause H1 ENERGY EFFICIENCY: Performance H1.3.1 (a). The Viking Warm Roof/WARMSPAN System will contribute to meeting this requirement. See Paragraph 14.1.

Technical Specification

4.1 The Viking Warm Roof/WARMSPAN System is an insulating roofing for flat roofs. The thermal layer is a polyisocyanurate board available in a number of thicknesses to suit design requirements. The insulation board is adhesive fixed on limited access flat roofs of concrete, plywood and steel structural decks. The roof finish is a single ply, polyester fabric reinforced, thermoplastic polyolefin [TPO] waterproofing sheet membrane or a double layer modified bitumen membrane torch applied which are applied to the insulation board.

Materials supplied by Viking Roofspec are as follows:

- **Viking Enviroclad** is a fully adhered, polyester fabric reinforced, multilayer, synthetic roof waterproofing membrane based on thermoplastic polyolefin [TPO]. It is supplied in light grey or white rolls either 1.14 or 1.52 mm thick, 3.0 m or 3.660 m wide and 30.4 m long.
- **Gemini APP Base 3mm** – is an APP modified, non-woven polyester/fibreglass composite reinforced, torch on bitumen membrane used as a base sheet in a double layer system. It is coloured black and supplied in rolls 3.0 mm thick, 1.0 m wide and 10.0 m long.
- **Gemini APP Cap 4mm Ceramic** – is an APP modified, non-woven polyester/fibreglass composite reinforced, torch on bitumen membrane used a cap sheet in a double layer system. It is available in various ceramic chip colours and supplied in rolls 4.0 mm thick, 1.0 m wide and 10.0 m long.
- **Lybra SBS Base 3mm** – is a SBS modified, non-woven polyester/fibreglass composite reinforced, torch on bitumen membrane used a base sheet in a double layer system. It is coloured black and supplied in rolls 3.0 mm thick, 1.0 m wide and 10.0 m long.
- **Lybra SBS Cap 4mm Ceramic** – is a SBS modified, non-woven polyester/fibreglass composite reinforced, torch on bitumen membrane used a cap sheet in a double layer system. It is available in various ceramic chip colours and supplied in rolls 4.0 mm thick, 1.0 m wide and 10.0 m long.
- **Phoenix Super APAO Base** – is an APAO modified, non-woven polyester/fibreglass composite reinforced, torch on bitumen membrane used a base sheet in a double layer system. It is coloured black and supplied in rolls 4.0 mm thick, 1.0 m wide and 10.0 m long.
- **Phoenix Super APAO Cap Ceramic** – is an APAO modified, non-woven polyester/fibreglass composite reinforced, torch on bitumen membrane used a cap sheet in a double layer system. It is available in various ceramic chip colours and supplied in rolls 4.0 mm thick, 1.0 m wide and 10.0 m long.
- **Viking Bitumen Primer** – Solvent-based bitumen primer for all substrates prior to the installation of the membrane. It is available in 20 litre containers.
- **Carlisle 725TR Membrane** – 1 mm thick self adhesive, SBS rubberised asphalt sheet waterproofing membrane used as a vapour barrier between the substrate and the insulation when required. Supplied in 1 m wide x 22.9 m long rolls.



- **Carlisle FAST™ Adhesive Dual Cartridge** is a two-component, polyurethane adhesive used to bond the insulation to the structural deck. Supplied as a dual cartridge with a total volume of 1.5 litres.
- **Sure Weld Adhesive** is a solvent-based contact adhesive used to bond the membrane to the insulation. It is supplied in 19 litre pails.
- **Kingspan Therma TR27 LPC/FM Insulation** is a fibre-free rigid roof insulation board composed of closed-cell polyisocyanurate foam core bonded on each side to a coated glass tissue. Supplied in various thickness and R Values with a board size of 1220 mm x 2270 mm.

Handling and Storage

- 5.1 Handling and storage of all materials whether on or off site is under the control of the Viking Roofspec Licensed and Trained Installers. Dry storage must be provided for all products and the rolls of membrane must be stored in a horizontal position.

Technical Literature

- 6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for the Viking Warm Roof/WARMSPAN System. 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 The Viking Warm Roof/WARMSPAN System is a roof system which provides thermal insulation and waterproofing. It is for use on limited access flat roofs subject only to light foot traffic for maintenance purposes. The insulation board is adhesive fixed to concrete, plywood or metal structural decks which are subject to specific structural design. The insulation board is available in several thicknesses to suit various thermal insulation designs.
- 7.2 The system can be used on new or existing roofs subject to the suitability of the structural deck of existing roofs. The waterproofing membrane is either a single layer, adhesive fixed, thermoplastic polyolefin (TPO) waterproofing sheet membrane with heat welded joints or a double layer torch-applied modified bitumen membrane system.
- 7.3 A vapour control membrane must be used in Climate Zone 3 (as defined in NZBC Verification Method H1/VM1 and NZBC Acceptable Solution H1/AS1). The vapour control membrane, Carlisle 725TR, is self adhesive and applied over a prime structural deck before the installation of the insulation board.
- 7.4 The effective control of internal moisture must be considered at the design stage due to the impermeability of the roof system. Refer to the BRANZ publication Good Practice Guide: Membrane Roofing.

Structure

- 8.1 For buildings situated in NZS 3604 Building Wind Zones up to and including Extra High the adhesive is applied as shown in the Technical Literature.
- 8.2 The Viking Warm Roof/WARMSPAN System is suitable for use in areas subject to a maximum design differential ultimate limit state wind pressure of 6 kPa, subject to the limitations of the substrate.

Structural Decking

Plywood

- 9.1 Plywood must be treated to H3 [CCA treated]. LOSP treated plywood must not be used. Plywood must be a minimum of 17 mm to comply with AS/NZS 2269, at least CD Grade Structural with the sanded C face upwards.

Concrete

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

Steel

- 9.3 The profiled steel must be G550, complying with AS 1397.

Existing Construction

- 9.4 A thorough inspection of the structural deck must be made.
9.5 Repairs or replacement must be undertaken, where applicable, to ensure the structural deck is sound. Fixings must be checked, and if necessary refixed as for new plywood and steel.

Durability

Serviceable Life

- 10.1 The Viking Warm Roof/WARMSPAN System is expected to have a serviceable life of at least 15 years, provided it is 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 membrane. However, the long term properties of the material may be affected by contact with petroleum-based products such as oils, greases and solvents.

Maintenance

- 11.1 The membrane roof system, must be regularly (at least annually) checked for damage, rubbish and debris. Damage, such as small punctures and tears must be repaired and coatings reapplied as recommended by Viking Roofspec 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 Viking Warm Roof System from heat sources such as fire places, heating appliances, flues 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.

Control of Internal Fire and Smoke Spread

- 13.1 The Viking Warm Roof/WARMSPAN System insulation board meets the flame propagation criteria of AS 1366 as specified in NZBC Acceptable Solutions C/AS1, Paragraph 4.3 and NZBC Acceptable Solutions C/AS2 to C/AS6, Paragraph 4.17.
13.2 The Viking Warm Roof/WARMSPAN System also meets the requirements of NZBC C/VM2, Section A1.7.

Energy Efficiency

- 14.1 The thermal resistance [R-Value] of building elements may be verified by using NZS 4214. The R-Values for the Therma TR27 LPC/FM Insulation are given in Table1.

Table 1: R-values

| Therma TR27 LPC/FM Insulation - Thickness | R - Value |
|---|-----------|
| 25 mm | 0.930 |
| 50 mm | 1.870 |
| 75 mm | 2.80 |
| 100 mm | 3.85 |



External Moisture

- 15.1 Roofs 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.
- 15.2 When installed in accordance with this Appraisal and the Technical Literature, the Viking Warm Roof/WARMSPAN System will prevent the penetration of water and will therefore meet code compliance with Clause E2.3.2. The membrane is impervious to water and will give a weathertight roof.
- 15.3 Roof falls must be built into the substrate.
- 15.4 The minimum fall to roofs is 1 in 30 and gutters are 1 in 100. All falls must slope to an outlet or external spouting. Inadequate falls will allow moisture to collect and increase the risk of deterioration of the membrane.
- 15.5 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.
- 15.6 The Viking Warm Roof/WARMSPAN System is 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.
- 15.7 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.
- 15.8 Penetrations and upstands of the membrane must be raised above the level of any possible flooding caused by the blockage of roof drainage.
- 15.9 The design of details not covered by the Technical Literature is subject to specific weathertightness design and is outside the scope of this Appraisal.

Condensation Control

- 16.1 In Climate Zone 3, as defined by the definitions, NZBC H1/VM1 & AS1, a vapour control membrane must be installed. Where required, Carlisle 725TR Membrane, must be installed over a primed structural deck prior to installing the insulation.

Water Supplies

- 17.1 The Viking Warm Roof/WARMSPAN System has not been assessed for roofs used for the collection of potable water.

Installation Information

Installation Skill Level Requirement

- 18.1 Installation of the Viking Warm Roof/WARMSPAN System must be completed by Viking Roofspec Ltd Licensed and Trained Installers.
- 18.2 Installation of the structural deck must always be carried out in accordance with the Viking Warm Roof/WARMSPAN System Technical Literature and this Appraisal by, or under the supervision of, a Licensed Building Practitioner [LBP] with the relevant Licence Class.

Preparation of Structural Deck

- 19.1 The structural deck must be dry, clean and stable before installation commences.
- 19.2 The relative humidity of concrete structural decks must be 75% or less before the application of the vapour control membrane or insulation. The concrete can be checked for dryness by using a hygrometer, as set out in BRANZ Bulletin No. 585.



- 19.3 The moisture content of the plywood and timber substructure must be a maximum of 20% and the plywood sheets must be dry at the time of system application.

System Installation

- 20.1 The Viking Warm Roof/WARMSPAN System must be installed in accordance with the Technical Literature.
- 20.2 Where the vapour control layer is required it is installed onto the primed structural deck followed by the insulation. The insulation is set out in a brick bond fashion and is adhered in accordance with the Technical Literature.
- 20.3 The membrane system is then installed over the insulation following Viking Roofspec Ltd Instructions.

Inspections

- 21.1 Critical areas of inspection are:
- Construction of the structural deck, including crack control and installation of bond breakers and movement control joints.
 - Moisture content of the structural deck prior to the application of the system.
 - Acceptance of the structural deck by the system installer prior to application of the system.
 - Installation of the system to the Technical Literature.

Health and Safety

- 22.1 Safe use and handling procedures for the Viking Warm Roof/WARMSPAN System is provided in the Technical Literature. The products must be used in conjunction with the relevant Material Safety Data Sheets.

Basis of Appraisal

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

Tests

- 23.1 The following is a summary of the testing and test reports on the Viking Warm Roof/WARMSPAN System:
- Assessment by Trinity ERD, the testing covered compressive strength, dimensional stability, flexural strength, tensile strength, water absorption, water vapour transmission and density.
 - Assessment by BRANZ for tensile adhesive strength of the Viking Warm Roof/WARMSPAN System.
- The above test methods and results have been reviewed by BRANZ and found to be satisfactory.

Other Investigations

- 24.1 A durability opinion has been provided by BRANZ technical experts.
- 24.2 Installation of the insulation and membranes have been assessed by BRANZ for practicability of installation and found to be satisfactory.
- 24.3 The Technical Literature has been examined by BRANZ and found to be satisfactory.

Quality

- 25.1 The manufacture of the components of the system 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.
- 25.2 The quality of the supply of products to the New Zealand market is the responsibility of Viking Roofspec.
- 25.3 Quality on site is the responsibility of the Viking Roofspec Trained and Approved Installers.



- 25.4 Designers are responsible for the building design, and building contractors are responsible for the quality of construction of structural deck systems in accordance with the instructions of Viking Roofspec and this Appraisal.
- 25.5 Building owners are responsible for the maintenance of the roof system in accordance with the instructions of Viking Roofspec and this Appraisal.

Amendments

Amendment No. 1, dated 16 August 2019

This Appraisal has been amended to update the structural information.

Amendment No. 2, dated 26 September 2019

This Appraisal has been amended to update the name of the product.

Sources of Information

- AS/NZS 1170: 2002 Structural design actions - General principles.
- AS 1397: 2011 Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium.
- AS/NZS 2269: 2012 Plywood - structural.
- BRANZ Good Practice Guide: Membrane Roofing, 2015.
- NZS 3101: 2006 Concrete structures Standard.
- NZS 3604: 2011 Timber-framed buildings.
- NZS 4214: 2006 Methods of determining the total thermal resistance of parts of 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 7, 01 January 2017].
- Ministry of Business, Innovation and Employment Record of amendments - Acceptable Solutions, Verification Methods and handbooks.
- The Building Regulations 1992.



BRANZ Appraised
Appraisal No. 713 [2018]

BRANZ Appraisal
Appraisal No. 713 [2018]
5 December 2018

VIKING WARM ROOF/WARMSPAN
SYSTEM



In the opinion of BRANZ, the **Viking Warm Roof/WARMSPAN System** is fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided it is used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to **Viking Roofspect**, 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 Roofspect**:
 - 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 Roofspect**.
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 Roofspect** or any third party.

For BRANZ

Chelydra Percy

Chief Executive

Date of Issue:

5 December 2018

Substrate Checklist : WarmSpan Metal Deck

| Profiles (region profile is formed) | Mid-Span | End-Span |
|---|----------|----------|
| Metcom7 .55g Metalcraft (Lower Hutt) | 3.600mt | 3.600mt |
| ST900 .55g Steel & Tube (Akld & Christchurch) | 3.500mt | 2.800mt |
| ST7 .55g Steel & Tube (Lower Hutt) | 2.950mt | 1.950mt |

NOTES:

- Mid-span requires 3 purlins, End-span is 2 purlins
- Controlled Traffic Supports 1.1kn to PAN at Mid-Span (112kg)
- 150mm maximum overhang at sheet ends (Drip-edge)
- Soffits at sides will require full structural support of the metal profile
- Protection of substrate and completed roof areas are a requirement.

| Fixings min. C4 Galv | Timber Purlin | Steel Purlin |
|---|---------------|--------------|
| Fixings through every Pan (trough) into the purlin | 12G 14x55 | 12G 14x20 |
| (Metal sheets to be inverted so that rib now becomes the Pan) | 12G = 5.5mm | 12G = 5.5mm |

- Reverse the metal profiles** so that what is traditionally the rib now gets fixed to the purlin.
- Chamfer** all external edges of Timber or Plywood with a minimum radius of 5mm.
- Cavity ventilation** is not required for a Warm Roof system which meets or exceeds the minimum R-value requirements for the Climate Zone.
- Climate Zone 3:** compulsory for projects in Climate Zone 3 South Island, North Island volcanic plateau and Cold stores
 - Vapour Barrier Tape is required at all terminations, ridges, hips, valleys, Drip-edges.
 - Sealant between all sheet joins and overlaps is
- All Components** Drains / Overflows and Scuppers must be membrane type compatible.
 - Note that TPO membranes cannot be welded to Stainless Steel scuppers or sumps.
- Ensure you have clearly ordered the correct membrane, colour and thickness for your project.
- Ensure minimum falls are provided with the substrate. E2/AS1 8.5.1 Limitation states:
 - **2° for roofs** (1:30 or 34mm/mt), **1:100 for internal gutters** (10mm/mt).

Notes: If you have a query regarding this substrate specification please call Viking on **0800 729 799**.

- Correct substrate installation is critical to the durability and performance of the membrane.
- Failure to strictly comply with substrate specification may affect the product warranty. Refer to Viking Enviroclad Product Warranty for further details.
- All construction should comply with the New Zealand Building Code. Contact your local council for further details.
- Communication between the Viking Approved Applicator and Construction Company will assist to ensure this specification is met. Information regarding our products, specifications and warranties is available at www.vikingroofspec.co.nz.

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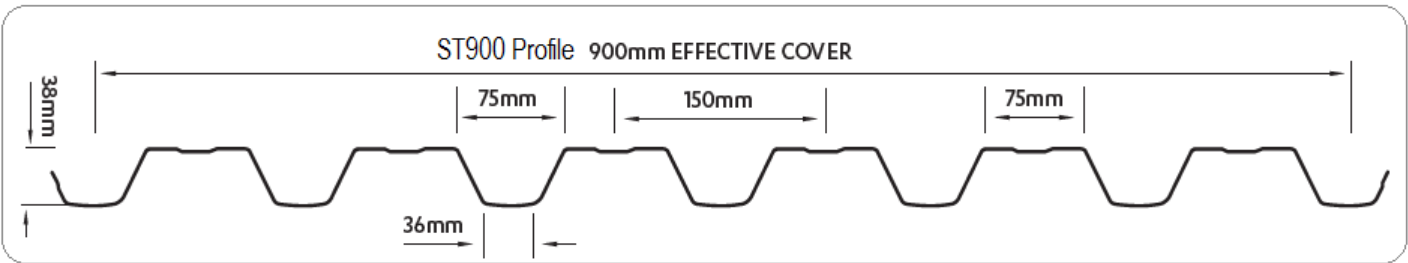
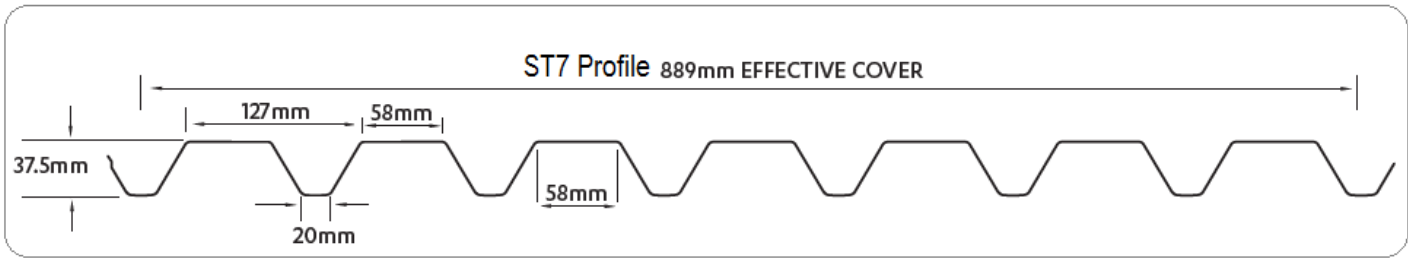
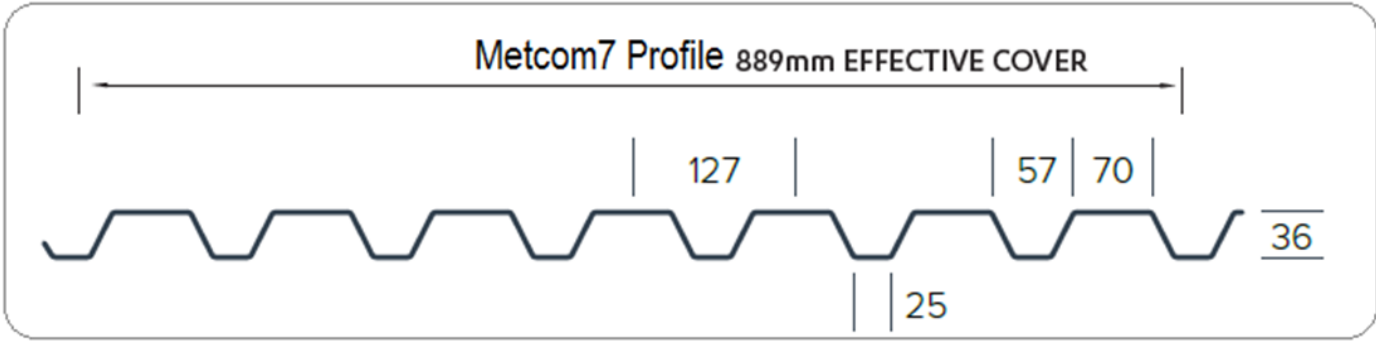
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Properties of WarmSpan / WarmRoof materials

| Material | Weight M2 | Span over metal deck | R-Value LTTR |
|------------------------|-----------|----------------------|--------------|
| PIR 25mm | 1.4 kg | 75mm | .93 |
| PIR 50mm | 2.3 kg | 175mm | 1.87 |
| PIR 75mm | 3.2 kg | 250mm | 2.80 |
| PIR 100mm | 4.0 kg | 250mm | 3.85 |
| Metal Deck .55g | 6.1 kg | | |
| *Enviroclad 1.52mm | 2.6 kg | | |
| **Torch-on 2 Layer | 12 kg | | |
| FAST Adhesive | .25 kg | | |
| Viking Coverboard 10mm | 9.6 kg | 127mm | |

* Includes weight of adhesive

** Includes weight of 4mm Base sht, 4mm Cap sht and Primer

Membrane Care and Maintenance Guide



BRANZ Appraised

masterspec

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

General Care

Following is a list of maintenance recommendations for Viking membrane systems.

- 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 & oils (including kitchen fats)
- c) Foot traffic. Dec-K-ing is designed to withstand normal foot traffic. Other membranes should be protected from regular foot traffic. Viking walkway mats are available where required.
- d) Exercise care with tools and equipment, where it is necessary for workers to be on the roof to service equipment. When servicing units, care should be taken when placing doors, lids or sharp objects on the membrane surface. When moving units or equipment on roofs, avoid damage by using protective boards over the membrane prior to moving the 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) Arrange for immediate repair of any damage using a Viking Approved Applicator.

Cleaning

Membrane roofs and decks should be cleaned at least once annually, using a neutral detergent and water. Caustic or acidic cleaners should be avoided. If the roof is highly exposed to organic debris (leaves, branches), it should be cleaned more regularly. For Enviroclad, hard to remove stains can usually be removed using Viking Weathered Membrane Cleaner. Dec-K-ing cleaner is the only cleaner recommended for use with Dec-K-ing membrane.

Inspections

A regular inspection program should be established. Roof or deck inspections should be conducted at least twice a year after installation. Inspections should include higher 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, deteriorated decking, structural issues or movement and other deficiencies. Parapets, flashings and edging should also be examined for evidence of deterioration or moisture infiltration.

Additionally, roof 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. aerials, air conditioning), or when the roof is exposed to work where damage may occur.

Warranties

Viking Roofspec membrane products are warranted for 20 years. The workmanship for membrane installation is underwritten by the Approved Applicator, named in the Certificate of Workmanship. These warranties, in the event of an issue, 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 membrane is installed in conjunction with other products not manufactured or supplied by Viking, or terminated to building components which can cause or contribute to a leak. Materials not provided by Viking Roofspec are excluded from the product and workmanship warranties above.

Leaks

In order to retain warranty cover, any material or workmanship failure must be advised to the contractor 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 Workmanship Warranty). If the issue is related to the product warranty, then this will be communicated to Viking Roofspec by the Viking Approved Applicator, or the building owner can contact Viking Roofspec directly. Viking Roofspec will assign a technical representative to the project to assess the damage, and plan the appropriate steps to rectification.

If you have a question relating to membrane maintenance, please contact Viking Roofspec anytime.