

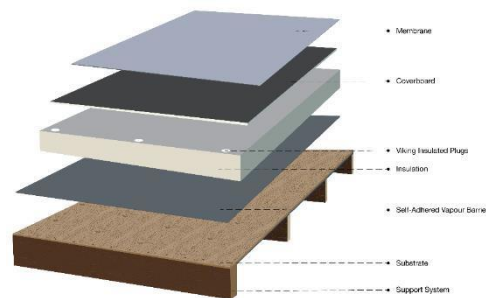
# Viking WarmSpan<sup>2</sup> System

## Product Description

Viking WarmSpan<sup>2</sup> is a structural, engineered warm roof system, tested, and accredited by certified engineers; Holmes Solutions NZ, to comply with H1, B1, B2, E2 and F2 requirements of the Building Code. WarmSpan<sup>2</sup> is a complete roof assembly with joist spacings, and substrate-type prescribed in its specification. The Viking WarmSpan<sup>2</sup> System is suitable for all residential, commercial, and industrial projects. WarmSpan<sup>2</sup> is classified as a low-slope roof, with a recommended roof pitch of two degrees and it is to be used on access roofs subject to limited foot traffic.

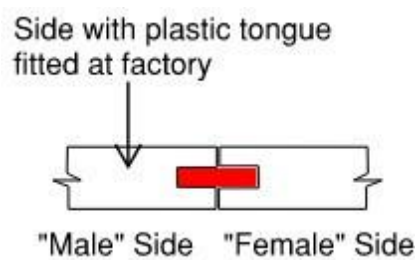
WarmSpan<sup>2</sup> is made up of the following components: listed from the top-down:

- **One of Viking's CodeMark Membrane Systems** (Enviroclad or Viking Torch-On)
- **Cover Board** (Adhered to PIR)
- **Viking Insulated plugs** (mechanical fixings for PIR)
- **PIR – Rigid insulation panels** (Foil-faced PIR board)
- **Self-adhered Vapour Barrier** (Self-sealing SBS bitumen)
- **T & G Plywood** (H1.2 minimum treatment) or **Steel tray** substrate (ST7, ST900, or Metcom 7)
- **Structural Supports** (up to 900mm centres for ply substrate; 1800mm centres for steel tray)



System Components				
Product	Thickness	Size (m)	Weight per m <sup>2</sup>	R value
Viking Soudafoam	1.5mm	70% coverage	N/ A	0.0327
Polyiso	140 mm	2.40 x 1.20	6.01 Kg	6.55
Polyiso	85 mm	2.40 x 1.20	3.63 Kg	3.9
Cover Board	6.4 mm	2.44 x 1.22	5.97 Kg	0.136
Vapour Barrier	1.52mm	30.40 x 1.00	1.5 Kg	N/A
Insulated plugs	3mm (Flange)	105mm long	0.13	N/A
Plywood T&G	17mm	2.4 x 1.2	9.53Kg	0.1
Steel	0.55mm	Cut to Length (38mm high seams)	6.08 Kg	N/A

## Point Load Testing:

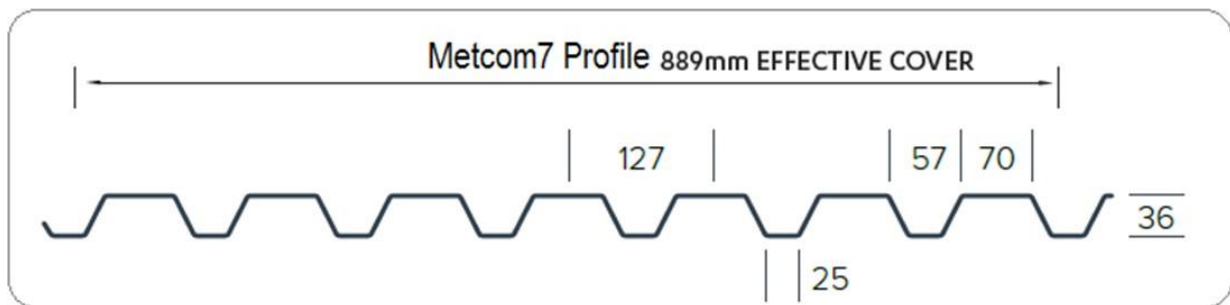
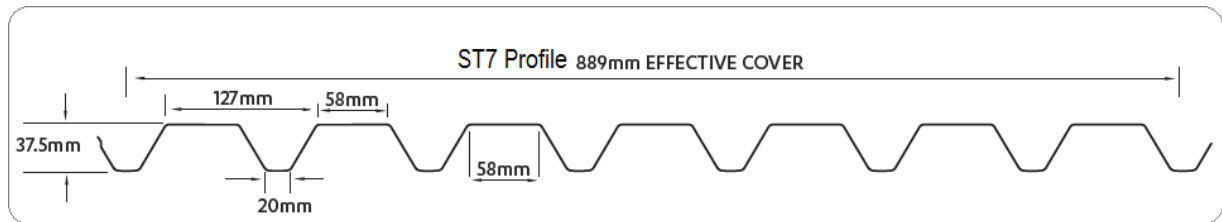
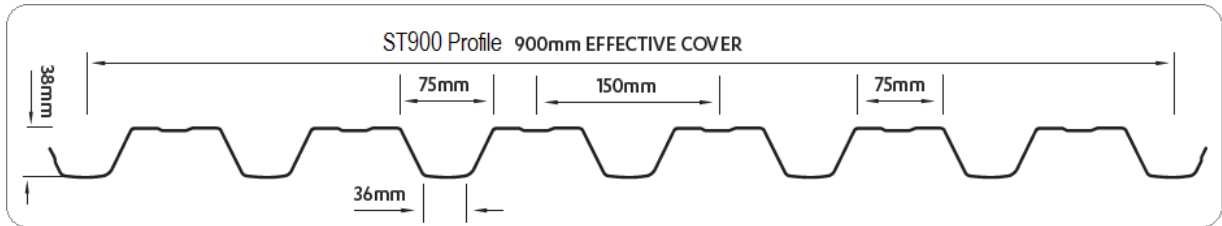


Parameter	Location 1 (Female side of joint)	Location 2 (Male side of joint)	Location 3 (Unsupported Edge)	Location 4 (Midspan)
Max Loaded SLS Deflection	7.8mm	7.6mm	17.5mm	8.2mm
SLS Residual Deflection (mm)	0.2mm	0.2mm	0.4mm	0.3mm
SLS Test	Pass	Pass	Pass	Pass
Maximum Load Achieved (kN)	2.41 kN	2.41 kN	2.41 kN	2.41 kN
Deflection at Max Load (mm)	14.6mm	13.8mm	31.7mm	14.4mm
ULS Test	Pass	Pass	Pass	Pass

*\*\*For more information regarding the testing refer to Holmes Solutions Engineering report*

## Steel Tray Option

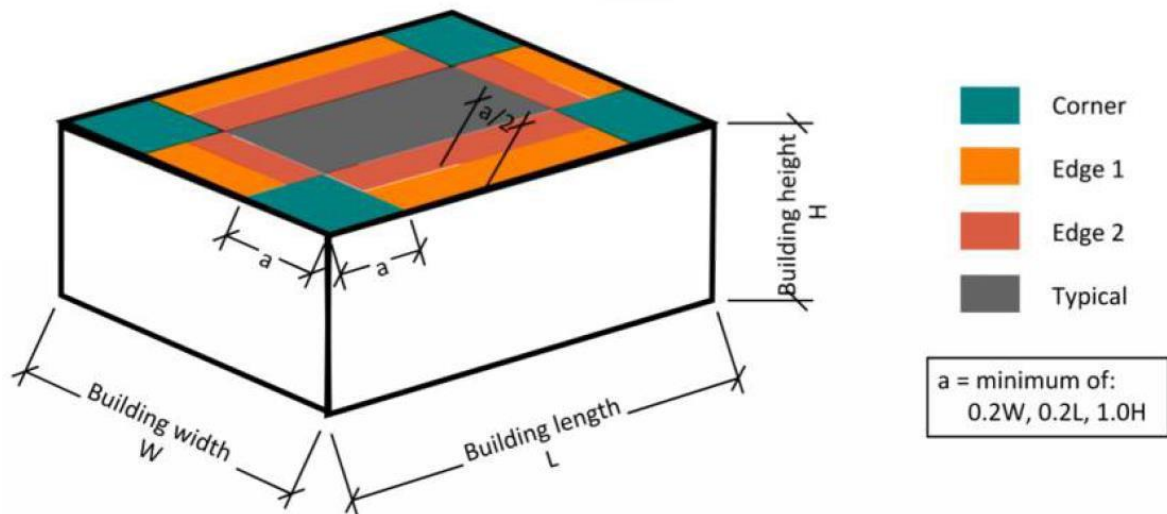
PROFILES AS INVERTED



Profiles (location where profile is formed)	Mid-Span	End-Span
ST900 .55g Steel & Tube (Auckland & Christchurch)	1.800mt	1.800mt
ST7 .55g Steel & Tube (Wellington, Lower Hutt)	1.800mt	1.800mt
Metcom7 .55g Metalcraft (Wellington, Lower Hutt)	1.800mt	1.800mt

Fixings min. C4 Galv	Timber Purlin	Steel Purlin
Fixings through every Pan (trough) into every purlin	VWS130	VWS131
Unitite Hex Washer Head with Seal	12G x55	12G x35
(Metal sheets to be inverted so that rib now becomes the Pan)	12G = 5.5mm	12G = 5.5mm

## Proposed Fastener Spacing



For example, if building is 10m wide, 20m long and 12m high, and in a high wind zone.

- Corner/edge region, "a", is defined as the minimum of  $0.2 \times 10\text{m}$ ,  $0.2 \times 20\text{m}$ , or  $1 \times 12\text{m}$  ( $=\min(2\text{m}, 4\text{m}, 12\text{m}) = 2\text{m}$ )
- Within "a" (2m) from each corner of the roof, a minimum of 12 fasteners per 1.2x2.3m sheet is required
- Within "a/2" (1m) from the roof edge ("Edge 1" region), sheets are required to have a minimum of 10 fasteners

Between 1m and 2m from the roof edge ("Edge 2" region), and for the remainder of the roof, a minimum of 8 fasteners per sheet is required

NZS 3604 Wind Zone	Corner [no. off]	Edge 1 [no. off]	Edge 2 [no. off]	Typical [no. off]
Low	8	8	8	8
Medium	9	8	8	8
High	12	10	8	8
Very High	15	13	10	8
Extra High	18	15	12	8

\*\*NZS 3604:2011 wind zones and corresponding roof wind pressure

NZS 3604 Wind Zones	Wind Speed [m/s]	Corner [kPa]	Edge 1 [kPa]	Edge 2 [kPa]	Typical [kPa]
Low	32	1.53	1.28	0.96	0.64
Medium	37	2.05	1.71	1.28	0.85
High	44	2.9	2.42	1.81	1.21
Very High	50	3.75	3.12	2.34	1.56
Extra High	55	4.53	3.78	2.83	1.89

\*\*For more information regarding the testing refer to Holmes Solutions Engineering report

## Purpose and use:

Viking WarmSpan<sup>2</sup> has been designed as a structural low-slope membrane warm roof primarily to:

- i. keep water out of the building.
- ii. be a key contributor to the thermal efficiency of the building, while also
- iii. providing structural integrity to the building.

The Viking WarmSpan<sup>2</sup> System has also been appraised for durability and thermal performance as an insulated roofing system on buildings that are classified as specific design with no building height restriction and situated in wind pressures up to a maximum design differential ultimate limit state (ULS) of 6.5kPa. Building designers are responsible for the building design and for the incorporation of the Viking WarmSpan<sup>2</sup> System into their design in accordance with the declared properties and instructions of Viking Roofspec. The Viking WarmSpan<sup>2</sup> System must be installed by a licensed installer from Viking's Approved Applicator Network.

## Conditions:

- For H1.2 T&G Plywood Substrates Zinc Chromate screws can be used
- For H3.2 T&G Plywood Substrates Stainless Steel screws must be used
- Installation of substrates must be completed by tradespersons with an understanding of roof and deck construction
- Installation of the membrane and Warm Roof system must be completed by Viking trained Licenced installers as approved by Viking Roofspec

## New Zealand Building Code (NZBC):

The roofing system 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

## Supporting Evidence:

This roofing system has the following additional evidence to support the above statements:

- WarmSpan<sup>2</sup> Engineering Report from Holmes Solutions

## Design, Construction, and installation instructions:

### **Design Requirements**

Product specification and incorporation of Viking WarmSpan<sup>2</sup> 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 Holmes Solutions Report where the design limitations are outlined for the scope of this PTS.

### **Installation Requirements**

Installation of the structural Roof elements must always be carried out in accordance with the Viking WarmSpan<sup>2</sup> System Technical Literature and under the supervision of a Licensed Building Practitioner (LBP) with the relevant Licence Class.

Installation of the Viking supplied system 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 Viking PDS and Engineering reports.

### **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.

### ***Refer to maintenance care guide for specified membrane:***

- Enviroclad:  
[https://www.vikingroofspec.co.nz/media/3pia3yzj/enviroclad\\_c-m\\_guide.pdf](https://www.vikingroofspec.co.nz/media/3pia3yzj/enviroclad_c-m_guide.pdf)
- Torch-On  
[https://www.vikingroofspec.co.nz/media/oghlmsq/torchon\\_c-m\\_guide.pdf](https://www.vikingroofspec.co.nz/media/oghlmsq/torchon_c-m_guide.pdf)

### **Warranties**

- Viking WarmSpan<sup>2</sup> installed with one of Viking’s Membrane systems is supported by a 20-year product warranty.
- Projects that represent ‘absolute risk minimisation’ in design, may also be eligible for Viking’s comprehensive Full System Warranty\*, that covers both the materials and the approved applicator’s installation in one document for the building owner.
  - \*Conditions Apply – for more information on Viking’s Full System Warranty, visit:  
[www.vikingroofspec.co.nz](http://www.vikingroofspec.co.nz)

## **Specification**

### MASTERSPEC WarmSpan<sup>2</sup>

- Visit Masterspec for the online version of our specification.
- Viking Enviroclad or Viking Torch-on can be selected with WarmSpan<sup>2</sup> Masterspec specification

### Viking Roofspec compatible waterproofing membranes for Viking WarmSpan<sup>2</sup>

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