July 2023

PRODUCT DATA SHEET

Roofspec Viking
Taking care of detail

Viking WarmSpan

Version: VIK-WS-01PDS

Introduction:

This Data Sheet is to serve as a reference guide for Viking Roofspec Licensed Installers who are already familiar with Viking Roofspec's systems and are responsible for Viking roof-system installations. The following guide contains precautions, best uses and application procedures for the correct installation of

The Viking WarmSpan warm-roof-on-steel tray system is a proprietary fully engineered roofing solution designed to provide cost-effectiveness and energy efficiency. It consists of a wide-spanning steel deck substrate, a vapour control layer, Kingspan Polyisocyanurate rigid insulation panels, and Viking Roofspec's Torch-on or Enviroclad TPO sheet waterproofing membrane systems.

Key Features:

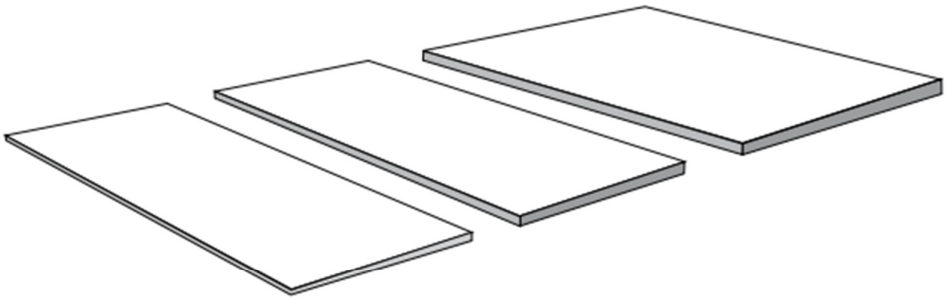
- Simplicity: WarmSpan eliminates unnecessary components, streamlining the system for improved cost-effectiveness and energy efficiency.
- Integrated Vapour Barrier: The system can incorporate an integrated vapour barrier, enhancing moisture control.
- Point-Load Resistance: WarmSpan doesn't require a separate cover board for point-load resistance, making it suitable for limited foot traffic access roofs.
- Versatility: Suitable for residential, commercial, and industrial projects, WarmSpan is a low-slope roof system with a recommended pitch of 2 degrees.
- 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.

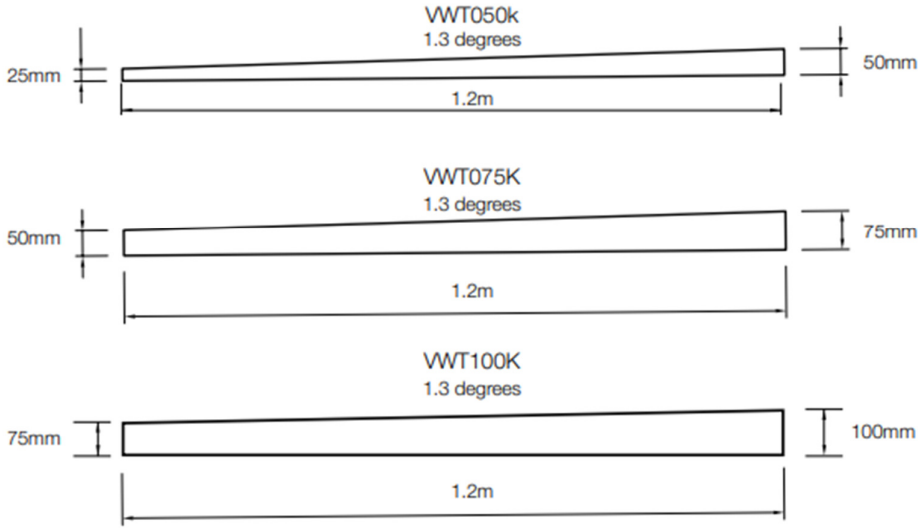
Protection walkways of Viking Enviroclad Walkway Roll or for Torch-on an additional Cap Sheet in differing colour with Crystal Glaze can be used to highlight safer light access traffic locations. Protection from construction traffic, materials storage and scaffold feet must be managed by the main-contractor and all trades by use of well-placed temporary access boards for later removal. Engineers must determine roof load limits for permanent in-service use or temporary construction use such as scaffolding or construction materials.

Properties

System Components				
Product	Thickness	Size (m)	Weight per m²	R value LTTR
Flexible F.A.S.T Adhesive Dual Cartridge (STP900b)	15mm wet bead	1 set per 3 sheets Coverage	0.25 Kg	
Cover Board (VWR113)	6.4mm	1.22m x 2.44m	5.97 Kg	0.0493
Polyiso (VWR025B)	25mm	1.20m x 2.27m	1.4Kg	0.93
Polyiso (VWR050)	50mm	1.20m x 2.27m	2.3Kg	1.87
Polyiso (VWR075)	75mm	1.20m x 2.27m	3.2Kg	2.8
Polyiso (VWR100A)	100mm	1.20m x 2.4m	4.0Kg	3.85
Vapour Barrier (VWR725a)	1.52mm	30.40 x 1.00	1.5 Kg	N/A
Steel	0.55mm	Cut to Length (38mm high seams)	6.08 Kg	N/A

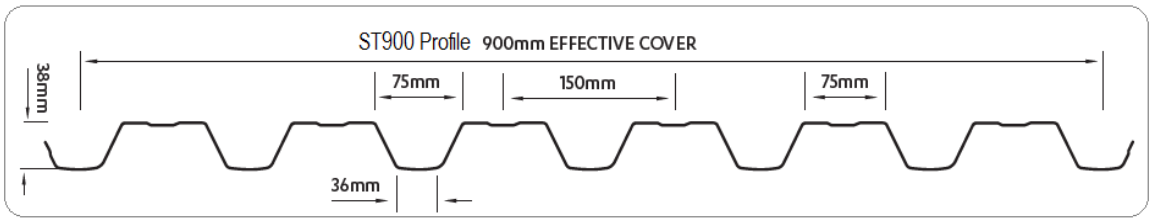
Polyiso to Fall System Components				
Product	Thickness	Size (m)	Slope	R value LTTR
Polyiso VWT050K	25mm – 50mm	1.2m x 1.2m	1.30	0.93
Polyiso VWT075K	50mm – 75mm	1.2m x 1.2m	1.30	1.87
Polyiso VWT100K	75mm – 100mm	1.2m x 1.2m	1.30	2.8
Polyiso VW2DEG	25mm - 75mm	1.2m x 1.2m	2.30	3.85
Polyiso VW2DEG = for single ply membranes only unless a coverboard is used				

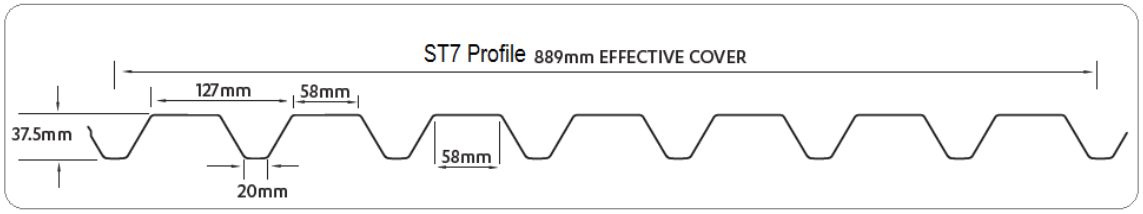


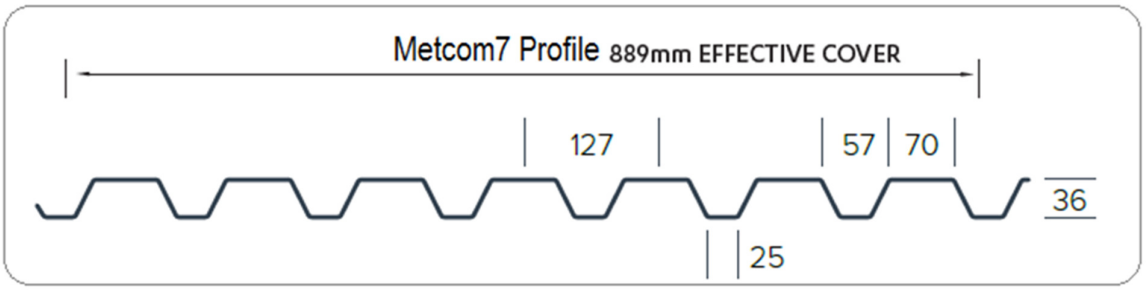


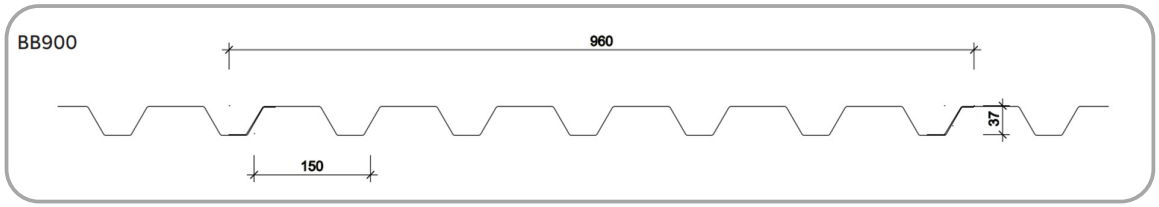
Steel Deck Profiles		
Steel Deck Profiles (location where profile is formed)	Mid-Span	End-Span
ST900 .55g - Steel & Tube	3.500mt	2.800mt
ST7 .55g - Steel & Tube	2.950mt	1.950mt
Metcom7 .55g - Metalcraft	3.600mt	3.600mt
BB900 .55g - Dimond Roofing	1.800mt	1.600mt
MultiRib .55g - Roof Industries	1.800mt	1.800mt
*Recommendation will always be 1.800mt Mid and End Span **For spans up to 3.5m please review the Holmes Engineering Report		

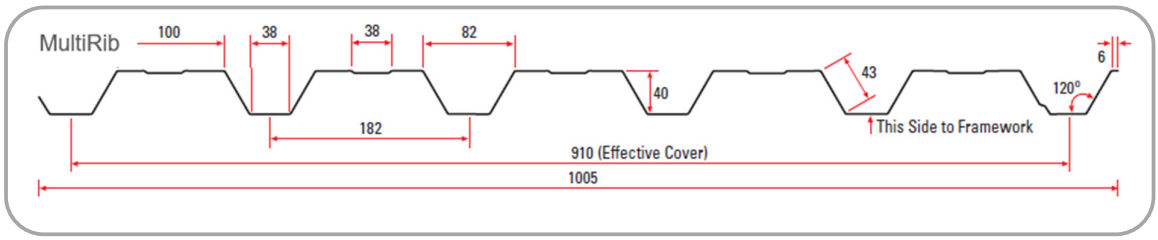
PROFILES AS INVERTED











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

Installation

Metal Deck Installation:

- WarmSpan Metal Deck Substrate Checklist for suitable Spans and fixings
- WarmSpan Engineering Summary for uplift and loading capacity

Remember that the Metal-deck is installed inverted to provide the most surface for adhesion of the PIR. The Metal-deck is screw fixed in the trough, so fixings do not interfere with the PIR. When laying out and fixing the Metal-deck never stretch the profile, for instance to run square to a barge. The metal-deck must be installed perfectly flat to create a consistent level across the tops of the ribs / flutes for proper installation of the PIR. Run a straight edge across the top to make sure of a flat surface. Ensure the metal-deck has been roll-formed correctly to ensure the over or under lap does not create a lip or high edge that would hold the PIR up higher than the ribs / flutes you are adhering to during PIR installation. Any imperfections in the metal-deck will compromise the installation of the PIR. Metal-deck Hips / Valleys install flashings at least 150mm each side (300mm total width) to provide a smoother metal-deck transition for PIR and Vapour Tape (if sealing the deck). Have the roofing outlet supports framed and plywood routed out by the builder. Remember to install vapour Barrier to the top edge of these penetrations.

Installation of Viking Vapour Barrier:

1. Lay Viking Vapour Barrier over entire substrate roof area, include upstands and corners to ensure an airtight and water impermeable layer. Allow 50mm laps on the joins. Refer Viking Product Data Sheet Viking Vapour Barrier VWR725a
2. Have the builder install any required plinths for later fixings and seal with the Vapour Barrier. An example would be safety anchors or mechanical plant etc.
3. No Vapour Barrier primer required to the substrate if PIR Insulation is immediately installed by mechanical fasteners.
4. If Viking Vapour Barrier is left exposed overnight dry the entire area to ensure there is no moisture on the surface prior application of PIR.
5. No weathering or moisture must enter the roof system before completion.

*Refer to Viking Vapour Barrier PDS

Installation Of Viking PIR Polyiso Insulation:

1. Preparation:
   - Ensure the substrate surface is clean, dry, and free of any debris or contaminants.
   - If there are no parapets, install a hard-edge timber batten around the perimeter as a protective frame with an rounded edge for the membrane installation.

2. Test Adhesive**:**
   - Before laying the PIR panels, perform a string test with the Fast Adhesive to ensure proper curing time (1-2 minutes). Avoid over-curing before setting the insulation boards.
   - Periodically check the adhesion of the insulation boards throughout the day to ensure a tight bond and maximum contact. Wait at least 20 minutes after installation before checking the adhesive.

3. Adhering PIR Insulation**:**
   - Apply the Fast Adhesive in a brick bond pattern using a 15mm diameter bead, approximately 150mm apart within 1.2m - 5.4m from all roof perimeters and 300mm apart throughout the field of the roof.
   - When installing on a metal deck (WarmSpan), run the 15mm bead of Fast Adhesive along the top of every rib/flute.
   - Refer to Viking Product Data Sheet for Fast Adhesive for recommended ribbon fixing centers.
   - Estimate 7m² - 10m² per set of Fast Adhesive when adhering to the substrate and approx. 7m² per set when adhering to a metal deck.

**Refer to Fast Adhesive PDS

4. Rolling and Weighting:
   - Immediately after laying each PIR panel, roll the entire insulated roof area with a heavy roller. Designate one person to perform this task.
   - Add weight to hold the newly adhered and rolled PIR insulation sheet to the substrate for a minimum period of 30-40 minutes. Remove weights before membrane installation.

5. Laying Second Layer Insulation (e.g., Tapered Insulation):
   - Stagger the second layer's sheets in staggered half-drops both in length and width directions to eliminate vertically concurrent sheet joints.
   - Adhere the second layer in the same manner as the first layer.

6. Aesthetics and Protection:
   - Carefully align PIR sheet joints to minimize their visual impact under waterproofing membranes.
   - Install timber edging to gutter or drip-edges by the builder to protect insulation from crushing. The finished hard-edge height should be the same height as the insulation or 1mm lower.
   - Ensure all PIR insulation sheets are fully covered and protected from water ingress and showers throughout the day. Store PIR and Fast Adhesive materials under-cover and protected from direct sun and rain. Remove plastic film around the PIR to prevent sweating or condensation.

PIR Installation Tips:

- When installing PIR, start from the ridge and work down to allow for temporary weatherproofing if needed.
- Pay extra attention and precision when cutting PIR for hips and valleys. Clean cuts with a circular saw set to the correct angle can be successful.
- Ensure the first squeeze of the trigger with a new Fast Adhesive cartridge is into a bucket or trough to ensure full mixing of the adhesive.
- Avoid laying down too much adhesive at once to prevent it from drying out before installing the PIR.
- Consider using a team of five for efficient work: one on Fast Adhesive, two laying pre-cut Polyiso, and two controlling weight using a 70 kg roller and installing weights.

Installation Of Waterproofing Membrane

- Install Viking waterproofing membrane system in accordance with Viking Application Handbooks and Viking Specification.
- Membrane Options:
  a) Enviroclad
  b) Torch-On
  c) Epiclad

Precautions

1. Vapour Barrier: If exposed to the weather then leaving an escape at the low point will allow for watershed drainage prior to installation of the following layers of PIR, Cover Board and waterproofing membrane. Ensure this relief point is sealed with Viking Vapour Barrier before fully closing the area.
2. Installing the Vapour Barrier at the bottom edge last, into gutters or drip-edges will allow water or overnight dew to drain away without being held back.
3. PIR: If you are unlikely to finish a roof face in one day, install the PIR from the ridge down. If you need to stop midway, you are better able to temporarily close-off the roof for weatherproofing.
4. PIR: Hips and Valleys require extra attention and precision when cutting the PIR and Cover Board. Imperfections in the hip or valley are more obvious so extra care getting these angles and cuts to meet perfectly on either side is the aim. Installing one side, marking with a chalk-line and clean cutting with a circular-saw set to correct angle has been a successful method. Otherwise cutting through the top edge and filling any gaps with Viking Soudal Adhesive. **Eye protection must be worn and wear a mask so not to breathe dust**.
5. Cover Board: Cut board in half-length ways. **Eye protection must be worn and wear a mask so not to breathe dust**. Start with your "half sheet" for first row at the top of the ridge and the full sheet in the second row, in a brick bond pattern. This will help with offsetting the sheet edges to PIR to minimise thermal bridging.
6. Ensure Cover Board is as dust free as possible before you start installing the Viking waterproofing membrane. Start installing waterproofing membrane before risking exposure of Cover Board to incoming showers, otherwise ensure you have temporary covers ready.

Project Completion

Inspect all completed works to ensure all detailing is completed and watertight, check for damage or any risk of water ingress. Have main contractor accept works as complete and undamaged.

Make very clear to the Main Contractor and all trades that once an area is completed there must be no unprotected construction traffic or storage of construction materials.

Construction Damage

Damage will often occur, from other trades after the waterproofing had been completed, from unprotected areas of construction traffic, materials storage, or scaffolding breakdown.

There are considerable costs in repair with potential for water ingress which would prove difficult to remove. Standard method of protection from construction traffic over finished areas is for the Main-Contractor to provide SOFT-PROTECTION (Viking Protection Mat) underneath a HARD PROTECTION (17mm Plywood).

***Standard Method of repair due to construction damaged areas of WarmSpan completed sections.**

1. Check lowest areas of roof for ponding water. By removing Waterproofing Membrane / Cover Board and PIR
2. Dry out any water if present
3. Repair or replace any removed vapour barrier
   **Follow repairs instruction on Viking PDS Viking Vapour Barrier VWR725a
4. Reinstate to specification PIR and Waterproofing Membrane

*Any such repair must first be sanctioned in writing by Viking Roofspec, Main Contractor, any project managers, or designers via the appropriate channels to prove acceptance.

Storage

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, do not let products get crushed under weight of stacking pallets on top of each other.