Roofspec Viking
Taking care of detail

WarmRoof / WarmSpan installation guide

Purpose

The purpose of this document is to outline the general use and installation of a Viking WarmRoof or WarmSpan system. *Note that a WarmSpan system is a WarmRoof system when installed over a metal deck.*
A Project Specification must be referred to for any site-specific requirements, such as but not limited to, adhesion or selections.
This general installation guide is in line with Viking BRANZ Appraisal 713 for wind pressures up to 6Kpa when using FAST Adhesive and Enviroclad Sure-weld bonding adhesives subject to the suitability of the supporting substrate.

Overview

Viking WarmRoof / WarmSpan insulated roof systems are suitable for in service use as Type 1 light-foot traffic. Classified within the Metal CoP as areas that can be accessed from opening windows or awnings limited to 1.8.Kn.
Viking TPO Walkway Roll can be used over Enviroclad waterproofing membrane for later light access traffic with or without the use of Viking CoverBoard.
*Construction traffic can be better managed by well-placed temporary access boards for later removal, or by incorporation of Viking CoverBoard. Engineers must determine roof load limits for permanent in-service use or temporary construction use such as scaffolding or construction materials.

Viking WarmRoof / WarmSpan system with PIR Insulation may be waterproofed with either Viking Enviroclad 1.52mm or a 2-layer Viking Torch-on system.

A Vapour Barrier or sealed-deck (substrate) although prudent may only be required when
a. insulation values do not meet the minimum requirements of the location
b. in Climate Zone 3 locations or
c. in Cool Store construction.

Viking Roofspec can arrange for a Thermal and Dew-point calculation upon request.

An Electronic Leak Detection System (E.L.D) may be used within a WarmRoof System though this is not a requirement for a Product Warranty.
A WarmRoof system, over Ply or Concrete substrates, may be incorporated within a Roof Garden System (when installed under the waterproofing layer. Viking would highly recommend an E.L.D system when installing a roof garden.

COMPONENTS: *Refer to Viking Product Catalogue for complete list and dimensions*

Waterproofing: Viking Enviroclad 1.52mm
- adhesion to PIR by Enviroclad Sure-weld bonding adhesive

Viking Torch-on;
- Primer to PIR use Easy-Paste
- Self Adhered Base Sheet
- Ceramic Cap Sheet

*Coverboard: 10mm Gypsum-Fibre Roof Board
- Adhesion to PIR by FAST Adhesive

Insulation: *Kingspan TR27 PIR Flat sheet 25mm / 50mm / 75mm or 100mm
- Tapered PIR sheet 1.2mt x 1.2mt 1.4° / Tapered PIR sheet 1.2mt x 1.2mt 2.3°
- Adhesion to substrate by FAST Adhesive

Vapour Barrier: Vapour Barrier Sheet or Vapour Barrier Tape

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INSTALLATION OF PIR INSULATION

If a Vapour Barrier is required refer to Viking Product Data Sheet Viking Vapour Barrier VWR725 for installation instructions. ENSURE SUBSTRATE IS DRY prior to installing PIR.

PREPARATION

Carry out an adhesive test using a half sheet of Viking Polyiso on the substrate and wait 24 hours. For proper adhesion ensure the facer material delaminates after the pull-off-test. Consult a Viking Roofspec representative for advice when the facer material does not delaminate.

INSTALL PIR TO SUBSTRATE WITH FAST ADHESIVE

Adhere Viking Polyiso sheets in a brick bond pattern using Fast Adhesive system, using approx. 15mm diameter bead, in sweeping ribbons 150mm apart within 1.2mt – 5.4mt from all roof perimeters and 300mm apart throughout the field of the roof. Estimate 7m² - 10m² per set of FAST Adhesive.

When installing to a metal deck (WarmSpan) run the 15mm bead of FAST Adhesive along the top of every Rib / flute. Estimate approx. 7m² per set of FAST Adhesive.

Refer to Viking Product Data Sheet FAST Adhesive for Ribbon fixing centres.

NOTE: Where there are no parapets, install a hard-edge timber batten around the perimeter as a protective frame. Timber to have an arrised edge for the membrane to be installed over.

TEST ADHESIVE BEFORE LAYING INSULATION

Test FAST adhesive using the string test before laying the Polyiso panels.
Allow FAST Adhesive to rise and develop “string/body” (approx. 1 – 2 min.). String time will vary based on environmental conditions like temperature and humidity. Do not allow the adhesive to over-cure prior to setting insulation boards.

At the beginning of the insulation attachment process and periodically throughout the day, check the adhesion of insulation boards to ensure a tight bond is created and maximum contact is achieved. Wait a minimum of 20 minutes after board is installed before checking adhesive.

LAY INSULATION

Roll the entire insulated roof area with a minimum 70 kg roller immediately after each sheet is laid. Viking Roofspec recommends one person is designated to do this. On completion use a sander or other appropriate levelling tool to smooth over uneven edges.

Add weight to hold the newly adhered and rolled PIR Insulation sheet to the substrate for a minimum period of 30mins - 40mins. After which time the weights can be removed prior to membrane installation.

NOTE: All PIR Insulation sheets must be fully covered before the end of each day and be fully protected from water ingress or showers throughout the day. PIR and FAST material stored on site should be under-cover protected from direct sun and rain. Plastic film around the PIR should be removed to protect product from ‘sweating’ or condensation.

LAYING SECOND LAYER INSULATION - E.G. Tapered insulation

Ensure the top layer has sheets positioned in staggered half-drops both length and width directions to eliminate points where sheet joints are vertically concurrent. Adhere second layer in the same manner as the first layer.

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Understanding the aesthetics

PIR Sheet joins will be seen under most waterproofing membranes. Careful gluing to ensure the tops of PIR sheets align will minimise the overall visual impact.

Timber edging to gutter or drip-edges are to be installed by the builder to protect insulation from crushing.
Advise finished hard-edge height to be same height as insulation. Better to be 1mm lower than 1mm higher than the finished height of the PIR.

PIR INSTALLATION TIPS

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.

PIR: Hips and Valleys require extra attention and precision when cutting the PIR. 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. Wear a mask so not to breathe dust.

FAST Adhesive: First squeeze of the trigger with a new FAST cartridge needs to be into a bucket or trough. This is to ensure adhesive used for PIR adhesion is fully mixed. Failure to do so will result in the PIR not adhering where you start gluing with a new FAST Cartridge.

Do not get too far ahead of yourself by laying down too much adhesive.
A team of 5 can keep work moving constantly with… ONE on FAST Adhesive, TWO laying pre-cut Polyiso, TWO controlling weight (70 kg roller and installing weights).
Plenty of evenly distributed weight is required (not just adhesive cans). Best results by using scaffold planks held down by plenty of 20Lt buckets filled with ready-crete.

Ensure you start installing membrane before you get too far ahead of yourself in case the poor weather comes in.

METAL DECK INSTALLATION

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

METAL DECK INSTALLATION TIPS

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.

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Regarding Sealed Metal decks (vapour barriers).

- If other trades are likely to be penetrating the Metal-deck, confirm exactly where this will occur so that a vapour barrier can be installed before installing the PIR.
- Have the builder pre-install any required plinths for later fixings and seal with a vapour barrier. An example would be safety anchors or mechanical plant etc.
- Install the Vapour Barrier Tape at the bottom edge last, into gutters or drip-edges so that water or overnight dew can drain away from the trough sections without being held back.

INSTALLATION OF WATERPROOFING MEMBRANE

***COVERBOARDS NOTE:** For Plantroom areas or locations expecting greater than 'Type 1 light-foot traffic', classified within the Metal CoP as areas that can be accessed from opening windows or awnings limited to 1.8.Kn, a high density coverboard should be considered prior to installation of the waterproofing membrane. This may also be required to allow construction traffic if temporary access boards are not being used during construction.

Install Viking waterproofing membranes in accordance with Viking Application Handbooks and Viking Specification

Viking Enviroclad:

- 1.52mm adhered to PIR Insulation or CoverBoard using Sure-weld Bonding adhesive

Note that Cav-Grip lll is not provided for within BRANZ Appraisal 713.

Viking Torch-on:

- Use Viking Easy-Paste as primer coat to PIR allow 1 litre per M^2 for PIR
- Self-Adhered Base Sheet SEM330
- Cap Sheet of either Lybra SBS / Gemini APP / Phoenix Super APAO

CONSTRUCTION DAMAGE

Make very clear to the Main Contractor and all trades that once an area is completed there must be no construction traffic or storage of construction materials.
There are considerable costs in repair with potential for water ingress which would proof difficult to remove.

Standard method of protection from construction traffic over finished areas is for the Main-Contractor to provide SOFT-PROTECTION (upside down carpet) underneath a HARD PROTECTION (17mm Plywood).

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

Kingspan PIR TR27 at 150Kpa allows for in-service use limited to Light-Foot Traffic.
Repeated Heavy or Construction traffic may cause the upper surface of the PIR, directly under the facer material, to disintegrate. Causing a delamination of the Facer to the PIR. This will exhibit as bubbles below the membrane.
To check whether this is happening it will be necessary to cut through to see if the delamination has occurred.
Keep photographic and physical evidence wherever possible and keep reports on management for roof protection.

****Viking Roofspec acceptable method of repair is to**

1. remove the delaminated facer section to re-adhere to PIR using
    a. Enviroclad adhesive (in the case of Enviroclad installation) or
    b. Torch-on Easy-Paste (in the case of Torch-on installation) or
    c. FAST Adhere Viking CoverBoard directly to PIR
    d. Install new membrane over re-adhered sections with care to minimise laps facing watershed wherever practical. Note: Laps facing watershed although not considered 'best-practice' are not a waterproofing fail. These would only be necessary as a result of necessary repairs due to construction damage and as always are reliant upon workmanship for waterproofing.

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

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