

Viking Roof Garden

Version: VRG-PDS-V1.1

Introduction:

This Data Sheet is a reference guide for Viking Roofspec Licensed Installers who are 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 Viking Roof Garden Systems.

Viking Roof Garden systems comprise of two elements, the first being the primary waterproofing system, and second the Roof Garden components. Options are Enviroclad TPO with an anti-root layer and Viking Roof Garden drainage board, or; Viking Torch-On with integrated anti-root properties and Viking Roof Garden drainage board.

Viking Roof Garden systems are suitable for both Cold Roof and WarmRoof applications.

Substrates:

1. **Concrete:** Substrates must be subject to specific engineering design, meeting the requirements of the NZBC, Such as Concrete Construction to NZS3101
2. **Plywood:** Substrates must be subject to specific engineering design, meeting the requirements of the NZBC.

Plywood must be treated to H3 (CCA treated). LOSP treated plywood must not be used. Plywood must comply with NZBC Acceptable Solution E2/AS1, Paragraphs 8.5.3 and 8.5.5. Where specific design is required (i.e., the building is outside the scope of NZS 3604 and NZBC Acceptable Solution E2/AS1), the plywood thickness and fixing size may increase, and centres may decrease to meet specific wind loadings and structural integrity requirements.

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.

Primary Build up:

1. **Waterproofing Layer:** This layer prevents water from seeping into the building structure and causing damage. It is typically made of materials such as Viking Enviroclad or Viking Torch-On.
2. **Root Barrier:** A root barrier is used to prevent plant roots from penetrating the waterproofing layer and potentially causing damage.
3. **Drainage Layer:** A drainage layer allows excess water to flow away from the roof, preventing waterlogged soil and providing proper irrigation for the plants.
4. **Growing Medium:** This layer consists of a lightweight, engineered soil or substrate that supports plant growth while maintaining a relatively low weight load on the roof structure.
5. **Vegetation:** Various types of plants, including grasses, sedums, wildflowers, and even small trees, can be planted on the green roof. The selection of plants depends on factors like climate, maintenance requirements, and aesthetic goals.

Key Features and Advantages:

- **Environmental Benefits:** They help reduce the urban heat island effect, improve air quality by filtering pollutants, and promote biodiversity by providing habitat for birds and insects.
- **Energy Efficiency:** Green roofs can reduce heating and cooling costs by providing additional thermal resistance and reducing heat transfer through the roof.
- **Stormwater Management:** They absorb and store rainwater, reducing stormwater runoff and the risk of flooding in urban areas.
- **Extended Roof Lifespan:** The vegetation and protective layers can extend the lifespan of the roofing materials by shielding them from the elements.
- **Aesthetics:** Green roofs enhance the visual appeal of buildings and can create tranquil and aesthetically pleasing spaces for building occupants.

- **Noise Reduction:** They can help absorb and reduce noise pollution from the surrounding environment.
- **Quality Assurance:** Viking Roofs spec requires the installation of Electronic Leak Detection for robust Q/A before any Roof Garden components or Media are installed. This guarantees a fully watertight system from day one.
- **Exclusive Installation by Viking Approved Applicators:** The Enviroclad and Viking Torch Applied Systems are exclusively installed by our Viking Approved Applicators, ensuring professional workmanship and adherence to quality standards.
- **20-Year Product Warranty:** With a comprehensive 20-year product warranty, the Viking Roof Garden System provides unmatched peace of mind and confidence in its long-lasting performance.
- **BRANZ Appraised:** The system has been verified via the BRANZ Appraisal process (Appraisal No. 903), highlighting its compliance with industry standards.

Properties

Product Code	Description Enviroclad	Size	Coverage	Weight
STP514, STP510SS, STP513SS, STP509	Enviroclad 1.52mm Grey	3.05m, 3.66m, 4.88m wide, 30.4m long	Variable	1.6kg per m ²
SRG002	Roof Garden Root Barrier	3.6m wide, 1.0mm thick, sold cut to length	Variable	1.03kg per m ²
SRG001	Roof Garden Drainage Board	1.2m wide, 35mm thick, sold cut to length	Variable	4kg per m ² *
Product Code	Description Torch-On	Size	Coverage	Weight
SEM331	Phoenix Galaxy Base Sheet	1.0m wide, 10m long, 3mm thick	8.85m ²	3.5kg per m ²
SEM330	Self-adhered Base Sheet	1.0m wide, 10m long, 3mm thick	8.85m ²	3.5kg per m ²
SEM630	General Garden FLL Anti-root	1.0m wide, 10m long, 4mm thick	8.85m ²	5kg per m ²
SRG001	Roof Garden Drainage Board	1.2m wide, 35mm thick, sold cut to length	Variable	4kg per m ² *
Product Code	Description Torch-On	Size	Coverage	Weight
SRG004a	Roof Garden Edging Aluminium	2mm thick, 100mm high, 75mm wide, 2.4m long	2.4lm	
SRG005	Roof Garden Aluminium Drainage Box	3mm thick, Box 100mm high, 300mm x 300mm wide, Flange 500mm x 500mm	0.5m ²	

*Holds 8.9L of water per m²

Complementary Torch-On Membranes:

Product Code	Description Torch-On Tanking	Size	Coverage	Weight
SEM713	Fleecetank	1.05m wide, 10.m long, 4mm thick	9.55m ²	5.0kg m ²
SEM245a	Underslab Tanking Membrane	1.0m wide, 10.m long, 4mm thick	8.85m ²	4.5kg m ²
SEM626	Mercury FC Tanking	1.0m wide, 10.m long, 4mm thick	8.85m ²	5.0kg per m ²
Product Code	Description Torch-On Roofing	Size	Coverage	Weight
SEM331	Phoenix Galaxy Base Sheet	1.0m wide, 10.m long, 3mm thick	8.85m ²	3.5kg m ²
SEM330	Self-adhered Base Sheet	1.0m wide, 10m long, 3mm thick	8.85m ²	3.5kg m ²
SEM145 SEM148	Phoenix Super APAO Cap Sheet	1.0m wide, 10.m long, 4mm thick	8.85m ²	5.5kg m ²
SEM345 SEM348	Gemini Cap Sheet	1.0m wide, 10.m long, 4mm thick	8.85m ²	4.5kg m ²

Viking Roof-Garden G4 Drainage Board (SRG001)

Combines filter fabric, moisture retention mat, drainage board, and heavy-duty protection fabric into a single, easy-to-install product specifically designed for vegetated roofs or ballast roof systems. The formed cups within the drainage board have a capacity up to 8.9 L per M2 to aid in easing demand on stormwater loading or irrigation for vegetation.

Media Considerations:

Proprietary Roof Garden soils (media) are required when this system. Typically, they will be a blend but not limited to the following materials, Composted bark, Coco fibre, Pumice and Zeolite, particle size will generally be in the range of 0mm – 15mm.

Unlike Topsoil, these media are designed to maintain air porosity, water holding capacity and water permeability. Topsoil will compact, reducing its ability to allow water flow and inhibit healthy plant growth.

Media weights will sit between 750kg/m³ and 850kg/m³ post manufacturing. Fully saturated, the media can weigh as much as 1100kg/m³, this must be considered when loading media onto the roof and risks associated with delays in spreading the material out.

Limitations:

- All Roof Garden systems must be fully engineered to account for the additional loadings on the roof and supporting structure.
- Only Viking Roofspec Approved Applicators and their Licenced installers can install Viking Roof Garden waterproofing systems.
- Installation of Roof Garden Edging forms part of the overall system and is the responsibility of the Viking Applicator.
- Installation of all growing medium and landscaping falls outside the scope of the Viking Roof Garden System.
- Irrigation systems do not form part of the Viking Roof Garden System, if required they must be installed in a manner that does not compromise the membrane waterproofing integrity.
- The maximum slope of Viking Roof Gardens must not exceed 14 degrees.
- Should a suspected leak occur, the removal of plants, medium, drainage board and anti-root (Enviroclad only) must be completed prior to Electronic Leak Detection scanning to locate any breach.
- Consideration must be given to plant selection based on the planting media depth and geographic location.



SRG004A

Roof Garden Edging Aluminium



SRG001

Roof Garden Drainage Board

Membrane Installation

The Enviroclad and Torch-On Product Data Sheets for the detailed installation guides are to be used in conjunction with this Roof Garden Product Data Sheet.

Installation Enviroclad Roof Garden

Cold Roof

1. Ensure the substrate is clean, dry and free of contamination. Concrete to be no more than 75% relative humidity and plywood to be no more than 18% moisture content.
2. Prime all substrates with the Viking specified primer as required.
3. All outlets and scuppers must be rebated in, so they sit flush with the substrate.
4. For plywood substrates the specified ELD system is installed.
5. Install the 1.52mm thick Enviroclad and ensure its fully bonded to the substrate.
6. Cavity vents are to be installed in accordance with the venting plan.
7. Complete all detailing and Seam Probe all laps per specification.
8. **IMPORTANT:** The installed membrane system **must** be tested by a competent ELD technician.
9. Any identified breaches or defects **must** be repaired, followed by an ELD re-test.
10. All Roof Garden Edging Aluminium and Drainage Boxes to be installed per Viking Details.
11. Loose lay the 1.0mm Anti-Root layer, spot fixing with lap tape may assist with installation.
12. The protection and drainage board is to be installed prior to the addition of growing media.
13. Complete and sign off the substrate check sheet.

Warm Roof

1. Follow steps 1 – 2 from the Cold Roof install list.
2. Install the Viking Vapor Barrier as per the Product Data Sheet for Vapour Barrier.
3. The Contingency outlet is installed at the vapor barrier level in the low points.
4. The PIR insulation is installed with Viking flexible F.A.S.T Adhesive.
5. If specified, install the Viking Coverboard with Viking flexible F.A.S.T Adhesive.
6. The specified ELD system is installed onto the PIR or Coverboard.
7. Install the 1.52mm thick Enviroclad and ensure its fully bonded to the substrate.
8. **IMPORTANT:** The installed membrane system **must** be tested by a competent ELD technician.
9. Any identified breaches or defects **must** be repaired, followed by an ELD re-test.
10. All Roof Garden Edging Aluminium and Drainage Boxes to be installed per Viking Details.
11. The protection and drainage board is to be installed prior to the addition of growing media.
12. Complete and sign off the substrate check sheet.



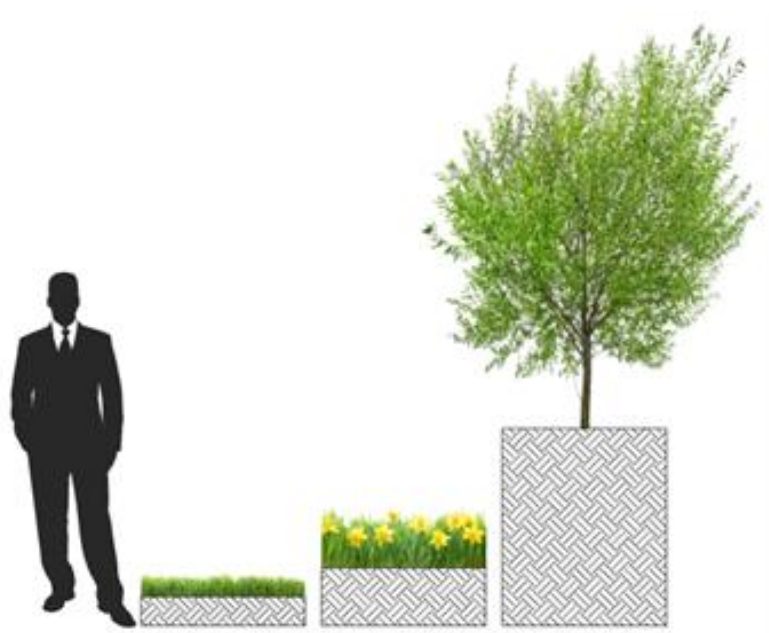
Installation Torch-On General Garden FFL

Cold Roof

1. Ensure the substrate is clean, dry and free of contamination. Concrete to be no more than 75% relative humidity and plywood to be no more than 18% moisture content.
2. Prime all substrates with the Viking specified primer.
3. Prepare and install gussets on all internal and external corners or transition details as required.
4. Install fillets to upstand to base transitions, e.g. Concrete, Bitumen or Timber.
5. All outlets and scuppers must be rebated in, so they sit flush with the substrate.
6. For plywood substrates the specified ELD system is installed.
7. Install the specified base sheet and ensure its fully bonded to the substrate. (This can include FLL Anti-Root)
8. The second layer, FLL Anti-Root is torched to the base sheet, ensuring the laps are offset to the base sheet. Both layers are to run parallel with each other. **Do not lay sheets at right angles to each other.**
9. Cavity vents are to be installed in accordance with the venting plan.
10. All Roof Garden Edging Aluminium and Drainage Boxes to be installed per Viking Details.
11. **IMPORTANT:** The installed membrane system **must** be tested by a competent ELD technician.
12. Any identified breaches or defects **must** be repaired, followed by an ELD re-test.
13. The protection and drainage board is to be installed prior to the addition of growing media.
14. Complete and sign off the substrate check sheet.

Warm Roof

1. Follow steps 1 – 2 from the Cold Roof install list.
2. Install the Viking Vapor Barrier as per the Product Data Sheet for Vapour Barrier.
3. The Contingency outlet is installed at the vapor barrier level in the low points.
4. The PIR insulation is installed with Viking flexible F.A.S.T Adhesive.
5. If specified, install the Viking Coverboard with Viking flexible F.A.S.T Adhesive.
6. The specified ELD system is installed onto the PIR or Coverboard.
7. Install the specified base sheet and ensure its fully bonded to the substrate. (This can include FLL Anti-Root)
8. The second layer, FLL Anti-Root is torched to the base sheet, ensuring the laps are offset to the base sheet. Both layers are to run parallel with each other. **Do not lay sheets at right angles to each other.**
9. All Roof Garden Edging Aluminium and Drainage Boxes to be installed per Viking Details.
10. **IMPORTANT:** The installed membrane system **must** be tested by a competent ELD technician.
11. Any identified breaches or defects **must** be repaired, followed by an ELD re-test.
12. The protection and drainage board is to be installed prior to the addition of growing media.
13. Complete and sign off the substrate check sheet.



Roof Garden indicative depths.

Extensive

Simple Intensive

Intensive

Precautions

- Ensure the intake vents on roofs are turned off or a solvent free primer is used. The fumes are a hazard to internal occupants.
- For Torch-On installations, ensure fire extinguishers are on site, close by any installations.
- Store modified bitumen sheets in a cool, dry, and well-ventilated area, away from direct sunlight and heat sources. Store at minimum 5 degrees.
- Avoid stacking rolls excessively to prevent deformation or damage to the sheets.
- Inspect the substrate for any irregularities, moisture, or debris before installation.
- Wear appropriate personal protective equipment (PPE), such as gloves and safety goggles, when handling and installing modified bitumen sheets.
- Avoid direct contact between modified bitumen sheets and incompatible materials that may lead to chemical reactions or degradation of the sheets.
- Protect the installed membrane system from foot traffic, sharp objects, and construction debris that may puncture or damage the waterproofing layer.
- **Caution: Avoid using staples to secure irrigation system hoses and components due to the risk of membrane punctures.**
- Perform necessary maintenance by following the Viking Roof Garden Care and Maintenance Guide.

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.

In conditions 5 degrees and below, it is recommended to store rolls in a warmer area prior to installation.

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