



Applicator handbook



Introduction

This handbook is issued as one part of the Viking Roofspec Licensing programme.

Installation of Viking Roofspec membrane products must only be undertaken by trained, licensed installers. Further product and specification information is available from Viking Roofspec www.vikingroofspec.co.nz or www.vikingroofspec.co.nz/cadresources/enviroclad/

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A note about safety

All work should be undertaken in line with current occupational safety and health legislation.

You are responsible for your personal safety and the safety of those around you. Viking Roofspec urges you to take the time to understand your obligations and to plan and undertake your work safely.

Working at Heights

“Roof work should only be undertaken by persons who have the knowledge, experience and resources necessary for the work to be completed safely.”

From Guidelines for the provision of facilities and general safety in the Construction Industry to meet the requirements of the HEALTH AND SAFETY IN EMPLOYMENT ACT 1992 & REGULATIONS 1995.

For more information regarding Worksafe requirements, please contact the Department of Labour. Information online is available at www.worksafe.govt.nz/worksafe/

Hazardous Materials

(Completion of Unit Standard 15757 (working at heights) is highly recommended for installers of roofing membranes.

Some materials used with this system are flammable or toxic. Safety information regarding these can be found in appropriate Material Safety Data Sheets (MSDS), available from Viking Roofspec. Correct personal protective equipment should be used where applicable.

Heat

Heat-guns used for the welding of Enviroclad or Dec-K-ing can reach temps beyond 400°C.

Take care not to touch hot nozzles and burn yourself in the use of these tools.

Substrate preparation

Do not proceed with the application of this membrane system until you have confirmed the substrate meets the minimum requirements outlined in the latest Viking Roofspec Masterspec specification and Viking Roofspec Substrate Checklist.

All construction should comply with New Zealand Building Code.

Correct substrate installation is critical for durability and performance of the membrane. Failure to strictly comply with substrate specification may affect the product warranty. Refer to Viking Enviroclad Warranty for further details.

All membranes have a propensity to show movement on plywood substrates. This is exhibited as “tenting”- a peak in the membrane above the plywood joints. If this roof or deck is to be a visual feature, please contact Viking for an alternative substrate preparation specification.

Notes for the Membrane applicator

Do not proceed with the application of this membrane system until you have confirmed the substrate meets the minimum requirements outlined in the latest Viking Roofspec Masterspec specification and Viking Roofspec.

Substrate Checklist. All construction should comply with New Zealand Building Code.

Correct substrate installation is critical for durability and performance of the membrane. Failure to strictly comply

with substrate specification may affect the product warranty. Refer to Viking Enviroclad Warranty for further details. All membranes have a propensity to show movement on plywood substrates. This is exhibited as “tenting”- a peak in the membrane above the plywood joints. If this roof or deck is to be a visual feature, please contact Viking for an substrate alternative preparation specification.

Notes for the Builder:

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

- *Cover the substrate to keep it dry, ensuring the waterproofing membrane can be installed when needed. Communicate early with your Viking Approved Applicator on the project scheduling to ensure weather exposure is kept to a minimum.
- 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 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.
- Information regarding our products, specifications and warranties is available at www.vikingroofspec.co.nz If you have a query regarding this substrate specification please call Viking on **0800 729 799**.

Substrate checklist: plywood

- Framing supports at 400mm centres (in one direction). All plywood edges must also be supported. **Do not use tongue and groove plywood.** Viking Roofspec can accept the maximum support spacings provided in Table 15C of CHH Ecoply Specification Guide.
- Minimum thickness 17mm, F8, CCA H3.2 treated, structural plywood (not LOSP treated).
- Minimum CD grade with the sanded C face upwards.
- Plywood laid with face grain at right angles to supports.
- Plywood laid with staggered joints in a brick bond pattern with 3mm expansion gap between plywood sheet edges. Bond-breaker tape recommended over ply sheet joints prior to membrane application. **If roof is visual consider using Viking Dec-K-ing substrate checklist to minimise plywood movement.**
- Plywood is screw-fixed with 10g x 50mm SS counter-sunk screws at 150mm centres on all sheet edges and at 200mm centres through the body of the sheet. All screws to be counter sunk 1-2mm. Gluing to supports is recommended.
- Chamfer all external edges with a minimum radius of 5mm.
- *Plywood is to be kept dry at all times during construction.** Blow torch drying the plywood surface prior to membrane application does not comply. Plywood and framing supports to be at no more than 18% moisture content.
- For Roofs and Roof Decks over living spaces, all cavities must be ventilated and insulated in compliance with clause H1 NZBC. Cavity ventilation is not required for a Warm Roof system which meets or exceeds the minimum R value requirements.
- All drains and outlets are membrane compatible. Note that TPO membranes cannot be welded to Stainless Steel scuppers or sumps. Accessories must have Clamped Grates or be TPO weldable.
- Please ensure you have clearly ordered the correct membrane, colour and thickness for your project.
- Ensure minimum required falls are met. E2/AS1 2011 states 2° for roofs (-1:30 or 34mm/mt), 1.5° for decks (-1:40 or 25mm/mt) and 0.5° for internal gutters (1:100 or 10mm/mt)

Substrate checklist: concrete

- Ensure concrete substrate has been allowed to fully cure - at least 28 days from pour.
- If concrete is 'Green' (over 75% *RH) then 2 full coats of Viking Surface Sealer HydrEpoxy should be applied prior to Membrane application. If the concrete is less than 28 days old and a concrete surface sealer has been used or a rapid curing compound, you must identify the product and verify correct curing has taken place prior to laying.
- *Relative humidity of concrete substrates must be 75% or less before application. (This can be verified with the use of a hygrometer). Viking Roofspec recommends the use of 2 Coats of **Viking Surface Sealer** to control moisture within the substrate prior to the waterproofing membrane installation.
- Fill hollows or holes with a cement plaster, or FLC.
- Surface to be smooth, clean, dry and free of debris or release agents.
- Venting installed as required. Contact Viking Roofspec if a venting specification has not been provided. Viking Roofspec recommend one vent per 50m².
- Use minimum 50mm bond-breaker tapes over expansion joints.
- Minimum 20mm triangular fillets at the base of upstands for Butylclad, Epiclاد or Torch-on membranes. (Not required for Enviroclad or Dec-K-ing).
- All drains and outlets are membrane compatible. Confirm with Viking Roofspec if required.
- Ensure minimum required falls are met. E2/AS1 2011 states 2° for roofs (-1:30 or 34mm/mt), 1.5° for decks (-1:40 or 25mm/mt) and 0.5° for internal gutters (1:100 or 10mm/mt).
- Reinforced concrete structures can use 1° or 1:60 fall.

Please ensure you have ordered the correct membrane, colour and thickness for your project.

Do's and Don'ts

Do's

- Take ownership of your work and installed roof.
- Check entire substrate has been installed correctly to Viking Roofspec's specification.
- Check that all that all correct outlets and overflows have been installed before installation of the membrane.
- Discuss with the builder any special requirements or tricky junctions such as diverters.
- Only apply membrane if the conditions are suitable for proper use of the adhesives. Membrane should only be applied when the adhesive is tacky without transfer to a dry finger.
- Clean all Enviroclad welds and details with Enviroclad's Weathered Membrane Cleaner.
- Use a spray bottle with clean Enviroclad Splice Wipes.
- Run test-welds prior to Robotic-welding or Rhinobond application.
- Pressure roll all welds and details when welding.
- Use hook blade knives and scissors for cutting of membranes.
- Test all Enviroclad lap welds and details with a seam-probe.

- Confirm with a builder if a flood-test is required. Most useful or practical in internal gutters.
 - Always work safely and to the requirements of the Building and Construction worksafe requirements.
-

Don'ts

- Don't place hot or sharp objects directly on the membrane.
- Don't leave any running heat-gun or torch directly pointed at any membrane if not specifically using the tool for laps or detailing.
- Don't apply adhesive to membrane where it will be welded for laps or detailing. Clean thoroughly if some exist.
- Don't use incompatible components or materials for the membrane job you're installing.
- Don't use thinners or solvents around Dec-K-ing.
- Don't use any cleaner other than Viking Weathered Membrane Cleaner for Enviroclad.
- Don't use solvents to thin Enviroclad or Dec-K-ing adhesives as there are no compatible solvents.
- Don't turn-off any welding heat-guns or robotic tools without cooling down first.

Enviroclad accessories



Respiratory protection required, unless there is adequate ventilation (refer to MSDS)



Appropriate gloves required (refer to MSDS)



Flammable Material



Product Code	Description	Size
STP000	Contact bonding adhesive for plywood and concrete. Total coverage 2m ² / litre	19L



Product Code	Description	Size	Est. Coverage*	Origin
VPS100A	Viking Primer Sealer Part A and B	20L	6 – 8m ² per litre of A+B mixture	NZ
VPS100B				

Can be used with all membranes

* Rates are indicative only. Coverage depends on surface texture and condition. Use above 10° C





Product Code	Description	Size	Est. Coverage*	Origin
STP904	Cav-Grip III	13.6kg of Adhesive	92m ²	USA
STP907	Untack Cav-Grip III cleaning system		N/A	USA
STP905	Cav-Grip hose	1800mm	N/A	USA
STP905a	Cav-Grip hose	3600mm	N/A	USA
STP905b	Cav-Grip hose	5400mm	N/A	USA
STP906	Cav-Grip Spray Gun		N/A	USA
STP908	Cav-Grip Spray Gun with extension		N/A	USA
STP909	Spray Gun replacement tip		N/A	USA



Product Code	Description	Size
STP001	Weathered Membrane Cleaner. Essential for cleaning laps prior to welding. Do not use other cleaning products or solvents	19L



Product Code	Description	Size
STP480	Splice Wipes for cleaning laps	150 per carton





Product Code	Description	Size
STP012	Clear, cut edge sealant, Must be applied, for sealing all cut edges of reinforced Enviroclad membrane.	300ml



Product Code	Description	Size
STP860	PT304 Sealant - U.V resistant sealant for exposed use. (e.g. chase flashings)	300ml



Product Code	Description	Size
STP870	Water cut off mastic. Non U.V resistant sealant for use under compression (e.g. behind mechanically fixed membrane flashings)	300ml



Product Code	Description	Size
STP600/STP610	White/Grey Non-reinforced TPO used for flashing details	300mm x 15.2m
Coloured	Non-reinforced TPO Used for flashing details	600mm x Lineal Metre



Dove Grey
STP610



Ironsand
STP620b



Medium Bronze
STP616



Rock Brown
STP615



Slate Grey
STP613



Patina Green
STP614

Fluted



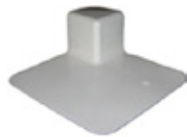
Round



Product Code	Description
STP200	White outside corner flashing (Fluted)
STP300	White inside corner flashing (Round)
STP210	Grey outside corner flashing (Fluted)
STP310	Grey inside corner flashing (Round)



Product Code	Description
STP400	White - Non reinforced T-Joint cover. Applied at Lap intersections
STP410	Grey - Non reinforced T-Joint cover. Applied at Lap intersections



Product Code	Description	Colour	Origin
STP201	90 Degree Internal / External Corner	White	USA
STP211	90 Degree Internal / External Corner	Grey	USA



Product Code	Description	Size
STP420	White - Pipe Seals used for flashing pipe penetrations.	From 25m to 150min diameter.
STP430	Grey - Pipe Seals used for flashing pipe penetrations.	



Product Code	Description
STP440	White - Pourable pocket. For cluster or odd shaped penetrations. Prime all surfaces with SEC034 primer and allow to dry, prior to pouring.
STP450	Grey - Pourable pocket. For cluster of odd shaped penetrations.
SEC034	Prime all surfaces with SEC034 primer and allow to dry, prior to pouring.



Product Code	Description
STP460 WHITE	Pourable Sealer which gets poured into the pocket. Penetrations must be minimum 25m apart. Prime all surfaces with SEC034 primer and allow to dry, prior to pouring.



Product Code	Description	Size
STP601	Scuppers onto which Enviroclad membrane can be welded.	100 x 65mm
STP602		100 x 100mm
STP603		200 x 75mm
STP604	Overflow	200 x 76mm





Product Code	Description	Size
STP605	Dropper drains with anti back-up rings. The flanges can be welded onto.	80mm
STP606		100mm



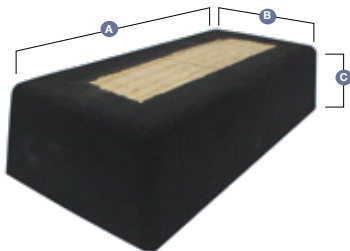
Product Code	Description	Size
SDM051	Drain or Over-flow	150mm
SDM049	Drain or Over-flow	80 / 100mm
SDM050	Deck Drain with flat Grill	80 / 100mm
SDM056	Side Exit Drain	80mm
SDM055	Side Exit Drain or Over-flow	80mm



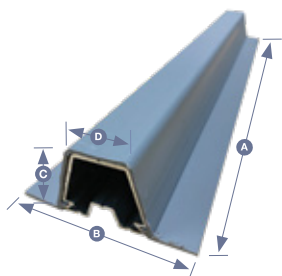
Product Code	Description	Size
STP607	Weldable vent for roof cavity ventilation. Grey only.	80mm



Product Code	Description	Height
IMV111	Roof Vent Aluminium Grey Mushroom	215mm
IMV113	Roof Vent Aluminium Grey	120mm
White and black is available on request Use with Pipe Seals STP420 STP430		



Product Code	Description	A	B	C
ACM275	Acoustic Mounting Block	275mm	125mm	70mm
ACM550	Acoustic Mounting Block	550mm	125mm	70mm
Can be used with all membrane types				



Product Code	Description	A	B	C	D
STP223	Mounting Bar	3000mm	75mm	35mm	30mm
Can be lap taped to Butylclad and Epiclاد Can be welded to Enviroclad					



Product Code	Description	Size
STP852	Grey – TPO Coated aluminium can be cut and folded to create flashings that can be welded to	1200mm x 3000mm



Product Code	Description	Size
STP219	TPO weldable rib (grey only)	3.05mm
STP220	TPO weldable rib (white)	3.05mm
STP221	TPO weldable rib (grey)	3.05mm
STP222	TPO weldable rib (Mansard Brown)	3.05mm
STP222a	TPO weldable rib (Patina Green)	3.05mm
STP222b	TPO weldable rib (Rock Brown)	3.05mm
STP222c	TPO weldable rib (Slate Grey)	3.05mm



Product Code	Description	Size
STP700	Heat Weldable Walkway rolls with non slip surface (White)	768mm
STP710	Heat Weldable Walkway rolls with non slip surface (Grey)	768mm



Product Code	Description	Size
SDF110	Anodized – Edge fastener and drip edge.	2400mm x 25mm
SDF115	Beige – Edge fastener and drip edge.	



Product Code	Description	
SDM137	Leister Uniroof 'E' Welder	15 amp
SDM140	Leister Hand Welder	





Product Code	Description	Width and angle
SDM145	Nozzle	20mm Standard
SDM146	Nozzle	20mm 120°
SDM149	Nozzle	40mm Standard
SDM147	Nozzle	20mm 60°
SDM148	Nozzle	40mm 60°
SDM151	Nozzle	20mm 90°



Product Code	Description	Size
SDM155	Silicone Roller	40mm
SDM153	Brass Roller	40mm
STP880	Seam probe - must be used to test all welded seams and details	



Product Code	Description	Size
STP911	Dual Cartridge Manual Caulking Gun (Long)	USA
STP912	Dual Cartridge Manual Caulking Gun (Short)	USA

Application

Installation and adhesion

Before installing the membrane, ensure the substrate meets the correct specification for the membrane type. Refer to Viking substrate checklist.

Careful planning of sheet placement to shed water with roof falls, should be done prior to membrane installation.

1. Ensure the roof is free of obstructions such as vents or skylights to minimise cuts and joins so that the sheets can be laid in one piece. Any penetrations should be carried out and flashed after the membrane has been laid. Refer to the accessories section of this manual for flashing materials.
2. Ensure that water does not flow beneath any completed sections of the membrane by completing all flashings, terminations and welds by the end of each day.
3. Sweep / blow or preferably vacuum all loose debris from the substrate. This is most important for the finished appearance of a single ply membrane.
4. Using a chalk line, mark out the roof and position individual sheets prior to adhering to the substrate.
5. Fold back the sheet to reveal half of the underside. Sheets can be folded either length or width ways. When the width of a sheet runs over a ridge, creasing can be avoided by folding the sheet back along its length.
6. Thoroughly stir (min 5 minutes) the Enviroclad adhesive and with a 8–10 mm medium nap 23cm roller, apply an even coating of adhesive to the exposed underside of the membrane and to the adjoining substrate.
7. Allow the adhesive to dry until tacky and it will not stick to a dry finger.
8. Carefully and evenly roll the glued membrane onto the glued substrate, avoiding creases wrinkles and air pockets.
9. Brush down the bonded section of membrane immediately with a soft bristle broom, applying downward pressure to remove any trapped air.
10. Fold back the unglued half of the sheet and repeat the above bonding procedure.
11. Install adjoining sheets in the same manner, overlapping edges a minimum of 50mm to provide for a minimum 40mm hot air weld.
12. Clean edges to be welded using Weathered Membrane Cleaner, (refer to Membrane Cleaning process).
13. Weld the Enviroclad sheets a minimum of 40mm with an automatic welding machine (refer to Membrane Welding process).

Installation and adhesion (continued)

Notes regarding adhesive:

- Ensure that the adhesive is not too thinly applied. Coverage should be a maximum of 2 square metres per litre for both surfaces. A 19 litre container will adhere 38 square meters of installed Enviroclad.
- Enviroclad adhesive should be applied at a minimum 10°C. Due to solvent flash off, condensation may form on freshly applied adhesive when the ambient temperature is near dew point. If condensation occurs the application of the adhesive should be stopped, until the temperature and conditions are favourable. Then a fresh coat of adhesive can be applied over the previously coated surface.
- Take care not to apply any adhesive to the membrane edges to be welded. As a precaution, mark the underside of the membrane with a chalk line.

Membrane cleaning process

1. Only material from new rolls, which is un-weathered, (and has not been cut-to-length by Viking Roofspec) can be considered clean and weldable. Clean all surfaces that are to be welded with STP 001 weathered membrane cleaner
2. Enviroclad which has been purchased in cut lengths must be cleaned with Weathered Membrane Cleaner prior to welding.
3. Wear nitrile rubber gloves to apply Weathered Membrane Cleaner to the welded seam area with an HP welded seam wipe. Then, use a separate clean, dry welded seam wipe, and remove any residual membrane cleaner, ensuring that the welded seam area is completely dry.
4. Only HP splice wipes (STP480) should be used for cleaning of membrane laps prior to welding.

Application / Robotic heat welding

Automatic/Robotic heat welding

The four key factors of a successful weld are;

- clean material
- heat
- speed
- compression

Test Welds

1. Perform a test weld (minimum three metres) at least at the start of work each morning and afternoon.
2. Cut out a test sample approximately one inch wider and longer than the width of the seam (cut across the welded seam).
3. Peel the test sample apart after it has thoroughly cooled (approximately 10 minutes) and examine for a consistent 40mm wide minimum weld. Delaminating of the membrane from the scrim-reinforcement is an indication of a properly welded seam.
4. Identify the following seam problems to assure seam quality:
Discoloured or melted membrane
– Increase speed or decrease temperature setting if membrane discolours or exhibits melting (membrane begins to flow).
5. **Void and wrinkles** - A proper welded seam has no voids or wrinkles and must be at least 40mm wide. Refer to Seam Probing procedures outlined below for proper inspection of seam deficiencies.
6. Avoid excessive heat when welding sheet membrane and accessories. This can accelerate the migration of the oil out of the membrane, causing it to become brittle over time and turn white.

Robot Welder Settings

When welding an Enviroclad seam, there is no set temperature or speed suitable for all applications. Test welds must always be undertaken to determine the settings for the environment. (Under ideal conditions, temperatures average 300-320°C, at a speed of around two metres per minute. These settings must not be taken for granted.)

You can consult the Viking Roofspec technical department for recommendations concerning temperature setting and speed control. Typically, the colder the ambient temperature and the membrane, the slower the machine should be run.

Following is a list of items to be checked to determine the temperature and the speed at which a welded seam should be completed:

1. When the membrane is in direct sunlight, the temperature or robot speed may have to be adjusted when moving into a shaded area. Remember the membrane surface in a shaded area will be cooler than a surface that is in sunlight. Darker coloured membrane will be warmer than lighter and may affect the welder speed.
2. Dampness on the membrane from dew; a passing rain shower; or misting condition will reduce heat from the welded seam due to evaporating moisture from the membrane surface. Do not attempt to weld damp material.
3. Wind has a cooling effect as it blows over the surface. It will also affect the air flow in the welded seam reducing the effectiveness of the hot air gun. This will require the operator to increase heat from the hot air gun or reduce the welder speed.
4. Substrates make a substantial difference to the amount of heat required to produce a fully welded seam. The robot will have to be adjusted accordingly: plywood and concrete act as “heat sinks” (drawing heat out of the weld) and may require a higher temperature, or slower speed setting than welding over insulation.
5. Membrane “bleed-out” from between sheets will not occur with Enviroclad membrane if properly welded. If bleed-out is occurring (the dark underside of the membrane begins to melt and flow), either the welder speed should be increased, or temperature decreased.

Automatic/Robotic Heat Welding (continued)

6. Set the speed, airflow and heat settings.
 7. Start the machine and allow it to run for 4-5 minutes for the heat to come up to the set value.
 8. Perform a test weld at least at the start of work each morning and afternoon. Test welds should be made if any changes in substrate or weather conditions occur.
 9. Position the welder over the lap with the outside of the large silicone pressure wheel right on the edge of the lapping (top) sheet.
 10. Position the small aluminium guide wheel right on the outside edge of the lapping sheet.
 11. Lift the lap and insert the blower nozzle between the sheets and press it home. The machine will begin welding at the pre set speed. Guide the machine gently by keeping it to the guide wheel position on the lap.
- Note:** Ensure the power cord has plenty of slack so that the machine is not dragged off course. Ensure the cord is kept out of the path of the machine.
12. When near to the end off the lap, removing the nozzle from the lap will stop the machine from moving. Now mark this point with a water soluble marker and complete the lap with a hand held welder and roller.
 13. Use a hand welder to weld a T joint cover over all T joint intersections.

ALL WELDS MUST BE CHECKED USING A SEAM PROBE.

Robotic welding trouble shooting:

When poor welding is occurring, check the following:

1. If the membrane is overheated on one side or the other, check the nozzle to be sure it is distributing the heat evenly between the two sheets.
2. If the heat is bypassing the edge of the sheet producing a cold weld along the edge of the welded seam, be sure the nozzle extends 2-3mm outside the lap edge.
3. If the probed welded seam is tight at the edge but a cold weld is present in the centre of the welded seam (the heat is melting the edges but does not melt the centre of the welded seam), check to be sure the robot is not running too fast.
4. Ensure the silicone pressure wheel is intact with no voids in the silicone. If voids are present, incomplete welding will result.
5. The automatic welder nozzle should be adjusted as close to the pressure wheel as possible. If the nozzle is too far away from the pressure wheel, distortion of the membrane may occur due to heat expansion.

Note: Adjust weld nozzle so the curved portion (heel) extending outside the seam area does not contact or drag on the exposed surface of the membrane. This portion of the nozzle should be 1.5mm above the membrane surface.

1. Overheating the membrane will cause poor welds. The temperature and welder speeds must be determined based on test welds prior to actual sheet welding.
2. Clean screen of dirt and debris on air inlet of heat gun every day. Accumulation of contaminants on screen will reduce air flow and heat output of welder.

Application / Hand welding

Hand Held Welder Settings

Temperature setting for hand held welders when used for non reinforced Enviroclad materials, should be approximately 280°C for a Leister AT welder.

Temperature settings for hand held welders when used for reinforced Enviroclad membrane, should be approximately 300°-320°C.

Exact settings will vary based on ambient temperatures, substrate and type of welder.

Roller Use

Silicone roller should always be placed flat against membrane to be welded. Do not turn roller on edge to weld membrane or flashings.

When using a hand welder, follow the welding nozzle perpendicular (across) the seam with the roller; do not run the roller up and down the length of the seam. Even pressure is essential to the weld and the entire seam must be rolled evenly.

ALL WELDS MUST BE CHECKED USING A SEAM PROBE.

Seam probing

- Welded seams must be probed throughout the day to check seam quality and to make adjustments to welding equipment. Particular attention must be given to all membrane intersections and welded seams at insulation joints. In addition, there should be periodic checks (including at the start of each day) to verify the strength of the seams. The repair of deficiencies must be done routinely throughout the day but no later than the end of each workday.
- Allow welded seams to cool thoroughly for approximately 30 minutes. Premature probing can damage warm seams.
- Draw the probing tool tip along the edge of the welded seam. Apply firm pressure to probe the seam junction, but not into the bottom membrane sheet. The tool will not penetrate into the lap area of a properly welded seam.
- If the seam probing tool penetrates into the lap area, mark the seam (using a water-soluble marker) at the beginning and the end of voids or wrinkles in the seam edge.
- Repair seam deficiencies as soon as possible using the hand held welder. These should be made the same day they are discovered.
- Return to probe repaired seams after they have cooled completely. If the repair is acceptable, wipe off the water soluble marker lines; if not acceptable, repair the seam using the procedures for repair of welded seams as outlined in Welding Repairs.
- Apply an approximately 3mm bead of Cut-Edge Sealant on all cut edges of the reinforced membrane after seam probing is completed. (Cut-Edge Sealant is not required on vertical welded seams.)

Note: Using a seam probe after applying Cut Edge Sealant will damage the sealant. Apply sealant only after probing.

ALL WELDS MUST BE CHECKED USING A SEAM PROBE.

Weld repairs

- Prior to proceeding with any repair, the area to be repaired must be cleaned. Scrub the existing membrane area to be repaired with a primer pad and Weathered Membrane Cleaner.
- Clean all residue from the area to be welded with a HP Wipe or natural fibre (cotton) clean rag.
- Weld the new membrane to the cleaned area using standard welding procedures.
- Position the hand held welder facing into void so hot air is forced between overlapping membranes. Roll the top membrane surface using positive pressure toward the outer edge until the heated membrane surfaces are fused.
- Exposed scrim-reinforcement (resulting from scorching surface of membrane) and test weld areas must be repaired by overlaying the damaged area with a separate piece of Enviroclad reinforced membrane with rounded corners. The overlay must extend a minimum of 50mm past the area to be repaired.
- Probe all edges of the overlay once cooled to ensure a proper weld has been achieved.
- Seal all cut edges of Enviroclad reinforced membrane with Cut-Edge Sealant.
- The same overlay repair procedures may be used for punctures in the Enviroclad membrane.

Flashing

General Flashing Conditions:

- Flashing of parapets, curbs, expansion joints and other parts of the roof must be performed using Enviroclad reinforced membrane.
- Enviroclad non-reinforced membrane can be used for flashing pipe penetrations, sealant pockets and scuppers as well as inside and outside corners when the use of pre-moulded or pre-fabricated accessories are not feasible.
- All existing loose flashings should be removed prior to application of Enviroclad membrane. Install surface mounted flashings and compression bar terminations directly to the wall surface.
- When required, membrane shall be adhered to vertical surfaces with Enviroclad adhesive. The adhesive shall be applied continuously, without globs or puddles, with a medium nap paint roller.
- After the adhesive has dried to the point that it is tacky but does not string or stick to a dry finger, roll the membrane onto the adhesive.
- Care must be taken when setting the flashing to avoid bridging at angle changes (i.e., where a parapet or roof penetration meets the roof deck). This can be accomplished by gently heating and creasing the membrane into the angle change. Terminate the edges of the installed membrane in accordance with Viking Roofspec details. Where membrane sheets overlap at a bridging point, a T-joint cover should be applied over the lap at the transition point.
- In areas where metal counter flashings are used as the vertical termination, the counter flashing must be sealed with PT304 sealant to prevent moisture migration behind the new wall flashing.

Notes:

On walls, parapets, skylights, etc, the flashing height must be calculated so that the Enviroclad membrane flashing includes a minimum 40mm heat weld on to the horizontal surface.

Roof walkways

Enviroclad Heat Weldable Walkway Rolls:

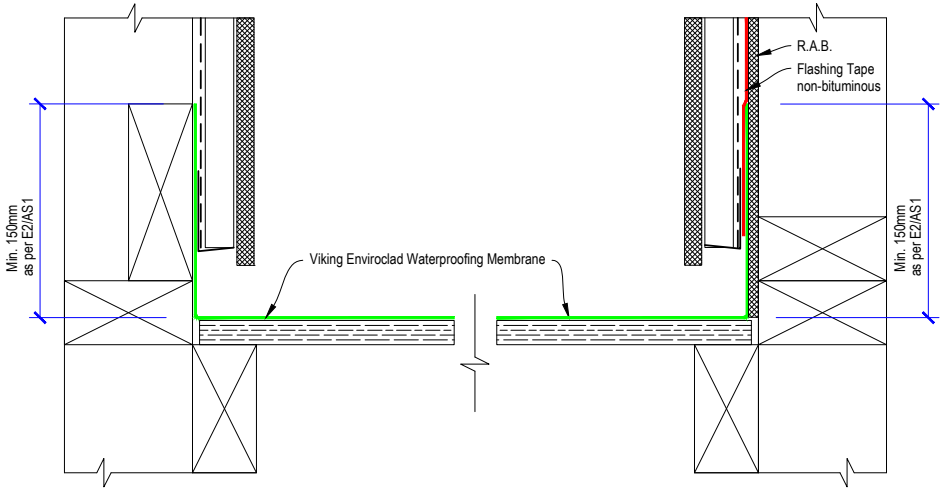
- Allow the walkway to warm by the sun prior to welding so distortion will not occur due to expansion.
- Use Weathered Membrane Cleaner to prepare the area to be welded to the walkway material.
- All residue should be removed by wiping with a clean dry HP welded seam Wipe or other white natural fibre (cotton) rag.
- Position the walkway material and cut the Walkway Rolls into maximum 3.0m lengths and position with a minimum 25mm gap between adjacent pieces to allow for water drainage. Cut the walkway so a 100mm minimum gap is created over any field welded seams running across (since the attachment of the walkway to the membrane is permanent, this will allow access to the field seams).
- Weld four edges of the walkway material to the membrane- leaving a 100mm gap at the uppermost and lowermost edges, to allow for moisture to pass beneath. (Typically the same speed and temperature settings will be used for this procedure as for welding membrane to membrane. A test weld is always recommended prior to performing welds to the installed membrane).

Clean Up

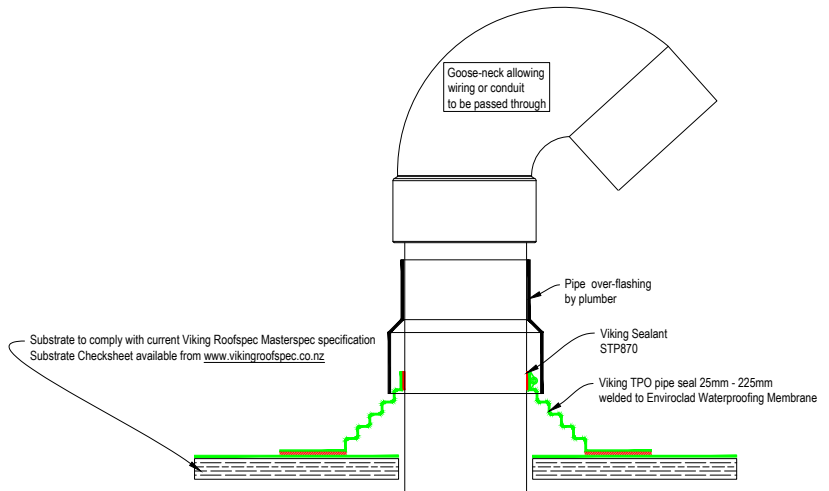
Hand prints, footprints, general traffic grime, pollutants and dirt may be cleaned from the surface of the Enviroclad membrane with neutral detergent and water, followed by rinsing the area with clean water. Weathered Membrane Cleaner can also be used to clean the surface of the Enviroclad membrane.

Standard details

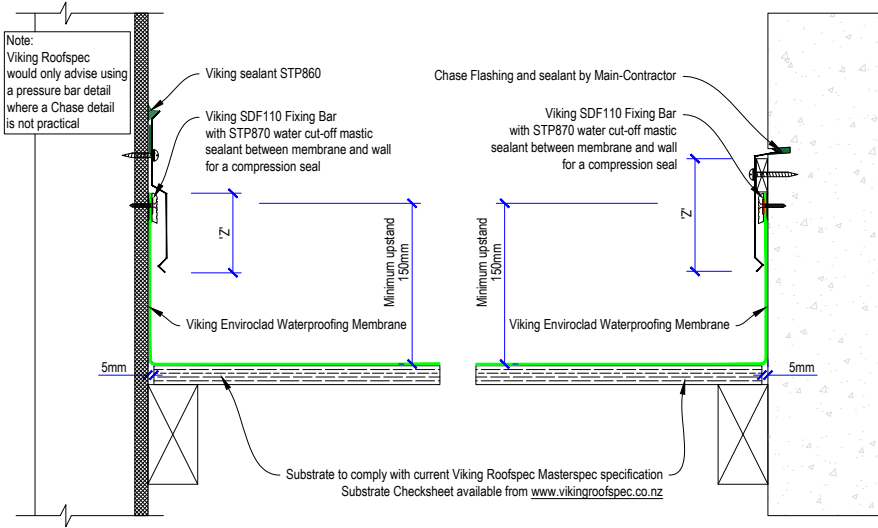
Cavity Wall Upstand



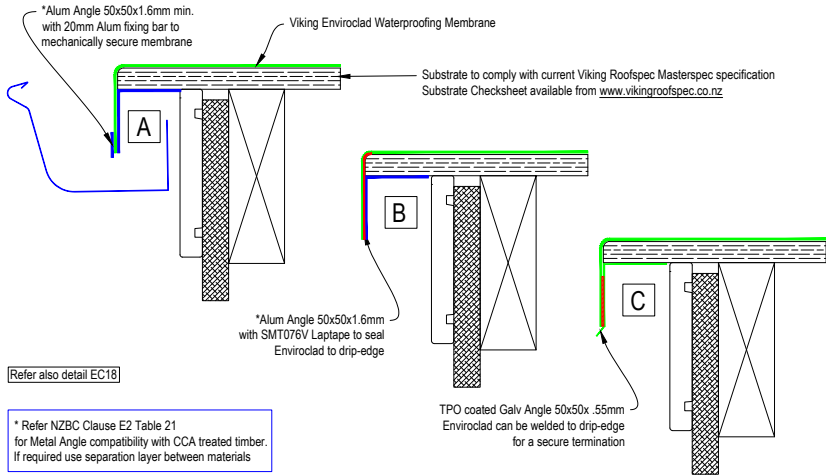
Pipe Penetration



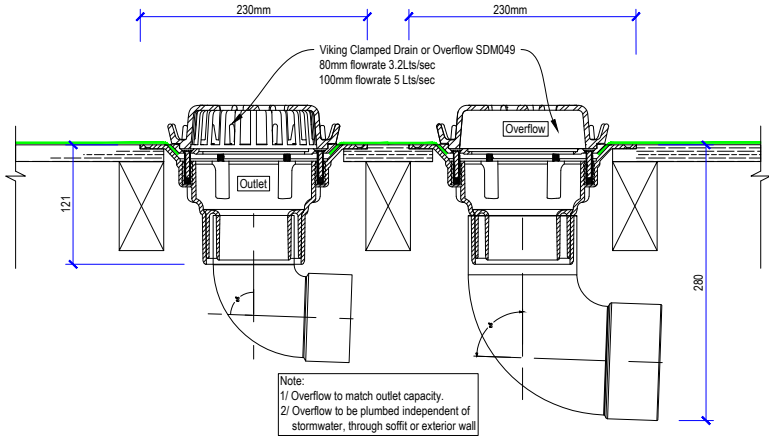
Chase Face Upstand



Drip Edge

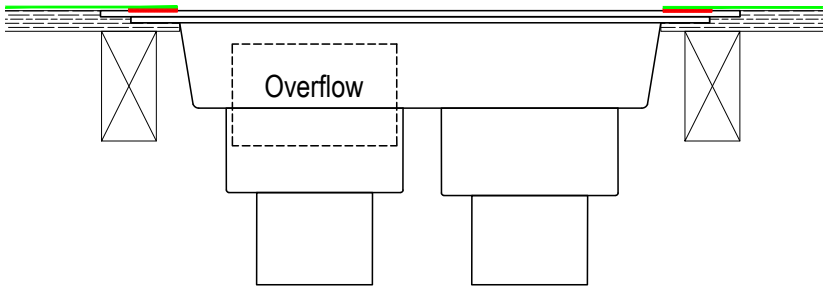


Clamped Drainage and Overflows



Dropper Outlet and Overflow

Available Sumps: refer end of details for dimensions

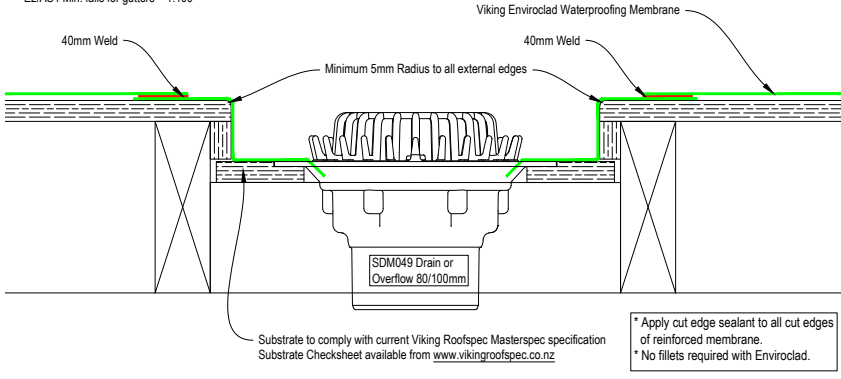


Plumber to connect to Stormwater Downpipe and Overflow separately with Flexible Pipe couplings

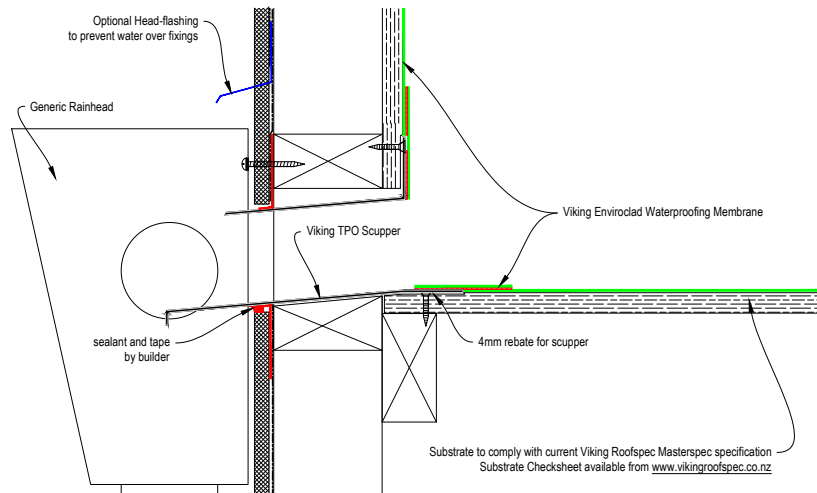
Internal Gutter

It is Viking Roofspecs view that Internal Gutters can be eliminated in most cases. In doing so you may Reduce overall heights or increase roof falls while reducing risk and detail. To find out more contact Viking Roofspec Technical 0800 729-799

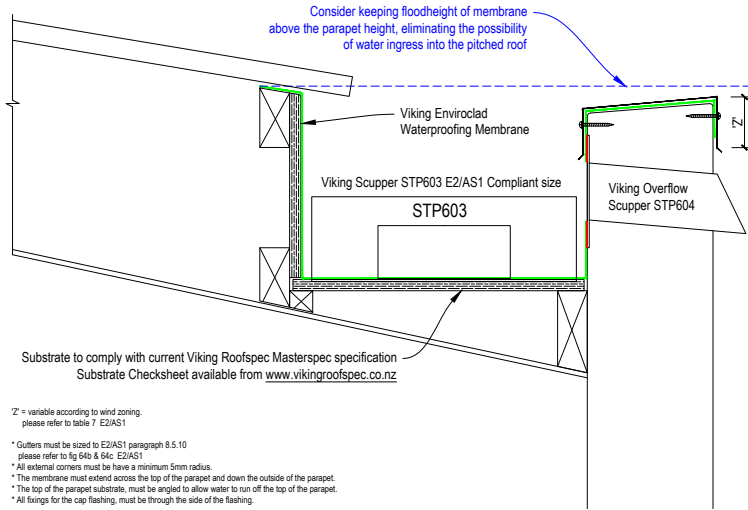
*E2/AS1 Min. falls for gutters = 1:100



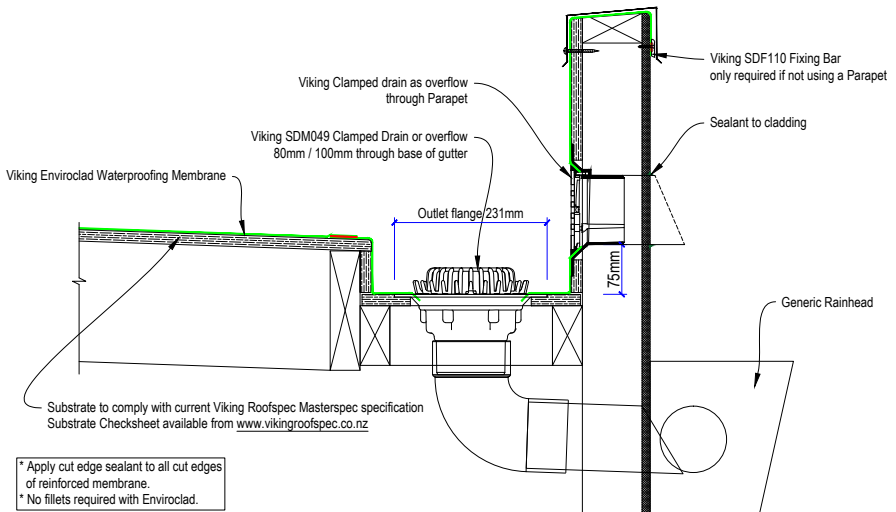
Scupper



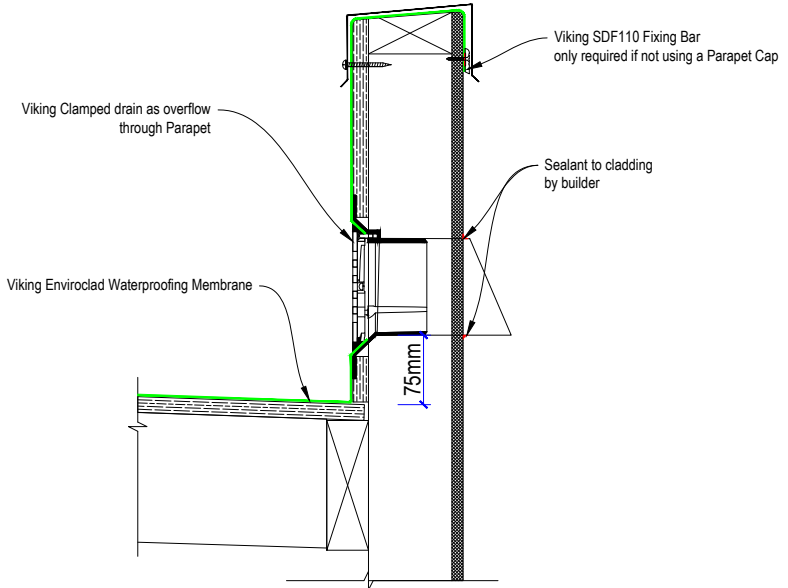
Parapet Gutter to Metal Roof



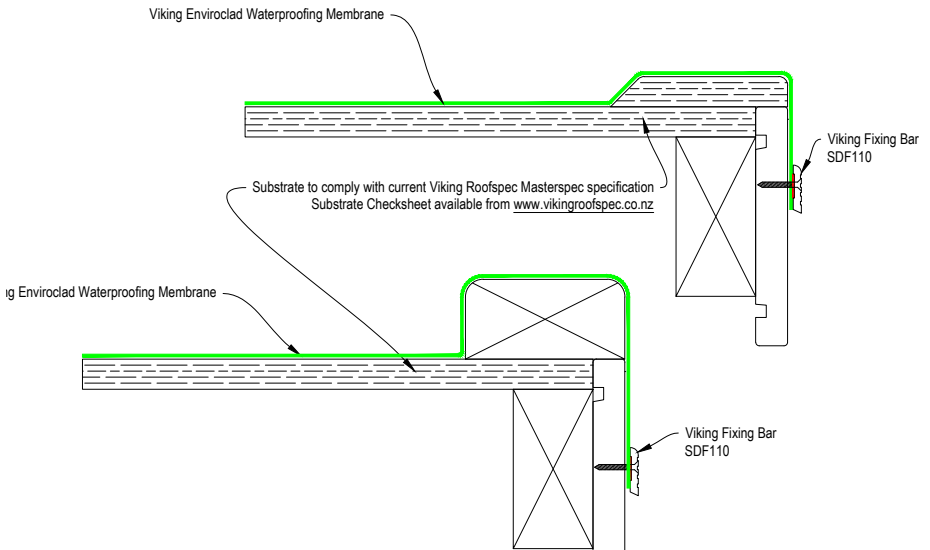
Parapet Gutter



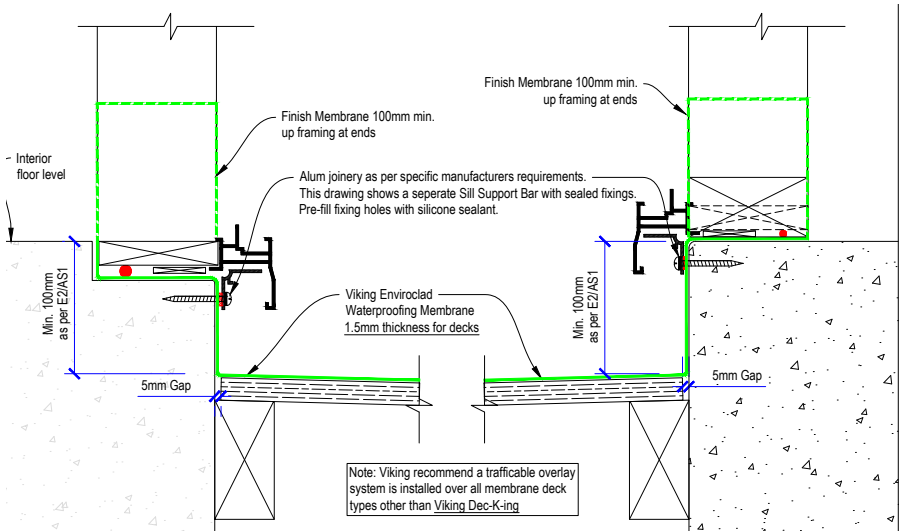
Parapet Overflow



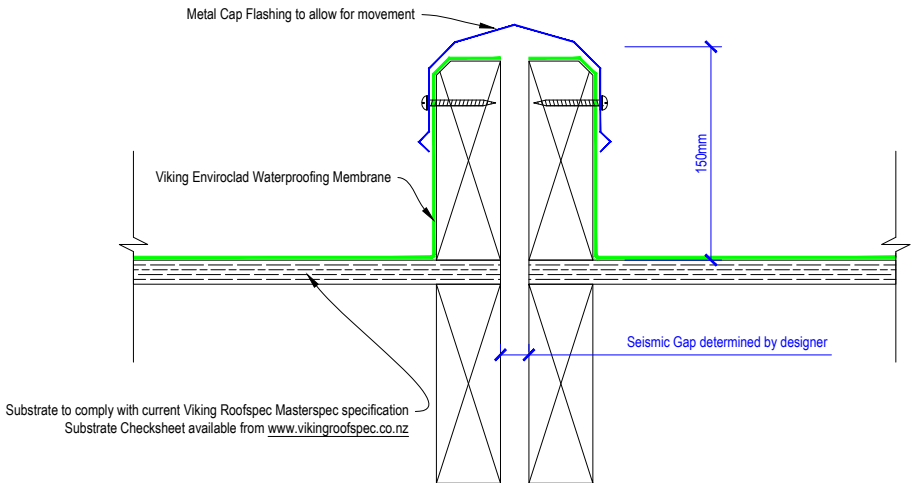
Barge Edges



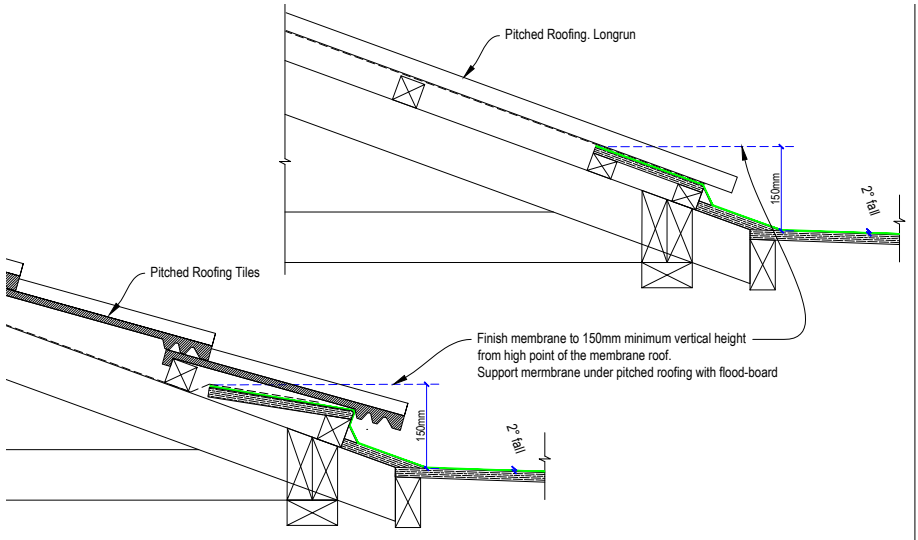
Door Threshold



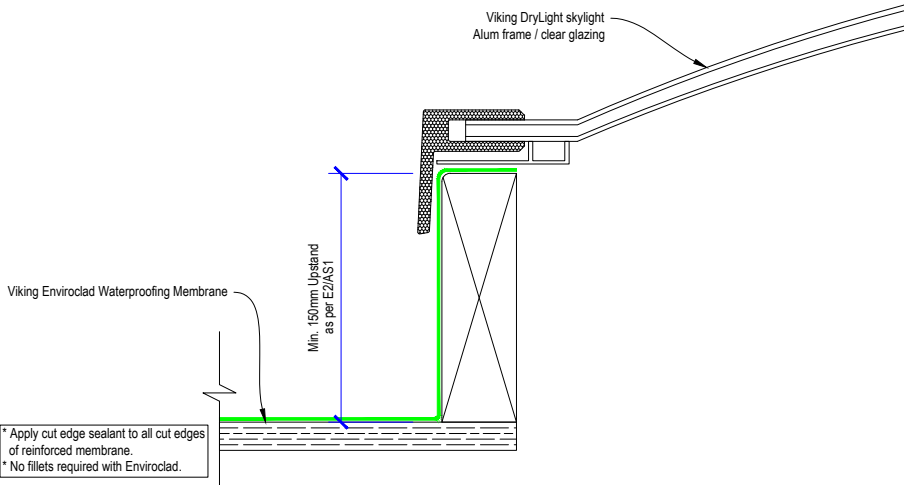
Construction Joint



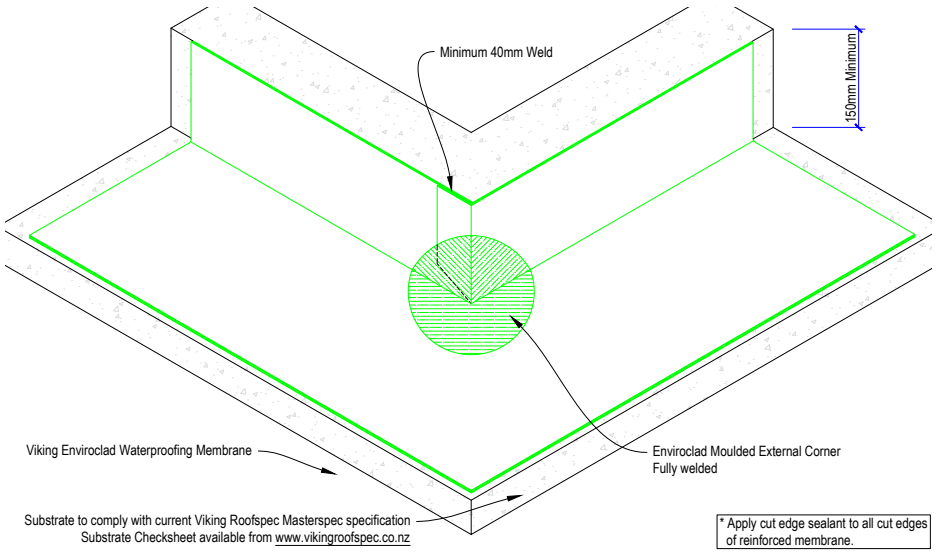
Pitched Roofing Junction



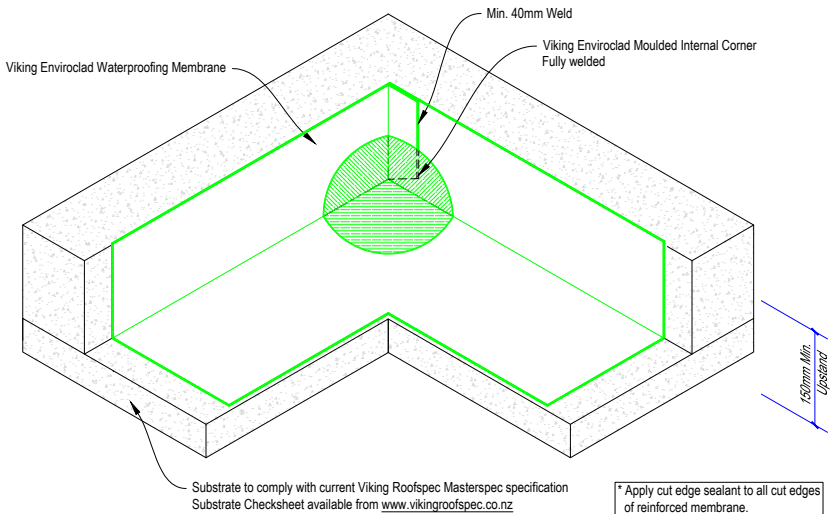
Skylight Upstand



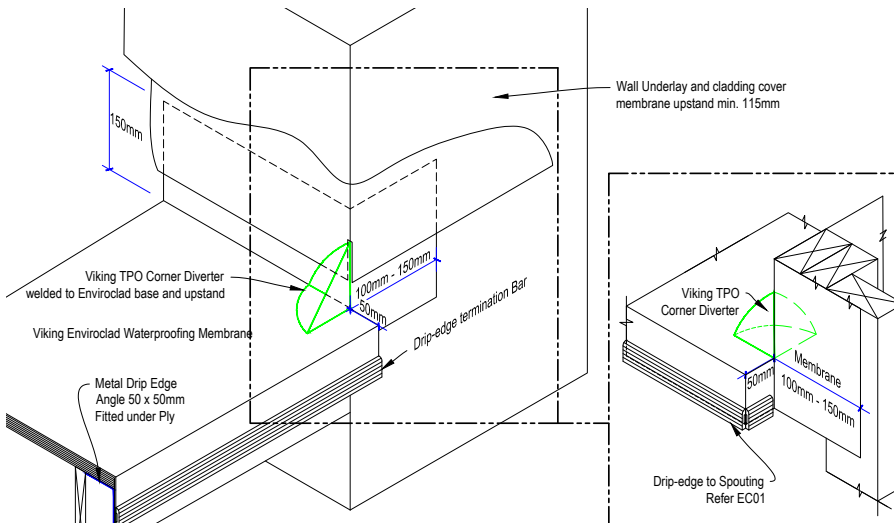
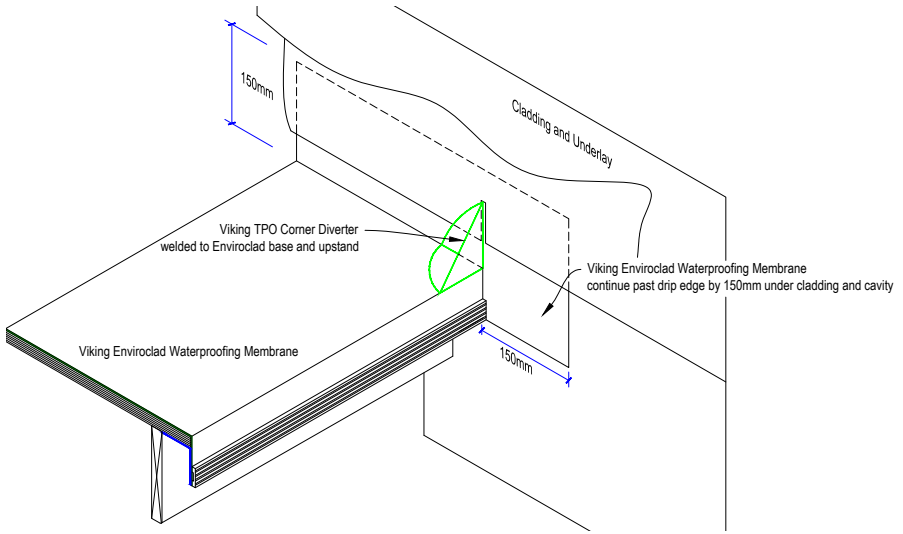
External Corner



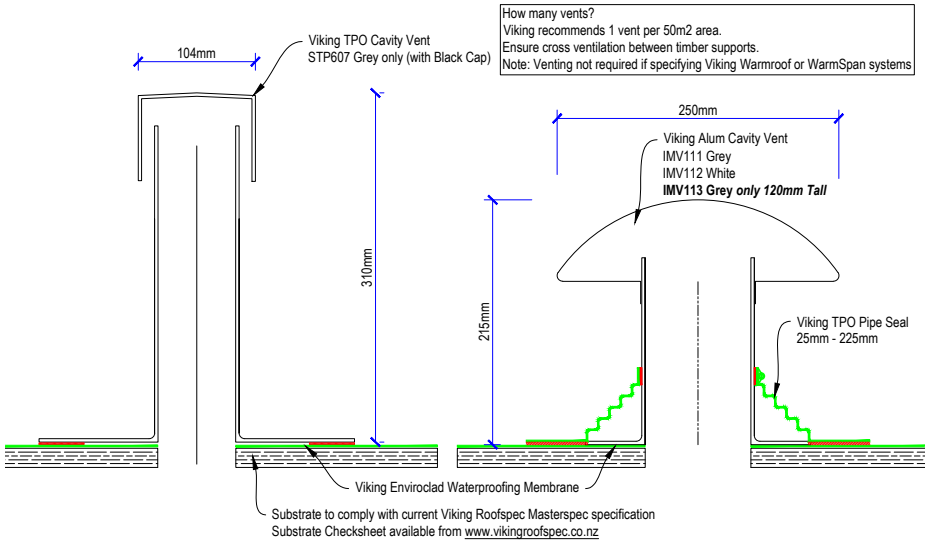
Internal Corner



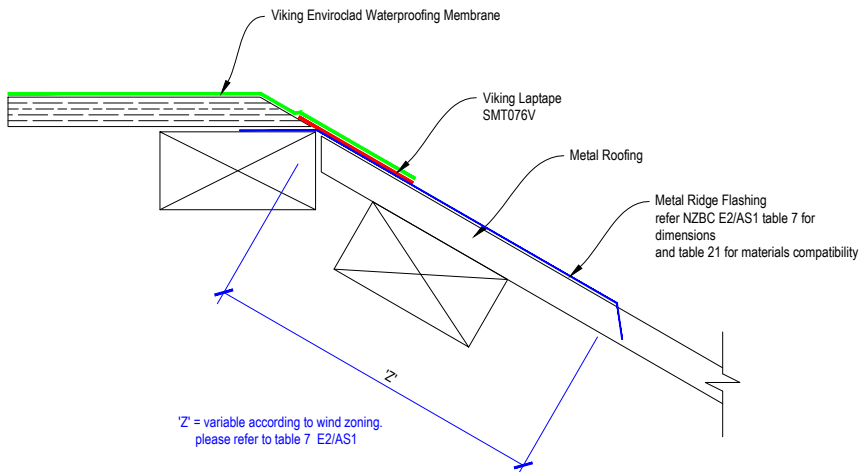
Kickout Diverter



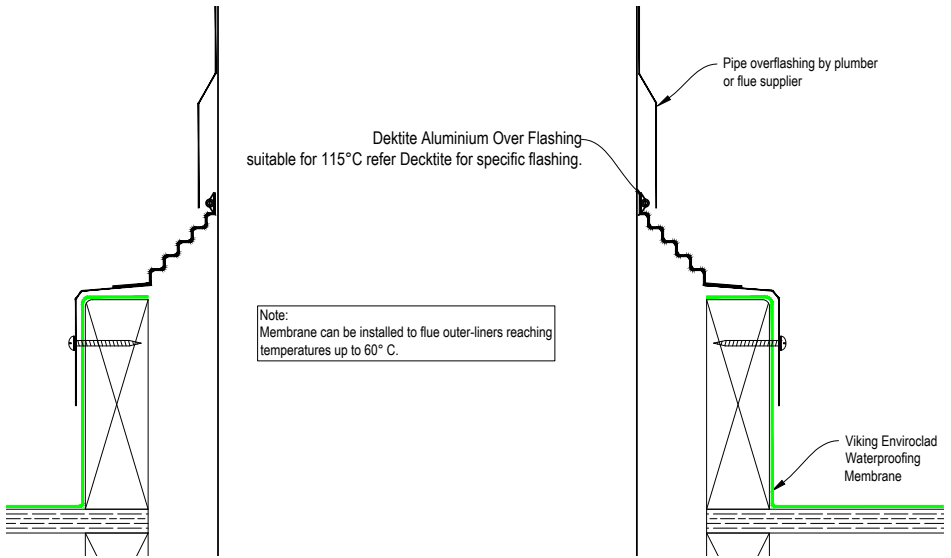
Vents



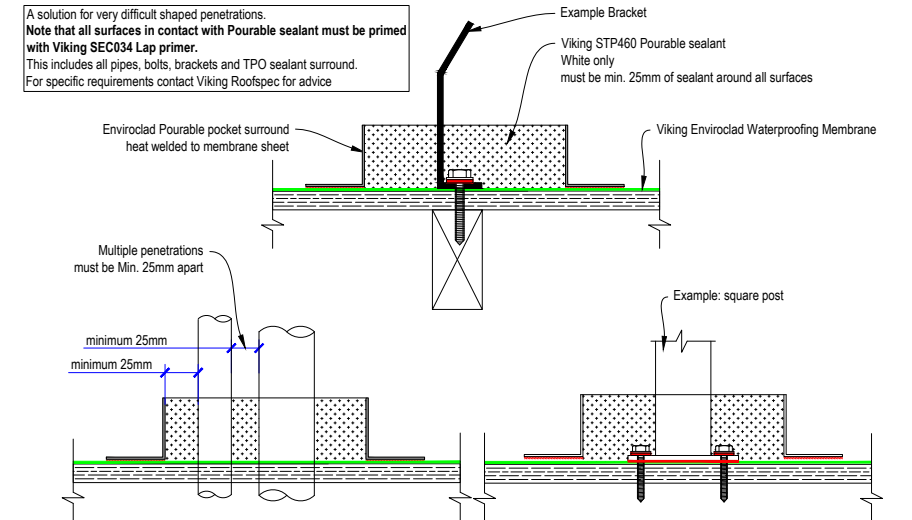
Mansard Junction



Oversized Pipe

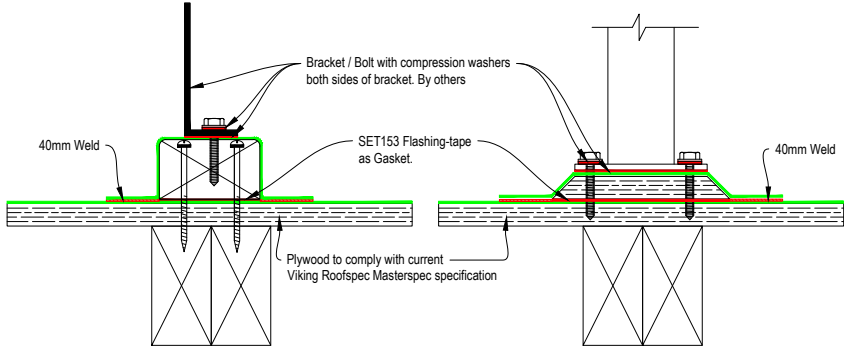


Pourable Pocket

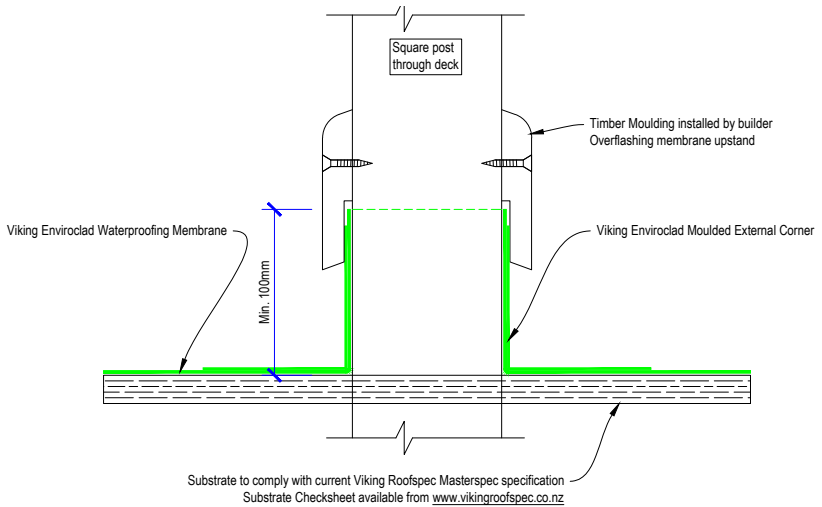


Plinth

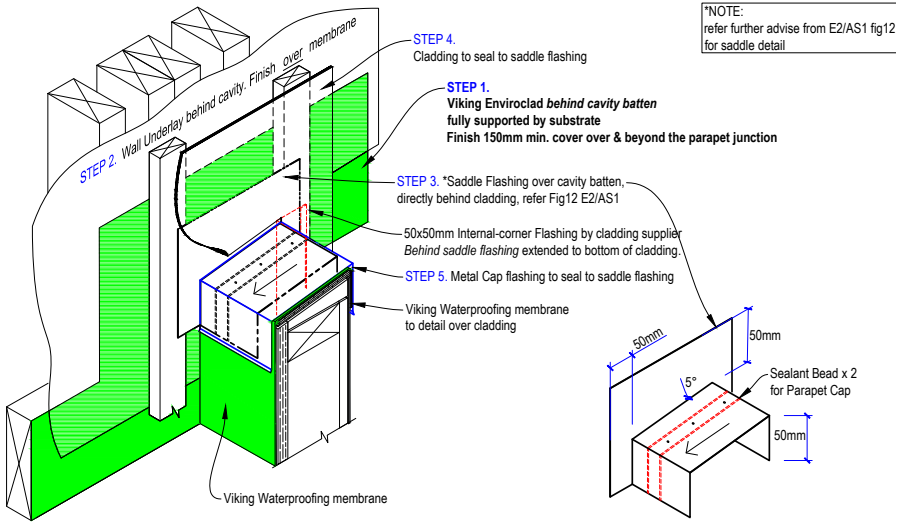
Consider Viking Detail EC23 as a better option for supporting Mechanical Plant on membrane roofs.
 Although Viking Roofspec do not recommend fixing posts or plant through the top of Membrane roofs or decks if this is required then use of a plinth detail provides that fixings by other trades are kept off the main deck flood area.
 Viking Roofspec recommend that any fixing of plant is kept independent of the membrane roof ideally through vertical surfaces such as parapets. All fixings must be sealed.
 Note: Viking Roofspec or our Approved Applicators do not warranty fixings installed by other trades.



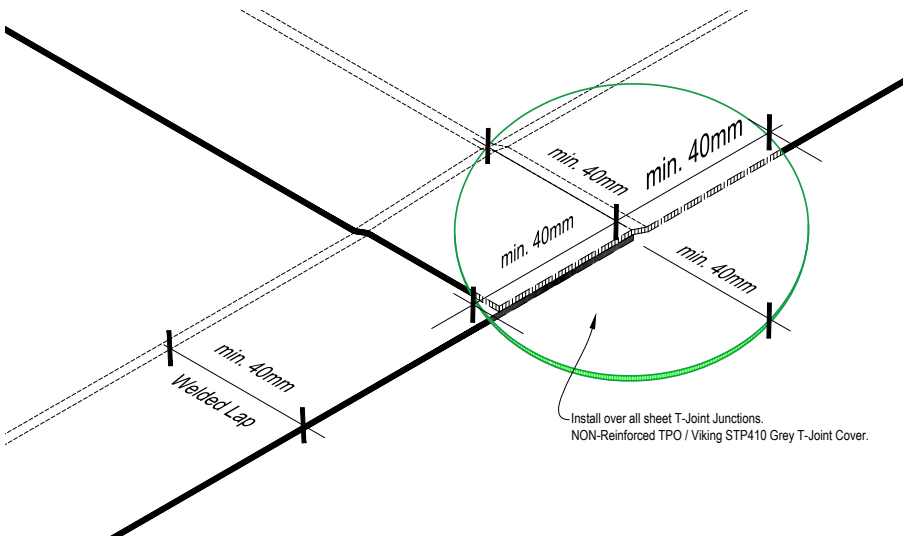
Square Post



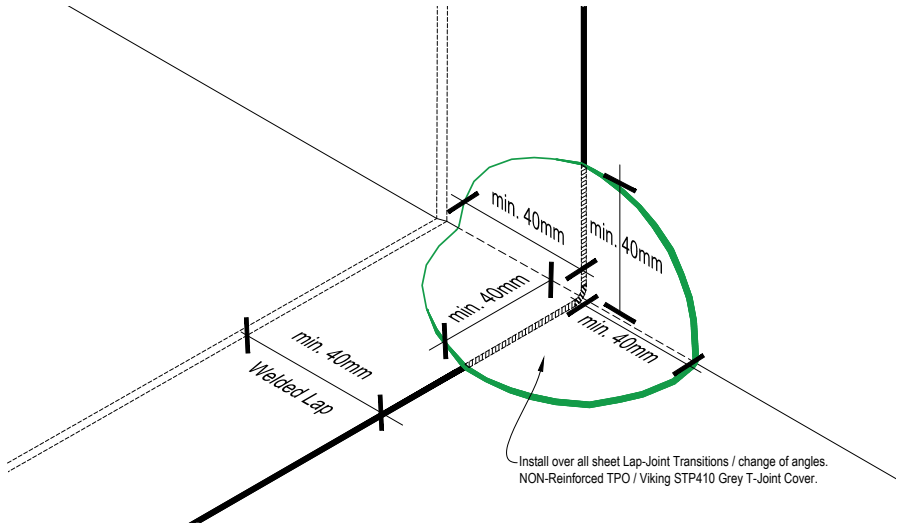
Parapet Junction



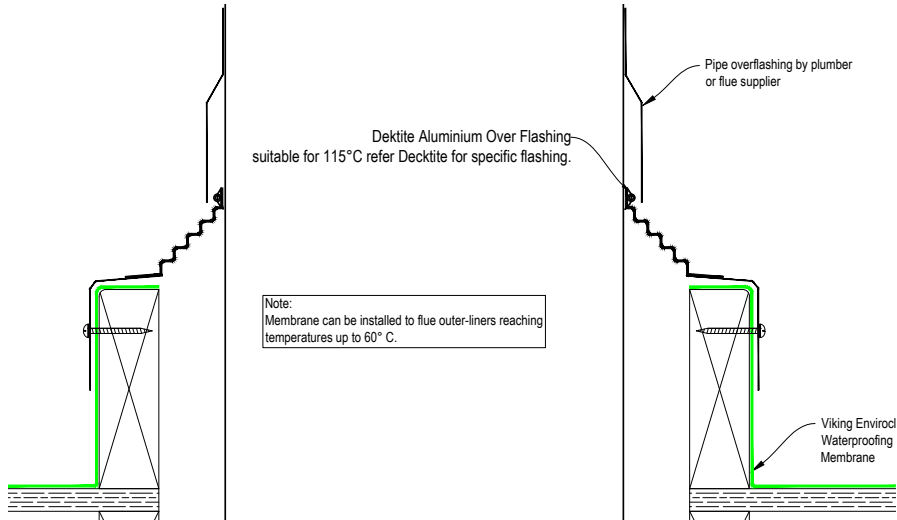
T Joint



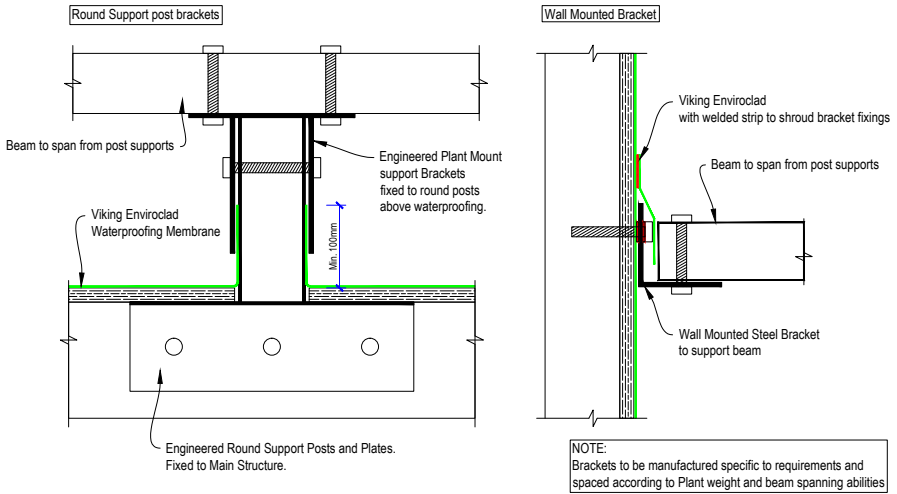
Lap Transition



Flue Penetration

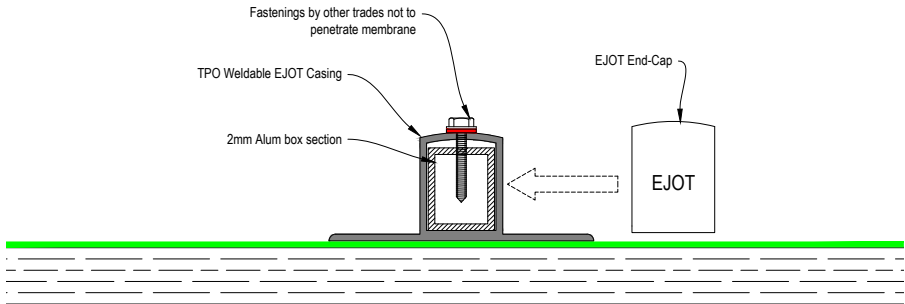


Plant Mounting Brackets

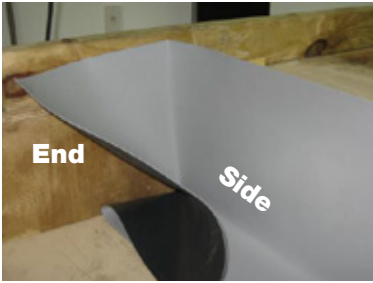


EJOT Bar

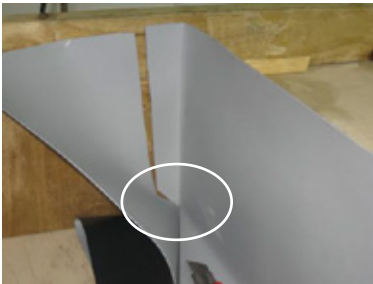
Creates a LOW-RISK fixing base for light-weight mechanical and electrical essentials such as pipework and cable trays - through to light weight solar PV and solar thermal installations.



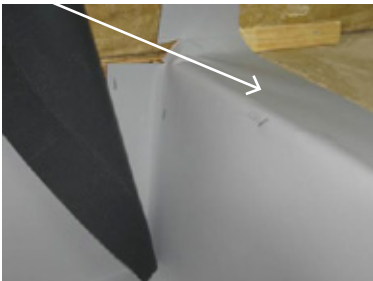
Step by step application



1. Fold the membrane into the corner to create a standard “pigs ear”.



2. Cut straight down the end of the membrane to create a 40mm tab on the End. Stop about 25mm from the base. At the bottom angle the cut at 45° to the centre of the internal corner (see circle).



3. Turn the cut membrane. The piece that was at the End vertical surface, will turn and overlap the Side (see arrow). Trim to create 40mm tab.



4. Weld the cut tab from the bottom up. Use the welding tool at heat setting #7 for reinforced welding like this

Step by Step Internal Corner Transition



5. Using a cone shaped internal corner, set the corner, and hold it in place with a roller. Use the welding tool at heat #5. Direct the heat toward the base material, and follow the nozzle closely with the roller. Start at the base.



6. Use the penny roller to ensure the corners are tightly welded to the base membrane first, directing the heat from above.



7. Use the penny roller to ensure the corner is welded tightly into any membrane "step-offs"

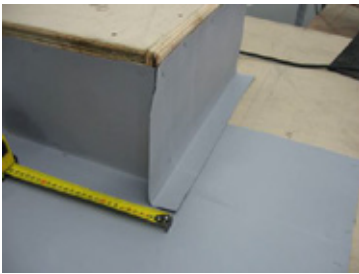


8. Use a seam probe to test the welds, after the membrane has been allowed to cool. If any part of the weld fails, it need to be opened as far as possible, cleaned and re-welded.

Step by Step External Corners



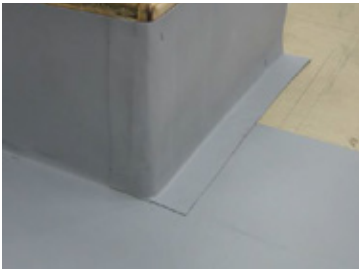
1. Lay membrane past corner, and cut off flush.



2. Lay adjoining sheet. Allow a minimum 50mm for welds at the base and around the corner.

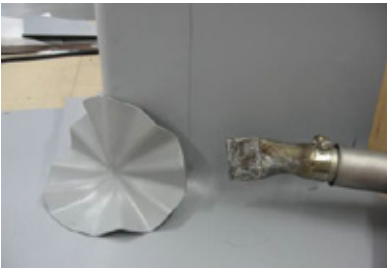


3. Weld at the base and around the corner.



4. Over the top of the adjoining field sheets, apply either a fluted external corner or 90° external corner.

Step by Step External Corner Fluted



1. Beginning with your corner tabbed around as previous. Minimum 40mm welds at base and tabbed around corner.
2. Centre the fluted corner on the transition point. Press it onto the corner and weld the top half directly up the vertical edge. Aim the welder at the base material, to avoid too much heat on the unreinforced material. Follow the welder closely with the roller.
3. Weld the base directly out from the same centre point.
4. Use the hand welder to gently warm the fluted corner. This will allow the material to stretch slightly.
5. Weld the base flat, followed by the top sides. Ensure the corners are well sealed.
6. Test every weld, and seal cut edges with Cut Edge Sealer.

Step by Step Scupper



1. Lay the Enviroclad sheet through and over the scupper opening. The scupper opening should be rebated 2-3mm into the plywood substrate.
2. Cut out the scupper opening.
3. Cut the scupper flange down to fit. You will require a minimum 40mm to weld to.
4. Apply a continuous bead of Water Cut-Off Mastic (STP870) to the Enviroclad field sheet, around the scupper opening. (This will seal against the back of the scupper face).
5. Fit the scupper. This can be screwed in place, or just welded in place.
6. Cut a piece of reinforced Enviroclad. This should be at least 40mm wider than the scupper face.
7. Heat and crease the Enviroclad at the line of transition. Weld to the base of the scupper flange, and weld to the field sheet.

Step by Step Scupper



8. Weld into the corner, using the penny roller to ensure the membrane is sealed.
9. Weld up either side of the scupper face.
10. Allow to cool and seam probe all welds.
11. Seal edges with Cut Edge Sealant



Stage 1 :

Enviroclad Assessment

1. What must you have on hand when transporting Dangerous Goods?

2. What do you need to complete to become a Viking Stage 3 licensed installer?

3. What product is used to clean Enviroclad before welding laps and details?

4. Why shouldn't you mix a solvent with Enviroclad adhesive? (STP000)

5. Name 2 details where the T-Joint cover will be used.

6. What 2 products must be used to prepare all surfaces inside an Enviroclad Pourable Pocket?

7. Where would you use water cut off mastic STP870?

8. How should exposed cut-ends of the Enviroclad sheet be treated? And Why?

9. What can you use TPO coated steel for?

10. What four factors make a successful weld joint?

(1) _____

(3) _____

(2) _____

(4) _____

11. What should you do before using a Robot Welder or RhinoBond Plate Induction Welder on a roof?

12. What effect can a concrete substrate have on the welding of membrane weld?

13. What is the correct lap width for Enviroclad?

_____ mm

14. According to E2/AS1 code what is the minimum degree of fall for...

a roof _____

a gutter _____

a deck _____

15. How should the plywood grain be laid in relation to the supporting timbers?

16. What type of fixings must be used to fasten the plywood?

17. What is the correct gap between plywood sheets?

18. As well as the Viking Approved Applicator (company), who else should be identified on a Certificate of Workmanship warranty?

19. When welding and detailing Enviroclad what is the most important task to continue throughout the day?

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Taking care of detail

VK_Edition-V3-2023