



PVC MEMBRANE ROOFING TECHNICAL MANUAL

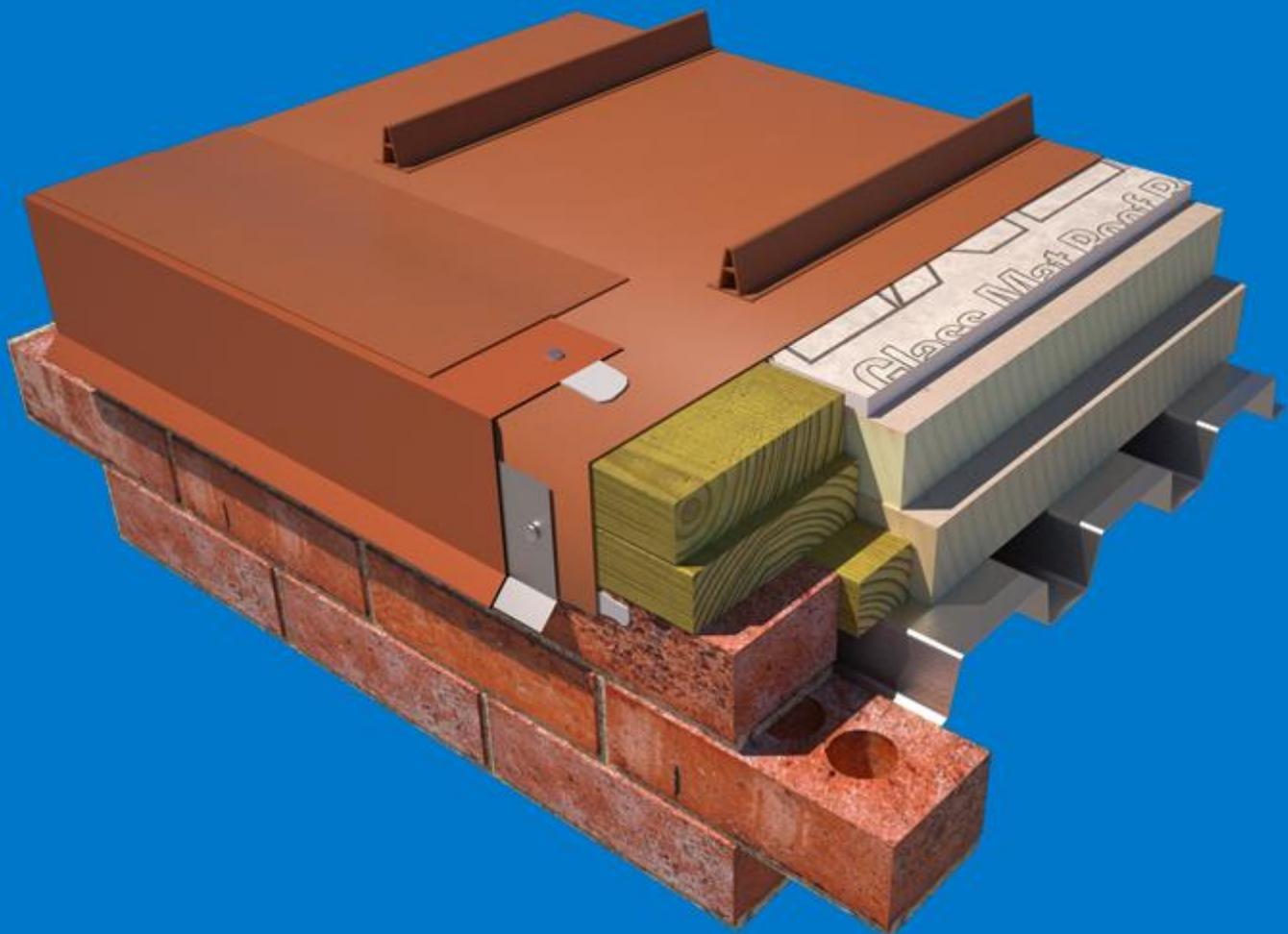


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INTRODUCTION

[SOPREMA®](#) offers a wide range of single ply roofing products and accessories formulated and manufactured with proven PVC technology. SENTINEL® PVC provides the utmost in durability and reliability to ensure structures remain watertight. SENTINEL® PVC products can be applied using a variety of methods allowing the flexibility to complete the job within project parameters in virtually any climate.

SENTINEL® products carry the proven durability of trusted PVC formulated by [SOPREMA®](#), while offering numerous additional physical and mechanical benefits. SENTINEL® PVC membranes reinforced with polyester provides exceptional puncture resistance, toughness, and high elongation properties and exhibits excellent dimensional stability.

SENTINEL® PVC membranes incorporating glass fiber reinforcement boasts superior dimensional stability and fire resistance. Both polyester and glass fiber reinforced SENTINEL® PVC membranes have been proven to withstand extreme exposures to cover any design need.

Refer to current [SOPREMA®](#) product data sheets and safety data sheets for detailed information about each product discussed in this manual. For additional information refer to www.soprema.us or contact [SOPREMA®](#) at 800.356.3521.

DISCLAIMER

This manual is intended for use by [SOPREMA®](#) authorized roofing contractors and design professionals in order to provide instructions and details for the application of [SOPREMA®](#) PVC roofing when a [SOPREMA®](#) warranty will be requested upon project completion. The contents of this manual are believed to be consistent with good roofing practices, but are not specific to any particular project's needs and are not a substitute for professional design services. [SOPREMA®](#) bears no liability nor responsibility for the design of any particular project.

The roofing material applicator is responsible for ensuring compliance with contract documents, project specifications, roofing industry standards and jurisdictional codes necessary to meet the requirements for specific project applications.

1 GENERAL

1.1 CHEMICAL RESISTANCE

- SENTINEL® PVC membranes have been evaluated for exposure and compatibility to the following materials:
 - Acrylic paint
 - Bleach
 - Copper sulfate
 - Detergent solutions
 - Ferric chloride
 - Fertilizer solutions
 - Fiberglass matting
 - Fruit juices
 - Furnace residues
 - Hydrogen peroxide
 - Latex paint
 - Linseed oil
 - Lard (animal fats)
 - Masonry cleaner
 - Muriatic acid
 - Oleic acid
 - Phosphoric acid
 - Polypropylene
 - Sodium hydroxide
 - Zinc chloride
- Inadvertent exposure to foreign materials, debris and other contaminants should be addressed by proper removal and cleaning. Refer to [Section 1.2](#).
- The following roofing materials are incompatible with SENTINEL® PVC:
 - Asphalt-based roofing and flashing products
 - Coal tar pitch
 - Un-faced extruded and expanded polystyrene.
- These incompatible materials must be eliminated or separated from direct contact with bare PVC membranes and flashings.
- Contact [SOPREMA®](#) for additional information.

1.2 PVC CLEANING PROCEDURES

1.2.1 HOUSEHOLD CLEANER

General:

- Follow all safety and environmental regulations and requirements regarding the use of household cleaners.
- SENTINEL® PVC roofing may be cleaned using common household cleaners such as Simple Green®, Formula 409®, Spic and Span® or other mild household cleaners.
- Pre-rinse the area using low-pressure water, less than 1,200 psi, with wide-angle fan spray nozzle.
- Follow the household cleaner instructions; dilute the cleaner using clean water as required. Do not pour undiluted cleaner directly onto roof surface.
- Clean the area using a cloth, sponge, soft bristle brushes or push brooms.
- Where necessary, use a general purpose scrubbing pad and cleaner to remove stubborn contaminants. Do not use sharp metal tools or wire brushes.
- Rinse the area using low-pressure water directed downward to prevent water from entering equipment, walls, windows or roof flashings.
- Repeat cleaning as necessary.
- Contact [SOPREMA®](#) for additional information.

1.2.2 SOLVENT CLEANER

General:

- Follow all safety and environmental regulations and requirements regarding the use of cleaners.
- PVC membranes may be cleaned using solvents such as methyl ethyl ketone (MEK).
- Do not pour solvent directly onto roof surface.
- Clean the area using and damp cloth soaked in solvent.
- Where necessary, use a general purpose scrubbing pad and solvent to remove contaminants. Do not use sharp tools or wire brushes.
- Allow the solvent to evaporate, or wipe the surface using a dry cloth where necessary.
- Repeat cleaning as necessary.
- Contact [SOPREMA®](#) for additional information.

1.3 HOT-AIR WELDING PROCEDURES

1.3.1 AUTOMATIC WELDING

General:

- Automatic hot air welding equipment is required to achieve consistent watertight membrane seam welds.
- Refer to hot air welding equipment manufacturer's published operating instructions and follow all applicable requirements and recommendations.

Preparation:

- Ensure a safe and consistent power supply is available and maintained for the welding equipment throughout the installation.
- Conduct test welds before the roofing installation to ensure equipment settings consistently achieve satisfactory welded seams. Repeat test welds when the welder has been turned off and re-started, and as environmental conditions change significantly. Changes in environmental conditions such as temperature and humidity can have an effect on the quality of welds.
 - Use clean, dry PVC cut into strips as necessary to create sample side-laps to weld and test.
 - Set the welding equipment temperature and speed settings, adjust as necessary, to achieve satisfactory welded seams.
 - Weld a 1-1/2 in continuous weld and allow the sample to cool.
 - Cut the welded sample in 1 to 2 in wide test strips.
 - Peel the test strips apart at the weld.
 - A satisfactory weld is achieved when the PVC breaks, or consistently and uniformly delaminates from the reinforcing fabric.
- Before welding roofing seams, ensure the area within the seams is dry, clean and free of debris.
- Clean the PVC surfaces as necessary. Refer to [Section 1.2](#).

Application:

- Position and align the automatic welder at the lap. Ensure the press wheel is positioned over the edge of the lap being welded.
- Set the temperature and speed settings as determined from sample test welds.
- Insert the welding shoe 2 in within the lap to ensure a minimum 1-1/2 in continuous weld is always produced.
- When the weld is complete and the welding shoe is disengaged, examine the welding shoe for residue.
- Ensure the welding nozzle remains clean. Remove residue accumulations from the nozzle using a wire brush.

Inspection:

- Carefully probe all seams and t-joints using a rounded-tip probe such as a cotter pin puller. Prevent damage to the membrane during inspection.
- Repair all open seams and damage found during inspection.
- When seam weld quality is suspect, inspect laps using destructive examination methods.
 - Cut 2 in wide weld samples across the seam 6 in on either side of the weld (2 in x 12 in wide strip).
 - Cut a minimum of three (3) sample welds in each suspect area.
 - Peel the test strips apart at the welds.
 - A satisfactory weld is achieved when the PVC breaks, or consistently and uniformly delaminates from the reinforcing fabric.

- Ensure the membrane is repaired and sealed watertight each day.

1.3.2 HAND WELDING

General:

- Hand-held hot-air welding equipment should be used where automatic welding equipment is not possible.
- Hand held welding equipment should be used to weld PVC to vinyl coated metal, small detail work, repairs and other work not accessible to automatic welding equipment.
- Refer to hot-air welding equipment manufacturer's published operating instructions and follow all applicable requirements and recommendations.

Preparation:

- Ensure an adequate and consistent power supply for welding equipment is provided and maintained at all times.
- Conduct test welds during the roofing installation to ensure equipment settings consistently achieve satisfactory welded seams.
 - Use clean, dry PVC cut into strips as necessary to create sample side-laps to weld and test.
 - Set the welder temperature, adjust as necessary, to achieve satisfactory welded seams.
 - Weld a 1-1/2 in continuous weld and allow the sample to cool.
 - Cut the welded sample in 1 to 2 in wide test strips.
 - Peel the test strips apart at the welds.
 - A satisfactory weld is achieved when the PVC breaks, or consistently and uniformly delaminates from the reinforcing fabric.
- Before welding roofing seams, ensure the area within the seams is dry, clean and free of debris.
- Clean the PVC surfaces as necessary. Refer to [Section 1.2](#).

Application:

- Insert the welding nozzle 2 in or more within the membrane lap and heat both surfaces sufficiently to fuse the lap.
- While still hot, use a silicone roller and apply sufficient pressure to ensure the two membranes are pressed and fused together.
- Consistently weld along the lap to ensure a minimum 1-1/2 in continuous weld is produced.
- Ensure the welding nozzle remains clean. Remove residue accumulations from the nozzle using a wire brush.

Inspection:

- Carefully probe all seams and t-joints using a rounded-tip probe such as a cotter pin puller. Prevent damage to the membrane during inspection.
- Repair all open seams and damage found during inspection.
- When seam weld quality is suspect, inspect laps using destructive examination methods.
 - Cut 2 in wide weld samples across the seam 6 in on either side of the weld (2 in x 12 in wide strip).
 - Cut a minimum of three (3) sample welds in each suspect area.
 - Peel the test strips apart at the welds.
 - A satisfactory weld is achieved when the PVC breaks, or consistently and uniformly delaminates from the reinforcing fabric.
- Ensure the membrane is repaired and sealed watertight each day.

2 PVC MEMBRANES

2.1 ADHERED PVC MEMBRANES

2.1.1 ADHERED PVC FIELD MEMBRANES

General:

- SENTINEL® PVC field membranes may be adhered for new and roof recover applications.
- Adhered SENTINEL® PVC field membranes are glass or polyester reinforced, 60 or 80 mils thick, and are bare or fleece-backed. Refer to [Table 2.1.1a](#).
- PVC field membranes may be adhered to approved substrates using [SENTINEL® S BONDING ADHESIVE](#), [SENTINEL® H2O BONDING ADHESIVE](#), [DUOTACK® SPF ADHESIVE](#), or ICP POLYURETHANE FOAM ADHESIVE CR-20. Refer to [Table 2.1.1b](#).
- Refer to safety data sheets and product data sheets for additional information.

Preparation:

- Ensure environmental conditions are acceptable to proceed. Monitor precipitation, temperature, humidity, dew point temperature, wind, cloud cover and sun that may have an effect on materials and application.
- The ambient temperature should be above 40°F (4°C) and rising during application. During extended periods of cold weather, PVC materials should be stored in a warm, heated storage area for optimum performance.
- Conditions should remain dry, and the ambient temperature should be well above the dew point at all times during roofing application.
- Water-based adhesive should not be stored or used when temperatures are below 40°F (4°C).
- Before beginning application, unroll the PVC membrane and allow it to relax.
- Roof recover:
 - Ensure existing roofing systems have been thoroughly evaluated and are determined to be structurally sound, dry and meet all applicable requirements for roof recover.
 - Remove or otherwise prepare existing surfacings such as gravel, membranes or coatings to ensure the surface is smooth and will provide a satisfactory substrate for new SENTINEL® PVC.
 - Ensure existing substrates will accommodate the new roof recover system to provide positive slope for adequate roof drainage.
 - Remove all existing incompatible materials or separate incompatible materials from direct contact with bare PVC. Refer to [Section 1.1](#) or contact [SOPREMA®](#) for additional information.
 - Refer to insulation and cover board installation guidelines for fastening and adhering recover boards and insulation to existing roofing.
- Adhesion/peel tests are encouraged for lightweight concrete, structural concrete, masonry and other substrates where surface conditions may vary. Conduct 180 degree peel tests as follows:
 - Choose three (3) or more representative substrate areas to examine.
 - Clean and prepare the substrate as specified, allow to dry.
 - Cut 1 in (2.54 cm) wide or more by 12 in (30.48 cm) long strips of the specified membrane.
 - Adhere an 8 to 9 in (20.32 to 22.86 cm) long section of the 12 in (30.48 cm) strip and allow a 3 to 4 in (7.62 to 10.16 cm) long portion to remain un-adhered in order to grip and pull.
 - Allow sufficient time for the samples to cure.
 - Grip the un-adhered portion of the sample and pull 180 degrees and parallel with the surface. Use a small scale to measure results in pounds of resistance where quantitative results are desired.

- Results should demonstrate strong resistance to peel. A strong bond will result in significant residual materials remaining adhered to the substrate, or part of the substrate itself may be removed along with the sample.
- Samples that peel away easily from the substrate may indicate further preparation is needed, or alternate materials and/or application methods may be necessary.
- Where quantitative measurements of peel resistance are desired, peel resistance should exceed 2lbs. per linear inch (0.35 N/mm) when tested.

Application:

- [SENTINEL® S BONDING ADHESIVE:](#)
 - For use with bare PVC only.
 - Use a minimum 3/8 in nap, solvent resistant roller to apply adhesive. Dip the roller into the adhesive to fully coat the roller. Do not pour adhesive onto the substrate and do not allow adhesive to pool or puddle on the substrate.
 - Evenly apply adhesive to clean, dry and prepared substrate while applying adhesive to the back of the bare PVC membrane.
 - Prevent adhesive from contaminating the PVC lap seams to be welded.
 - Apply uniform adhesive coverage as indicated on product data sheet. Adjust the application rate based on environmental conditions, substrate roughness and porosity.
 - Allow the adhesive on both surfaces to become tacky but not wet. The adhesive should not transfer to the finger or string when touched.
 - Prevent dust and debris from contaminating adhesive.
 - During humid weather, and during periods when the temperature is near the dew point temperature, examine surfaces closely for condensation.
 - Do not install if condensation forms on the adhesive surface. During humid conditions condensation may form on the adhesive surface due to evaporative cooling that occurs when the solvent evaporates.
 - Mate the membrane to the substrate for adhesive-to-adhesive contact.
 - Apply pressure using a weighted roller or push broom to ensure complete adhesion and prevent wrinkles and air bubbles.
- [SENTINEL® H2O BONDING ADHESIVE:](#)
 - For use with bare and fleece-backed PVC.
 - Use a minimum 3/8 in nap, solvent resistant roller to apply adhesive. Dip the roller into the adhesive to fully coat the roller. Do not pour adhesive onto the substrate and do not allow adhesive to pool or puddle on the substrate.
 - Apply uniform adhesive coverage as indicated on product data sheet. Adjust the application rate based on environmental conditions, substrate roughness and porosity.
 - Prevent adhesive from contaminating the PVC lap seams to be welded.
 - Ensure the adhesive is tacky to the touch but does not dry or skin over.
 - Mate the membrane to the substrate.
 - Apply pressure using a weighted roller or push broom to ensure complete adhesion and prevent wrinkles and air bubbles.
 - Do not apply [SENTINEL® H2O BONDING ADHESIVE](#) when the temperature is at or below 40°F (4°C) or when the temperature is forecast to be at or below 40°F (4°C) during the 48 hour period following the application of [SENTINEL® H2O BONDING ADHESIVE](#).
 - Do not apply [SENTINEL® H2O BONDING ADHESIVE](#) when the temperature is at or below the dew point temperature. Closely monitor adhesion when temperatures are near the dew point temperature, typically in the morning and evening hours as well as periods of high humidity.
- [DUOTACK® SPF ADHESIVE:](#)
 - For use with fleece-backed PVC only.
 - Refer to published instructions.

- Spray-apply the foam adhesive to clean, dry and prepared compatible substrates.
- Ensure the adhesive spray pattern provides for complete membrane adhesion.
- Prevent adhesive over-spray from contaminating the PVC lap seams to be welded.
- Ensure the adhesive is tacky to the touch but does not dry or skin over.
- Mate the membrane to the substrate while applying pressure using a roller or push broom to ensure complete adhesion and prevent wrinkles and air bubbles.
- ICP POLYURETHANE FOAM ADHESIVE CR-20:
 - For use with fleece-backed PVC only.
 - Refer to the adhesive manufacturer's published instructions.
 - Spray-apply the foam adhesive to clean, dry and prepared compatible substrates.
 - Ensure the adhesive spray pattern provides for complete membrane adhesion in accordance with adhesive manufacturer's requirements.
 - Prevent adhesive over-spray from contaminating the PVC lap seams to be welded.
 - Examine the adhesive in accordance with adhesive manufacturer's requirements, ensure the adhesive is tacky to the touch but does not dry or skin over.
 - Mate the membrane to the substrate while applying pressure using a roller or push broom to ensure complete adhesion and prevent wrinkles and air bubbles.
- At the end of the field sheet where it terminates at roof edges, walls and penetrations, fasten the membrane with appropriate fasteners and seam plates.
- Secure the membrane to the deck or vertical surface at the base of the upstand. Refer to [Figures 2.1.1a through 2.1.1i](#).
- Clean all laps as necessary before welding. Refer to [Section 1.2](#).
- Hot-air weld all laps watertight. Refer to [Section 4.1](#).

Inspection:

- Carefully probe all seams and t-joints using a rounded-tip probe such as a cotter pin puller. Prevent damage to the membrane during inspection.
- Repair all open seams and damage found during inspection.
- When seam weld quality is suspect, inspect laps using destructive examination methods.
 - Cut 2 in wide weld samples across the seam 6 in on either side of the weld (2 in x 12 in wide strip).
 - Cut a minimum of three (3) sample welds in each suspect area.
 - Peel the test strips apart at the welds.
 - A satisfactory weld is achieved when the PVC breaks, or consistently and uniformly delaminates from the reinforcing fabric.
- Inspect the membrane each day to ensure the membrane is adhered to the substrate.
- Each day, repair all un-adhered voids, wrinkles, open and damaged laps, and all other deficiencies before proceeding.
- Temporary night seals are required to seal membrane terminations watertight. Remove all temporary night seals before resuming the installation.
- Ensure the membrane is sealed watertight each day.

Table 2.1.1a Adhered PVC Field Membranes					
Membrane	Thickness	Reinforcement	Backing	Widths	Length
SENTINEL® P150	60 mils	Polyester	Bare	120 in, 60 in	100 ft
SENTINEL® P200	80 mils	Polyester	Bare	120 in, 60 in	65 ft
SENTINEL® G150	60 mils	Fiberglass	Bare	120 in, 30 in	100 ft
SENTINEL® G200	80 mils	Fiberglass	Bare	120 in, 30 in	65 ft
SENTINEL® P150 HFB	60 mils	Polyester	Fleece	120 in	80 ft
SENTINEL® P200 HFB	80 mils	Polyester	Fleece	120 in	65 ft
SENTINEL® COPPERART P150	60 mils	Polyester	Bare	63 in, 21 in	65.5 ft
SENTINEL® SILVERART P150	60 mils	Polyester	Bare	63 in, 21 in	65.5 ft
SENTINEL® COPPERART P150 HFB	60 mils	Polyester	Fleece	63 in	65.5 ft
SENTINEL® SILVERART P150 HFB	60 mils	Polyester	Fleece	63 in	65.5 ft

Table 2.1.1b Substrates for Adhered PVC Field Membranes		
Substrate	Adhesive	PVC Field Membrane
Concrete	SENTINEL® S BONDING ADHESIVE	All bare adhered PVC field membranes. Refer to Table 2.1.1a .
	SENTINEL® H20 BONDING ADHESIVE	All adhered PVC field membranes. Refer to Table 2.1.1a .
	DUOTACK® SPF ADHESIVE	All fleece-backed adhered PVC field membranes. Refer to Table 2.1.1a .
	ICP POLYURETHANE FOAM ADHESIVE CR-20	
Approved gypsum roof boards	SENTINEL® S BONDING ADHESIVE	All bare adhered PVC field membranes. Refer to Table 2.1.1a .
	SENTINEL® H20 BONDING ADHESIVE	All adhered PVC field membranes. Refer to Table 2.1.1a .
	DUOTACK® SPF ADHESIVE	All fleece-backed adhered PVC field membranes. Refer to Table 2.1.1a .
	ICP POLYURETHANE FOAM ADHESIVE CR-20	
Approved cement roof boards	SENTINEL® S BONDING ADHESIVE	All bare adhered PVC field membranes. Refer to Table 2.1.1a .
	SENTINEL® H20 BONDING ADHESIVE	All adhered PVC field membranes. Refer to Table 2.1.1a .
	DUOTACK® SPF ADHESIVE	All fleece-backed adhered PVC field membranes. Refer to Table 2.1.1a .
	ICP POLYURETHANE FOAM ADHESIVE CR-20	

Substrate	Adhesive	PVC Field Membrane
Cellular Lightweight Insulating Concrete*	SENTINEL® H20 BONDING ADHESIVE	All adhered PVC field membranes. Refer to Table 2.1.1a .
	DUOTACK® SPF ADHESIVE	All fleece-backed adhered PVC field membranes. Refer to Table 2.1.1a .
	ICP POLYURETHANE FOAM ADHESIVE CR-20	
Polyisocyanurate insulation boards (cellulose-glass facer)	SENTINEL® S BONDING ADHESIVE	All bare adhered PVC field membranes. Refer to Table 2.1.1a .
	DUOTACK® SPF ADHESIVE	All fleece-backed adhered PVC field membranes. Refer to Table 2.1.1a .
	ICP POLYURETHANE FOAM ADHESIVE CR-20	
Polyisocyanurate insulation boards (coated glass facer)	SENTINEL® H20 BONDING ADHESIVE	All adhered PVC field membranes. Refer to Table 2.1.1a .
	SENTINEL® S BONDING ADHESIVE	All bare adhered PVC field membranes. Refer to Table 2.1.1a .
	DUOTACK® SPF ADHESIVE	All fleece-backed adhered PVC field membranes. Refer to Table 2.1.1a .
	ICP POLYURETHANE FOAM ADHESIVE CR-20	
Granule surfaced modified bitumen roofing**	DUOTACK® SPF ADHESIVE	All fleece-backed adhered PVC field membranes. Refer to Table 2.1.1a .
	ICP POLYURETHANE FOAM ADHESIVE CR-20	

*Contact [SOPREMA®](#) and refer to agency approvals for specific LWIC manufacturers

**Contact [SOPREMA®](#) for other adhered PVC roof recover options.

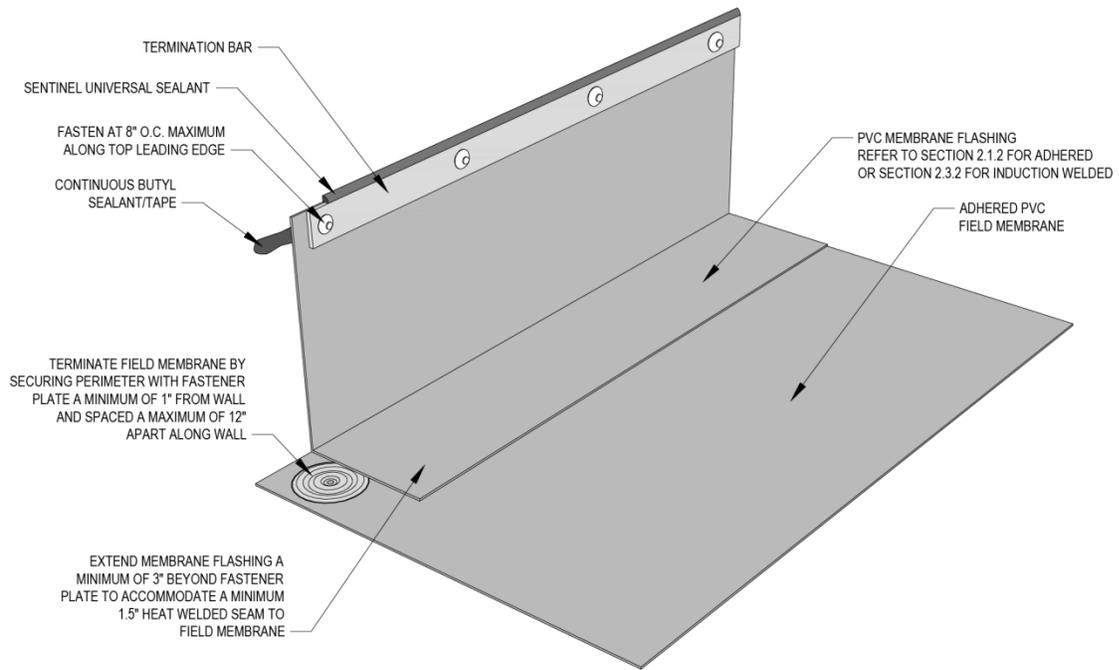


Figure 2.1.1a Adhered PVC Field Membrane at Wall/Curb With Horizontal Perimeter Fastening

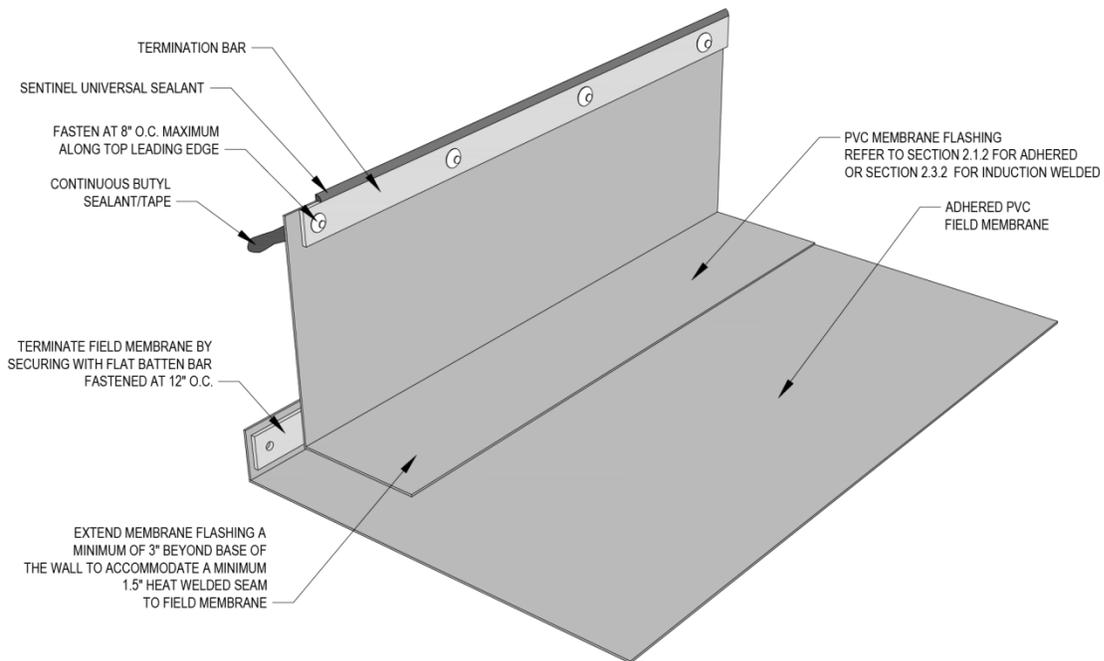


Figure 2.1.1b Adhered PVC Field Membrane at Wall/Curb With Vertical Perimeter Fastening

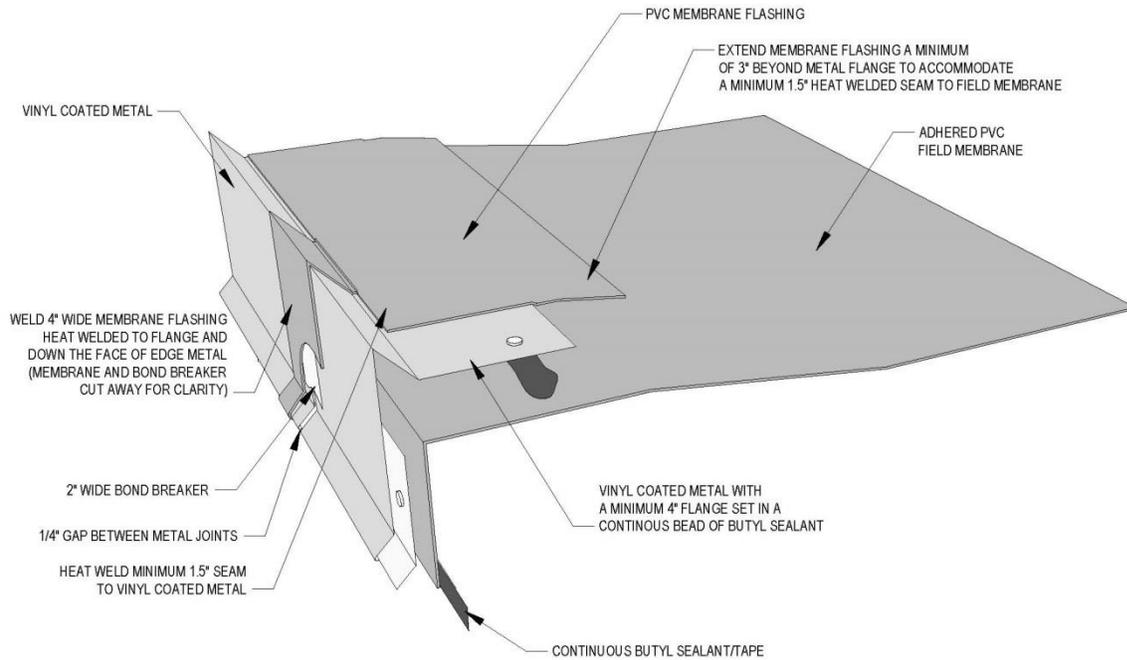


Figure 2.1.1c Adhered PVC Field Membrane at Gravel Stop With Vinyl Coated Metal Fascia

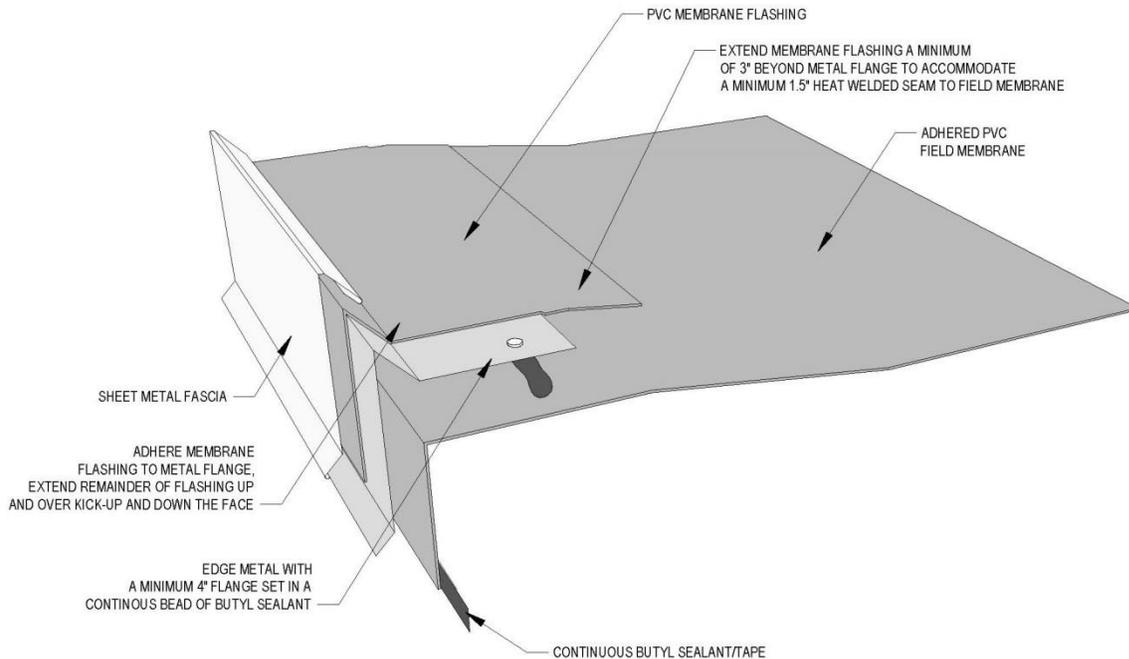


Figure 2.1.1d Adhered PVC Field Membrane at Gravel Stop With Sheet Metal Fascia

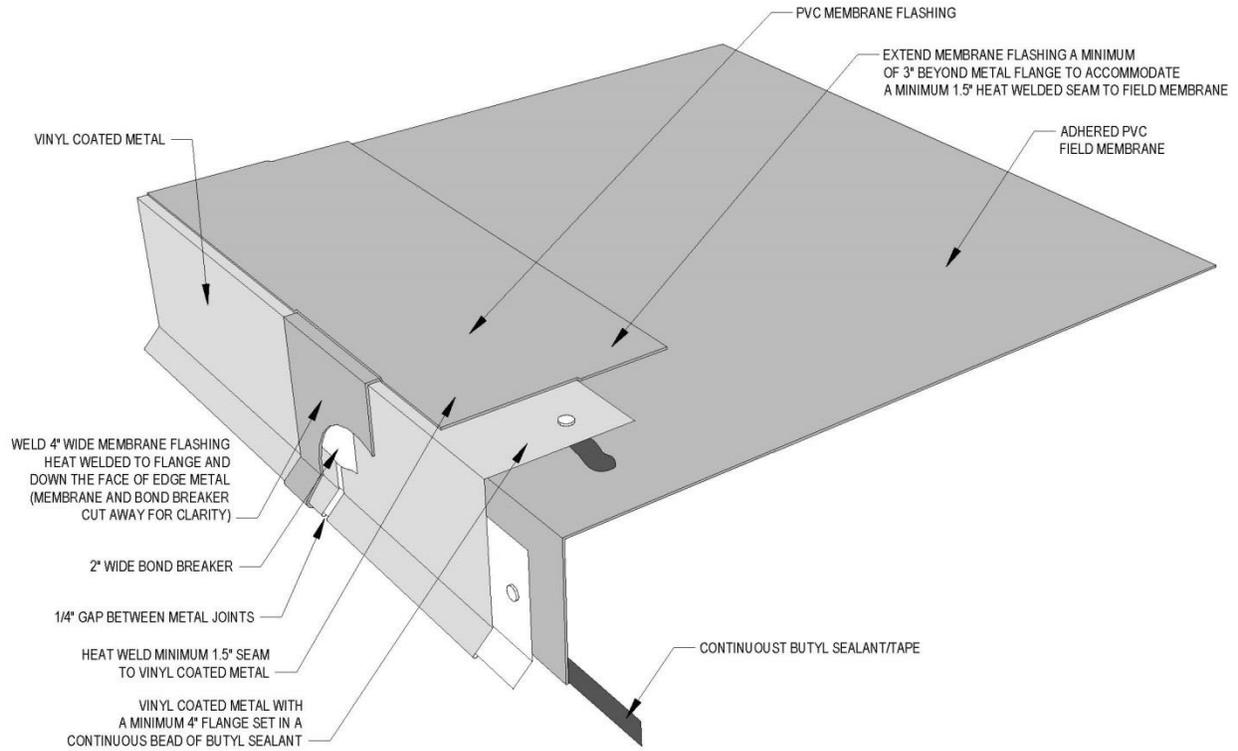


Figure 2.1.1e Adhered PVC Field Membrane at Drip Edge

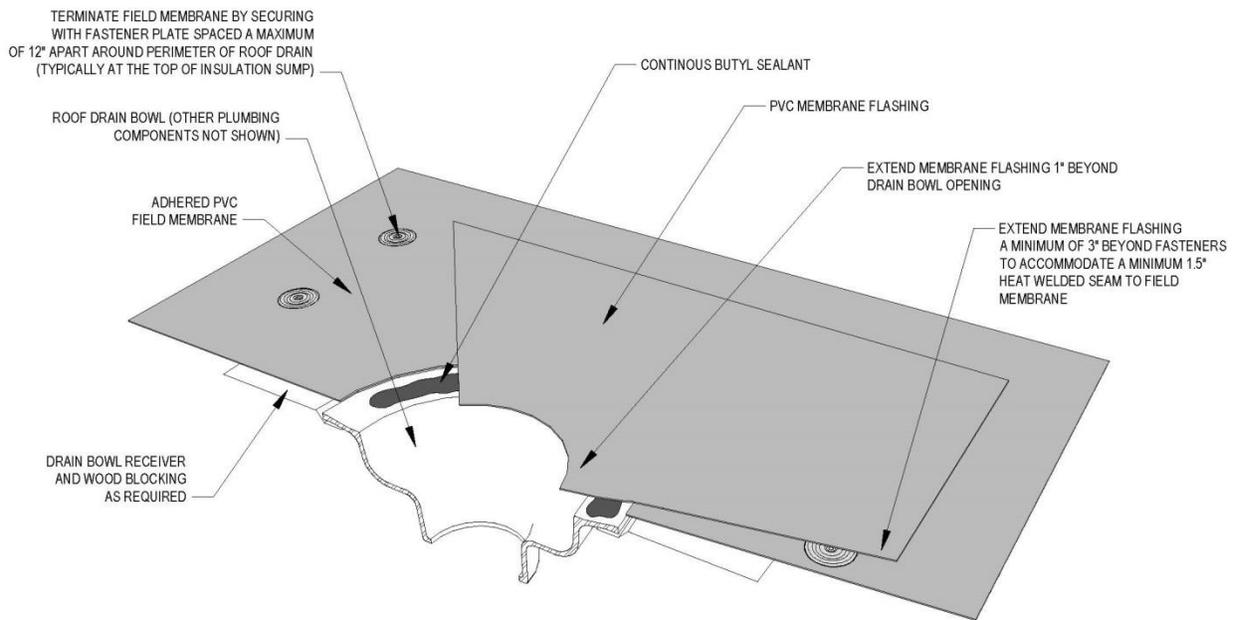


Figure 2.1.1f Adhered PVC Field Membrane at Roof Drain

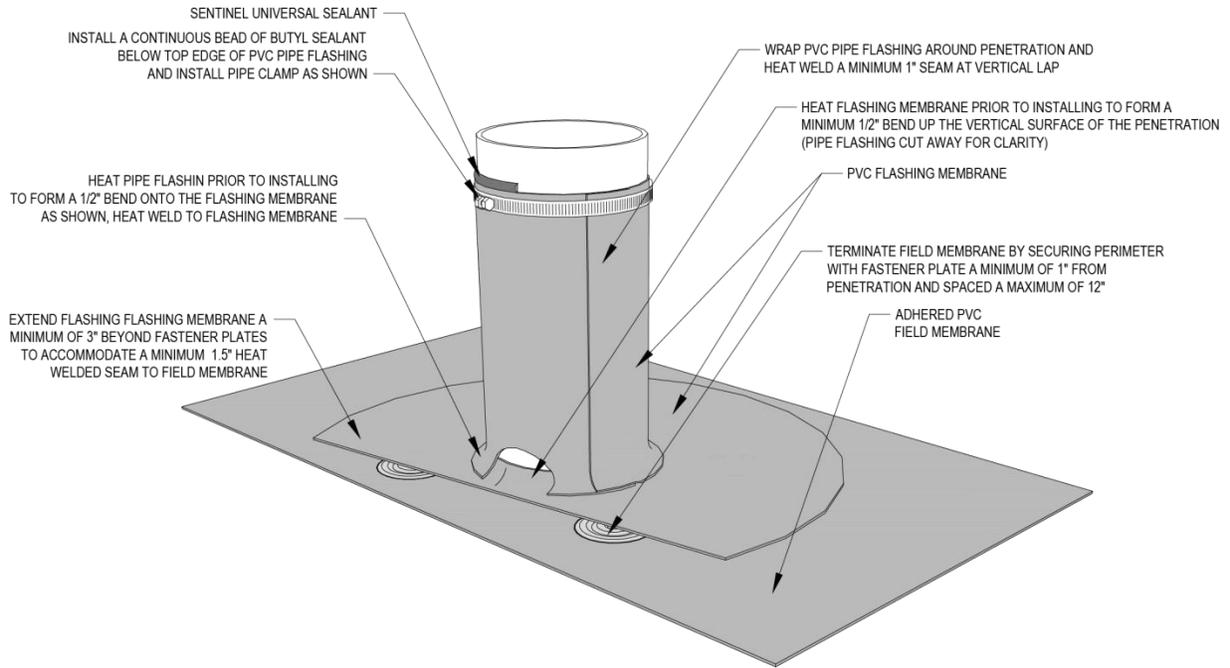


Figure 2.1.1g Adhered PVC Field Membrane at Penetration With Field Fabricated Pipe Flashing

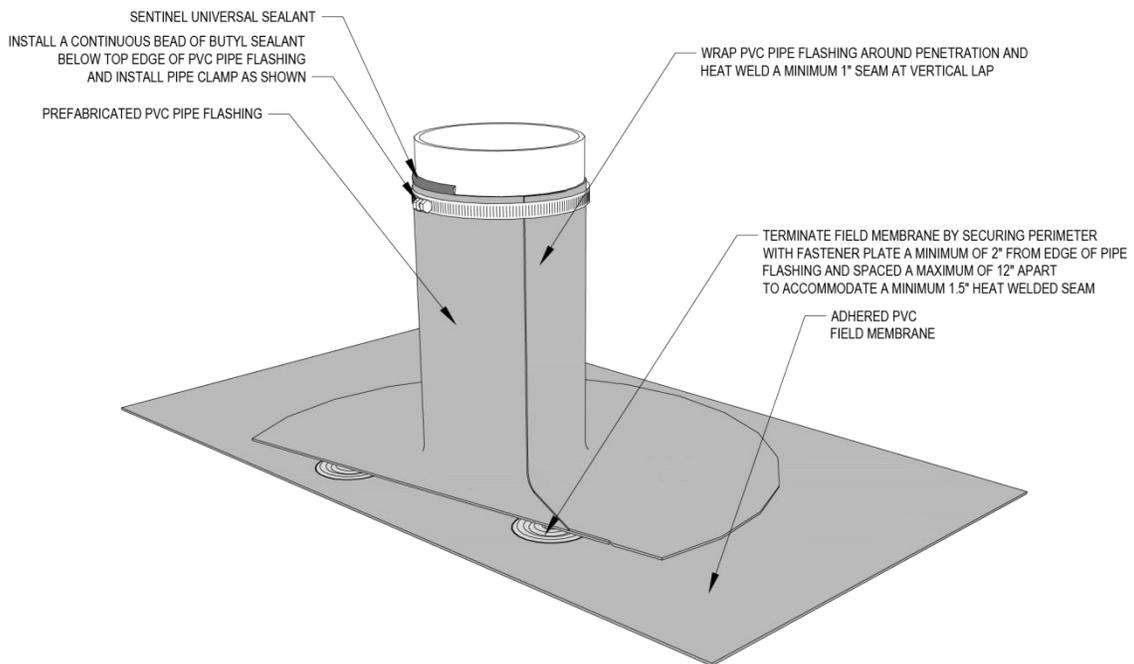


Figure 2.1.1h Adhered PVC Field Membrane at Penetration With Prefabricated Pipe Flashing

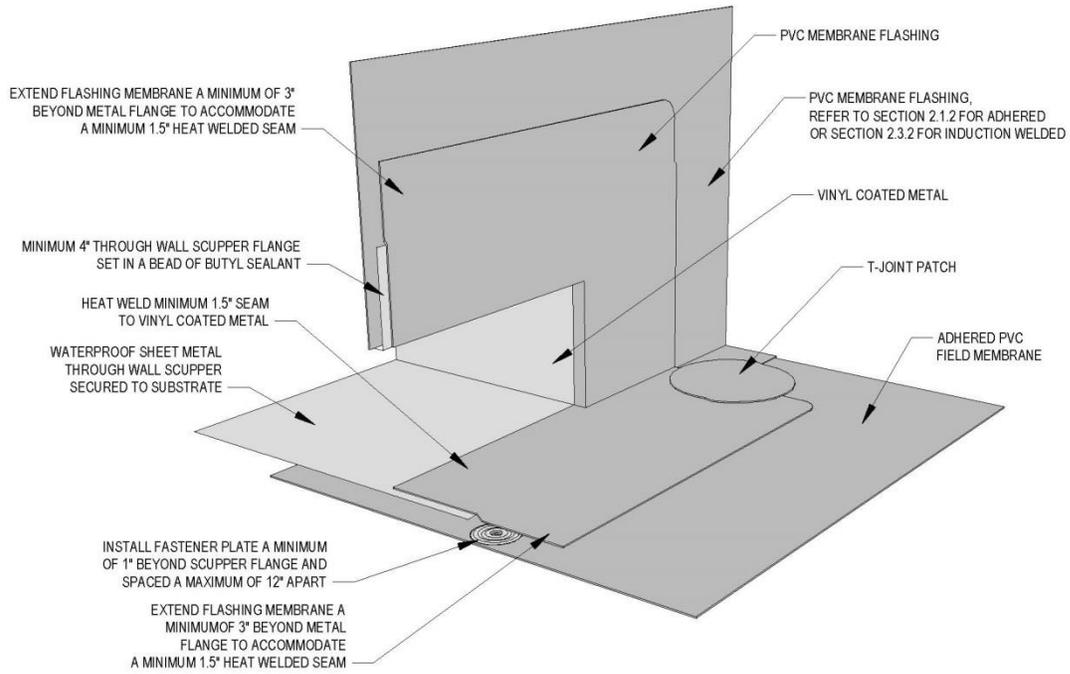


Figure 2.1.1i Adhered PVC Field Membrane at Through Wall Scupper

2.1.2 ADHERED PVC FLASHINGS

General:

- SENTINEL® PVC flashing membranes may be adhered for new and roof recover applications.
- Adhered SENTINEL® PVC flashing membranes are glass or polyester reinforced, 60 or 80 mils thick, and are bare on the underside. Refer to [Table 2.1.2a](#).
- PVC flashing membranes are adhered to approved substrates using [SENTINEL® S BONDING ADHESIVE](#). Refer to [Table 2.1.2b](#).
- Refer to safety data sheets and product data sheets for additional information.

Preparation:

- Ensure flashing substrates are clean, dry, smooth and free of asphalt, coatings and other incompatible materials and debris.
- Ensure environmental conditions are acceptable to proceed. Monitor precipitation, temperature, humidity, dew point temperature, wind, cloud cover and sun that may have an effect on materials and application.
- The ambient temperature should be above 40°F (4°C) and rising during application. During extended periods of cold weather, PVC materials should be stored in a warm, heated storage area for optimum performance.
- Conditions should remain dry, and the ambient temperature should be well above the dew point at all times during roofing application.
- Before beginning application, unroll the PVC flashing membrane and allow it to relax.
- Roof recover flashing:
 - Ensure existing flashing substrates have been thoroughly evaluated and are determined to be structurally sound, dry and meet all applicable requirements for roof recover.
 - Remove or otherwise prepare existing flashings or coatings to ensure the surface is smooth and will provide a satisfactory substrate for new SENTINEL® PVC flashing.
 - Remove all existing incompatible materials or separate incompatible materials from direct contact with bare PVC. Refer to [Section 1.1](#) or contact [SOPREMA®](#) for additional information.
 - Where existing bitumen products and coating cannot be completely removed, install new gypsum or cement roof boards, or other acceptable wall sheathing, to provide a new substrate for PVC flashing.

Application:

- Flashing application using [SENTINEL® S BONDING ADHESIVE](#):
 - For use with bare PVC only.
 - Use a minimum 3/8 in nap, solvent resistant roller or brush to apply adhesive. Dip the roller into the adhesive to fully coat the roller.
 - Evenly apply adhesive to clean, dry and prepared substrate while applying adhesive to the back of the bare PVC membrane.
 - Prevent adhesive from contaminating the PVC lap seams to be welded.
 - Apply uniform adhesive coverage as indicated on product data sheet. Adjust the application rate based on environmental conditions, substrate roughness and porosity.
 - Allow the adhesive on both surfaces to become tacky but not wet. The adhesive should not transfer to the finger or string when touched.
 - Prevent dust and debris from contaminating adhesive.
 - During humid weather, and during periods when the temperature is near the dew point temperature, examine surfaces closely for condensation.

- Do not install if condensation forms on the adhesive surface. During humid conditions condensation may form on the adhesive surface due to evaporative cooling that occurs when the solvent evaporates.
- Mate the membrane to the substrate for adhesive-to-adhesive contact.
- Apply pressure using a hand-held roller to ensure complete adhesion and prevent wrinkles and air bubbles.
- Install butyl water cutoff, fasten and seal the top leading edge to vertical surfaces. Refer to [Figures 2.1.2a through 2.1.2c](#).
- Clean laps as necessary before welding. Refer to [Section 1.2](#).
- Hot-air weld all flashing laps. Refer to [Section 4.1](#).

Inspection:

- Carefully probe all seams and t-joints using a rounded-tip probe such as a cotter pin puller. Prevent damage to the membrane during inspection.
- Repair all open seams and damage found during inspection.
- When seam weld quality is suspect, inspect laps using destructive examination methods.
 - Cut 2 in wide weld samples across the seam 6 in on either side of the weld (2 in x 12 in wide strip).
 - Cut a minimum of three (3) sample welds in each suspect area.
 - Peel the test strips apart at the welds.
 - A satisfactory weld is achieved when the PVC breaks, or consistently and uniformly delaminates from the reinforcing fabric.
- Inspect the flashings each day to ensure the flashings are adhered to the substrate.
- Each day, repair all un-adhered voids, wrinkles, open and damaged laps, and all other deficiencies before proceeding.
- Temporary night seals are required to seal terminations watertight. Remove all temporary night seals before resuming the installation.
- Ensure the flashings are sealed watertight each day.

Table 2.1.2a Adhered PVC Flashing Membranes					
Membrane	Thickness	Reinforcement	Backing	Widths	Length
SENTINEL® P150	60 mils	Polyester	Bare	120 in, 60 in	100 ft
SENTINEL® P200	80 mils	Polyester	Bare	120 in, 60 in	65 ft
SENTINEL® G150	60 mils	Fiberglass	Bare	120 in, 30 in	100 ft
SENTINEL® G200	80 mils	Fiberglass	Bare	120 in, 30 in	65 ft
SENTINEL® COPPERART P150	60 mils	Polyester	Bare	63 in, 21 in	65.5 ft
SENTINEL® SILVERART P150	60 mils	Polyester	Bare	63 in, 21 in	65.5 ft

Table 2.1.2b Substrates for Adhered PVC Flashing Membranes

Substrate	Adhesive	PVC Flashing Membrane
Concrete	SENTINEL® S BONDING ADHESIVE	All PVC flashing membranes. Refer to Table 2.1.2a .
Approved gypsum roof boards	SENTINEL® S BONDING ADHESIVE	All PVC flashing membranes. Refer to Table 2.1.2a .
Approved cement roof boards	SENTINEL® S BONDING ADHESIVE	All PVC flashing membranes. Refer to Table 2.1.2a .
Wood	SENTINEL® S BONDING ADHESIVE	All PVC flashing membranes. Refer to Table 2.1.2a .
Masonry	SENTINEL® S BONDING ADHESIVE	All PVC flashing membranes. Refer to Table 2.1.2a .
Metal	SENTINEL® S BONDING ADHESIVE	All PVC flashing membranes. Refer to Table 2.1.2a .

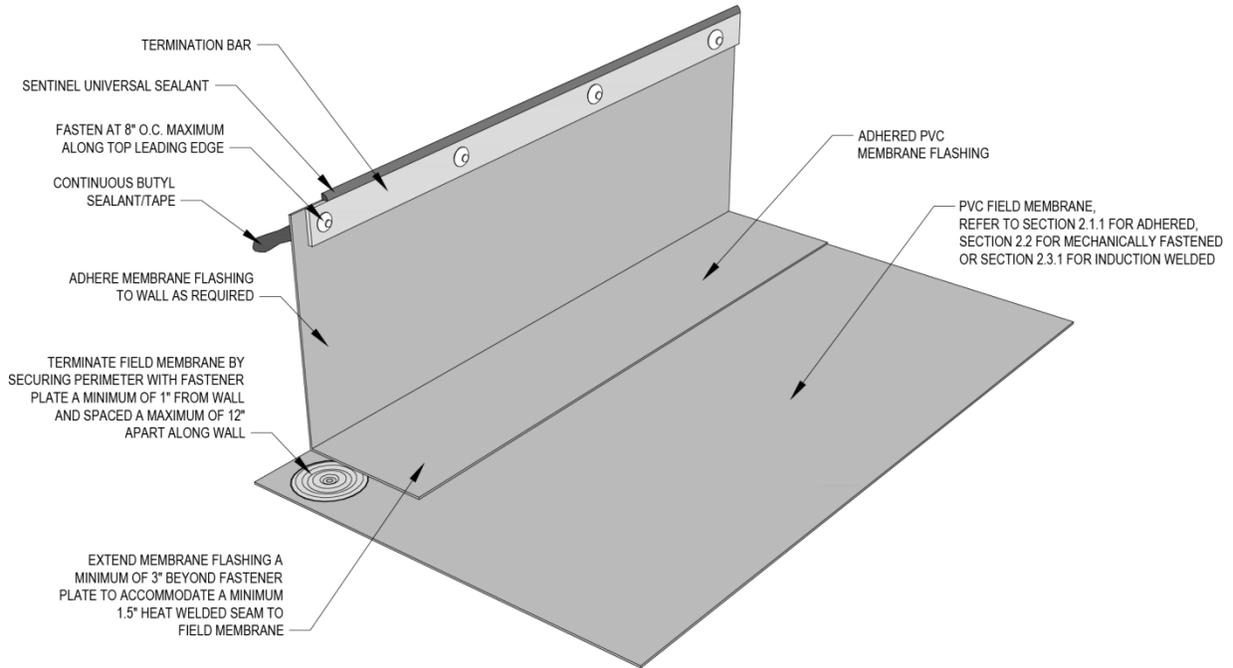


Figure 2.1.2a Adhered PVC Flashing Membrane at Wall/Curb With Horizontal Perimeter Fastening

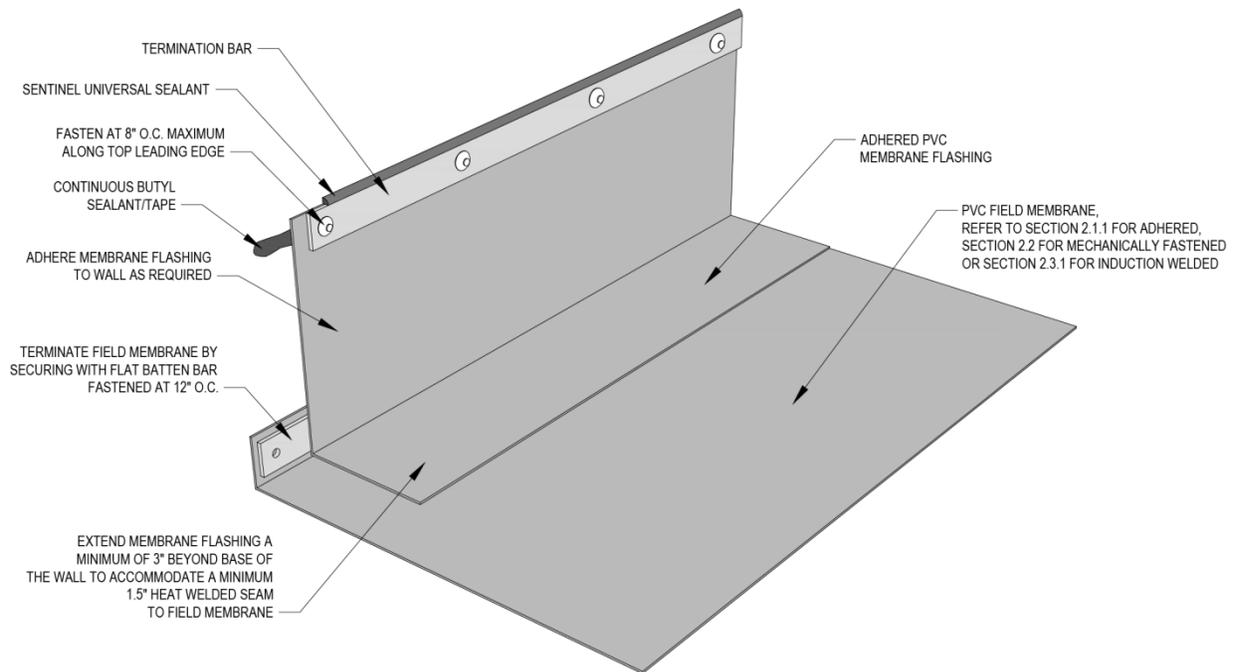


Figure 2.1.2b Adhered PVC Flashing Membrane at Wall/Curb With Vertical Perimeter Fastening

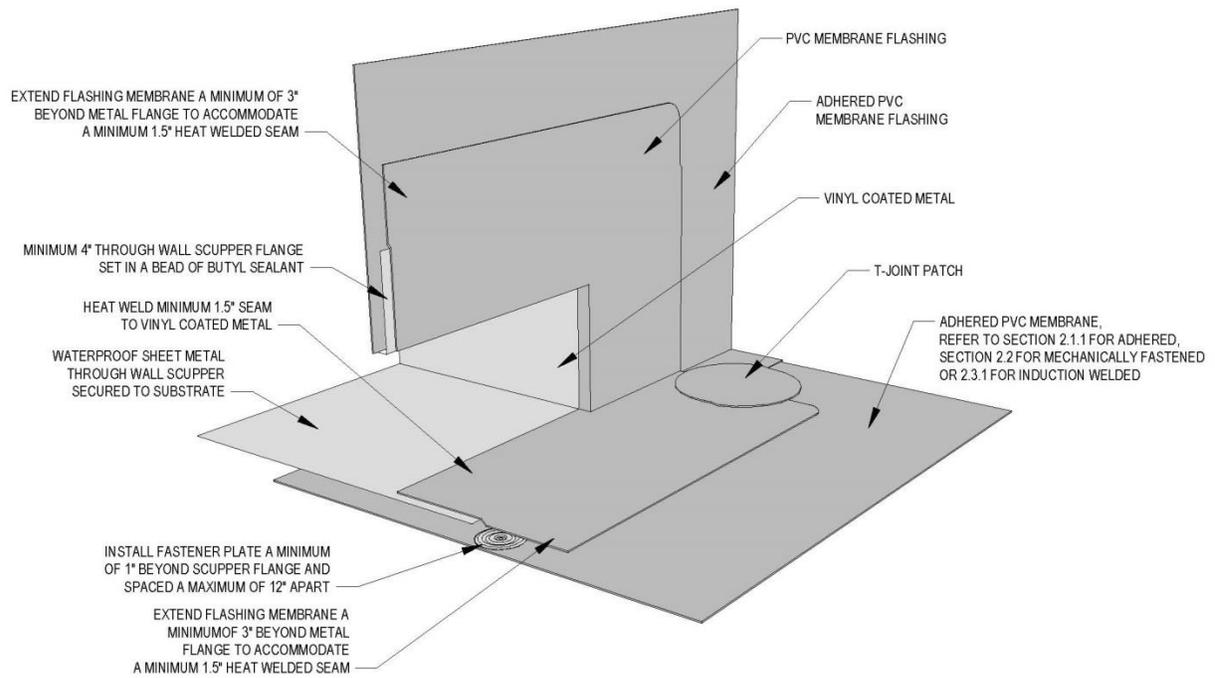


Figure 2.1.2c Adhered PVC Flashing Membrane at Through Wall Scupper

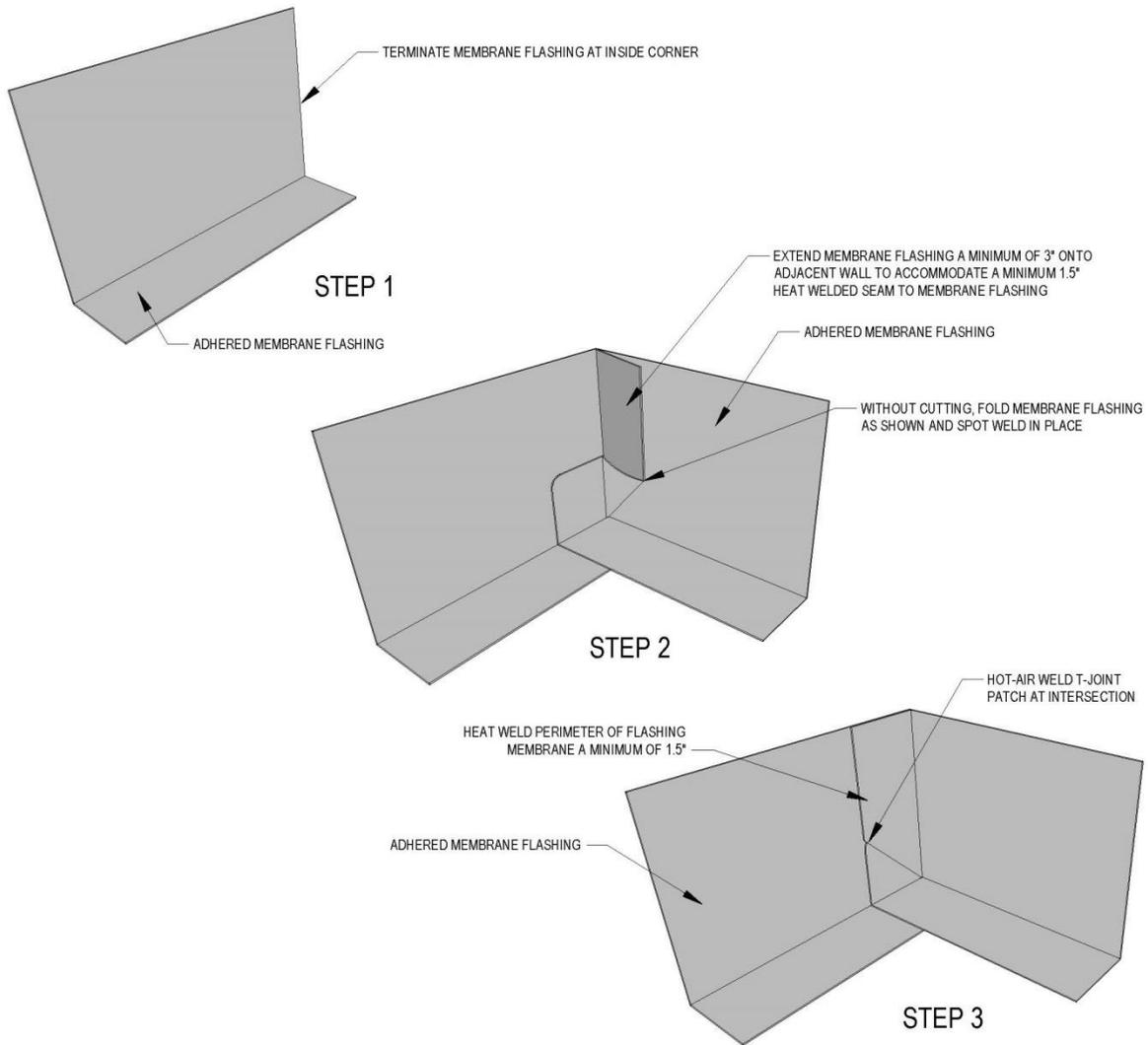


Figure 2.1.2d Adhered PVC Flashing Membrane at Field Fabricated Inside Corner

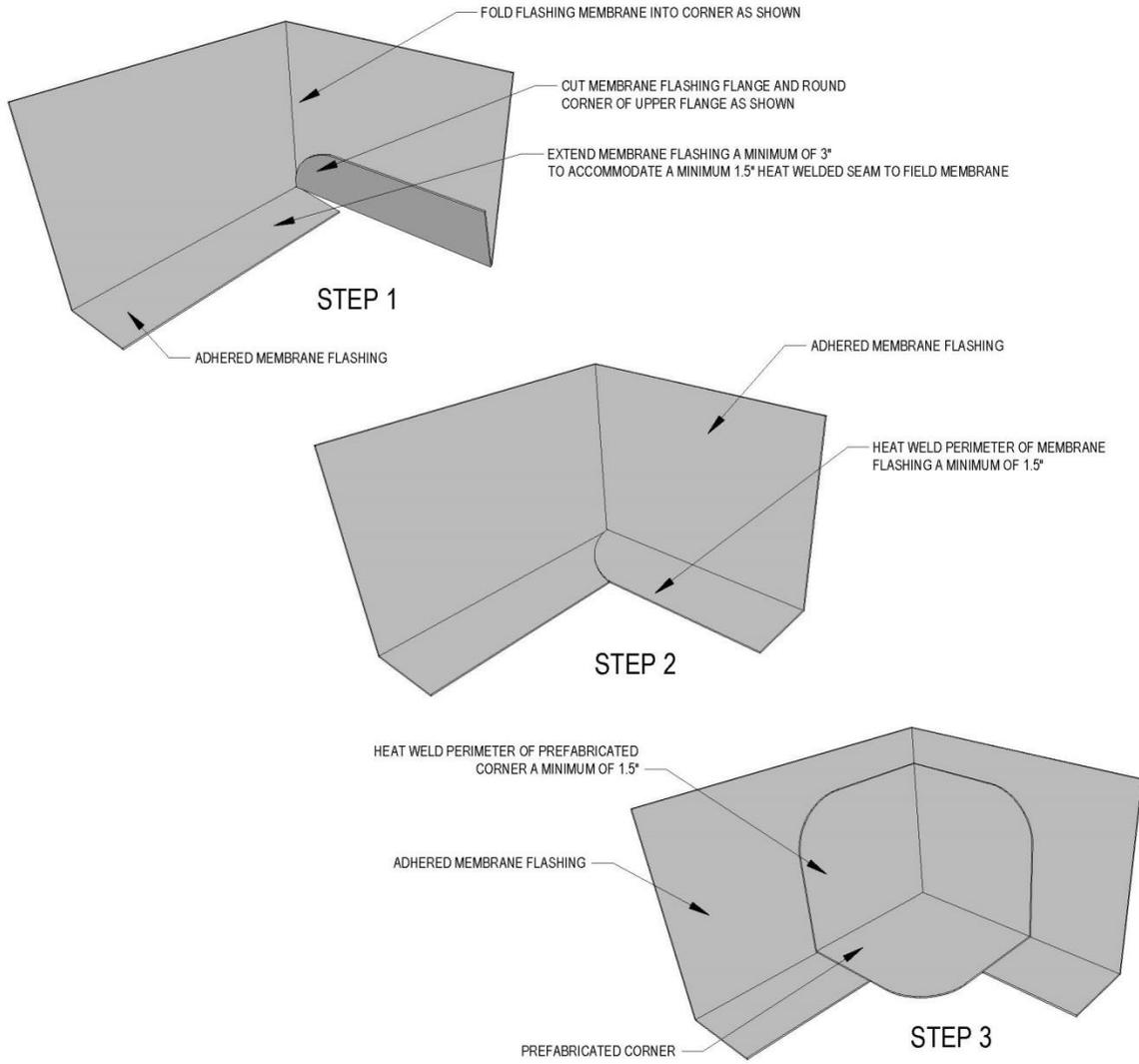


Figure 2.1.2e Adhered PVC Flashing Membrane at Prefabricated Inside Corner

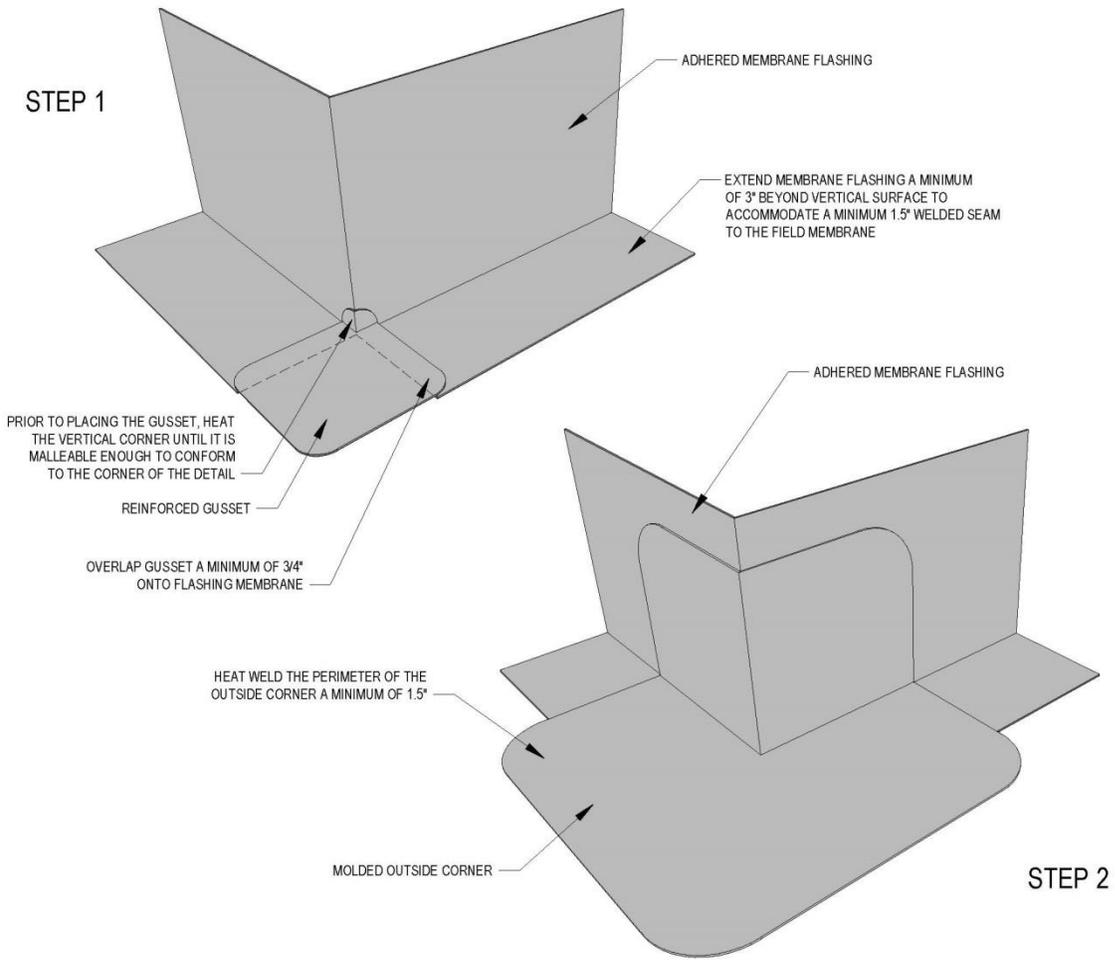


Figure 2.1.2f Adhered PVC Flashing Membrane at Molded Outside Corner

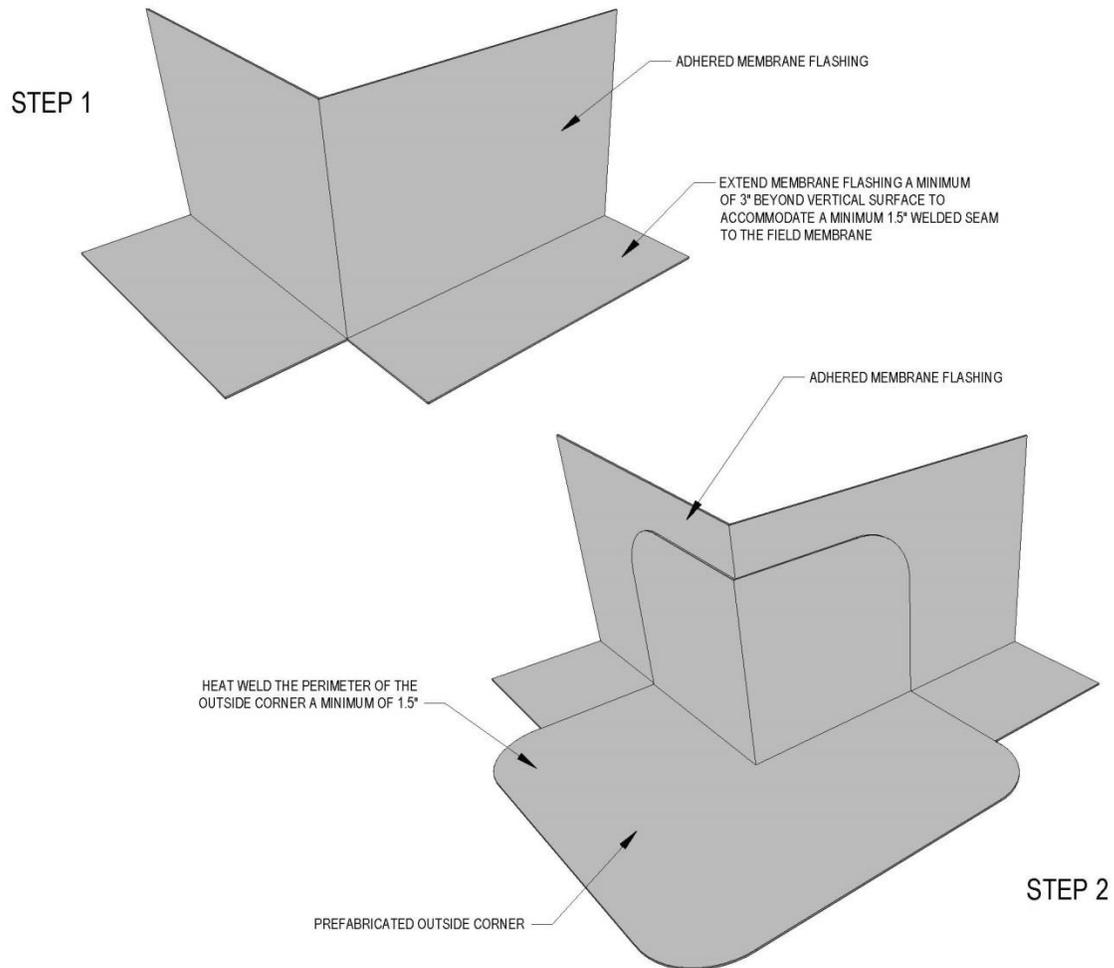


Figure 2.1.2g Adhered PVC Flashing Membrane at Prefabricated Outside Corner

2.2 MECHANICALLY FASTENED PVC FIELD MEMBRANES

General:

- SENTINEL® PVC field membranes may be mechanically fastened for new and roof recover applications.
- Mechanically fastened SENTINEL® PVC field membranes are polyester reinforced, 60 or 80 mils thick, and are bare or fleeced-backed.
- PVC field membranes are fastened in the membrane side-laps to approved substrates using [SOPREMA®](#) fasteners and seam plates. Refer to [Table 2.2b](#) and [Figures 2.2a through 2.2f](#).
- Refer to safety data sheets and product data sheets for additional information.

Preparation:

- Ensure the PVC membrane substrate surface has been properly prepared and is clean, dry and free of incompatible materials and debris.
- Examine all roof decks, wall substrates, nailers and other conditions at membrane terminations, transitions and penetrations.
- Ensure the roof deck and all other substrate conditions are acceptable to install the appropriate fasteners.
- Unroll the PVC membrane and allow it to relax.
- Roof recover:
 - Ensure existing roofing systems have been thoroughly evaluated and are determined to be structurally sound, dry and meet all applicable requirements for mechanically fastened roof recover applications.
 - Remove or otherwise prepare existing surfacings such as gravel, membranes or coatings to ensure the surface is smooth and will provide a satisfactory substrate for new SENTINEL® PVC.
 - Ensure existing substrates will accommodate the new roof recover system to provide positive slope for adequate roof drainage.
 - Remove all existing incompatible materials or separate incompatible materials from direct contact with bare PVC. Refer to [Section 1.1](#) or contact [SOPREMA®](#) for additional information.
 - Refer to insulation and cover board installation guidelines for compatible insulation and recover boards, and attachment requirements to existing roofing.

Application:

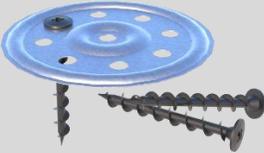
- Starting at the low point of the roof, lay out the membrane to ensure the plies are installed perpendicular to the roof slope, shingled to prevent back-water laps.
- Remove all wrinkles from the sheet, but do not overstretch the membrane too tight during installation.
- Ensure 6 in side-lap and end-lap widths are maintained.
- Starting at one end of the sheet, install the mechanical fasteners within the 6 in side-lap. Locate the center of the seam plates 2 in from the edge of the sheet. Ensure fastener spacing meets the specified wind uplift resistance requirements. Refer to [Figures 2.2a through 2.2f](#).
- Install fasteners as necessary to firmly set the fastener and seam plate tight against the sheet. Do not over-drive fasteners. Prevent wrinkles from forming in the sheet as the fasteners are installed.
- At the end of the sheet where it terminates at roof edges, walls and penetrations, fasten the perimeter of the membrane with appropriate fasteners and seam plates to the deck or vertical surface at the base of the upstand.
- Clean laps as necessary before welding seams. Refer to [Section 1.2](#).
- Hot-air weld all laps. Do not puddle/tack weld membrane at side laps prior to using automatic welder.
- When rows of fasteners are installed through the membrane at perimeter and corner enhancements, weld a minimum 8 in wide sealing strip over the fasteners.

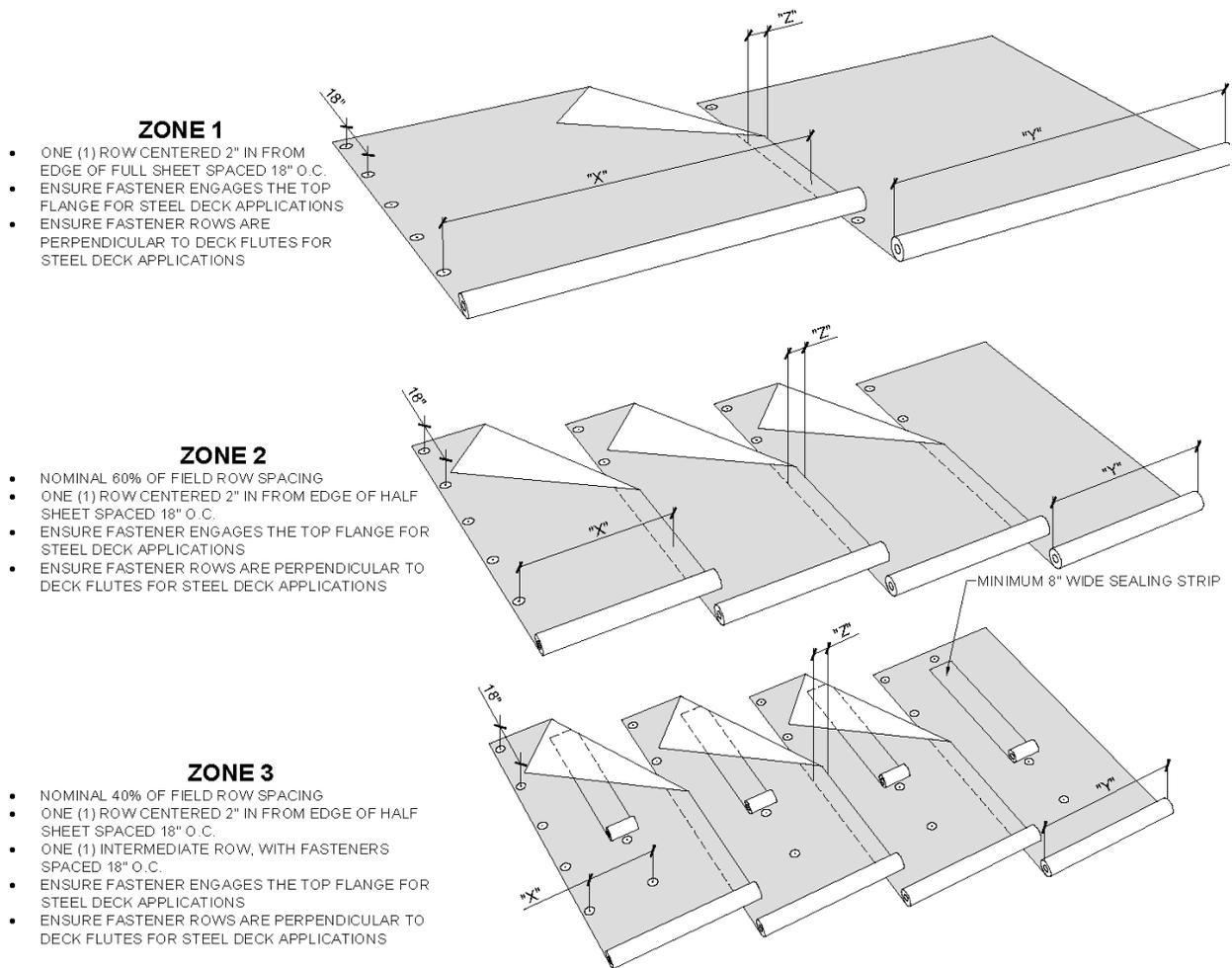
Inspection:

- Carefully probe all seams and t-joints using a rounded-tip probe such as a cotter pin puller. Prevent damage to the membrane during inspection.
- Repair all open seams and damage found during inspection.
- When seam weld quality is suspect, inspect laps using destructive examination methods.
 - Cut 2 in wide weld samples across the seam 6 in on either side of the weld (2 in x 12 in wide strip).
 - Cut a minimum of three (3) sample welds in each suspect area.
 - Peel the test strips apart at the welds.
 - A satisfactory weld is achieved when the PVC consistently and uniformly delaminates from the reinforcing fabric.
- Inspect the membrane each day to ensure the membrane is properly fastened to the substrate.
- Each day, repair all voids, wrinkles, open and damaged laps, and all other deficiencies before proceeding.
- Temporary night seals are required to seal membrane terminations watertight. Remove all temporary night seals before resuming the installation.
- Ensure the membrane is sealed watertight each day.

<i>Table 2.2a Mechanically Fastened PVC Field Membranes</i>					
Membrane	Thickness	Reinforcement	Backing	Widths	Length
SENTINEL® P150	60 mils	Polyester	Bare	120 in, 60 in	100 ft
SENTINEL® P200	80 mils	Polyester	Bare	120 in, 60 in	65 ft
SENTINEL® P150 HFB	60 mils	Polyester	Fleece	120 in	80 ft
SENTINEL® P200 HFB	80 mils	Polyester	Fleece	120 in	65 ft

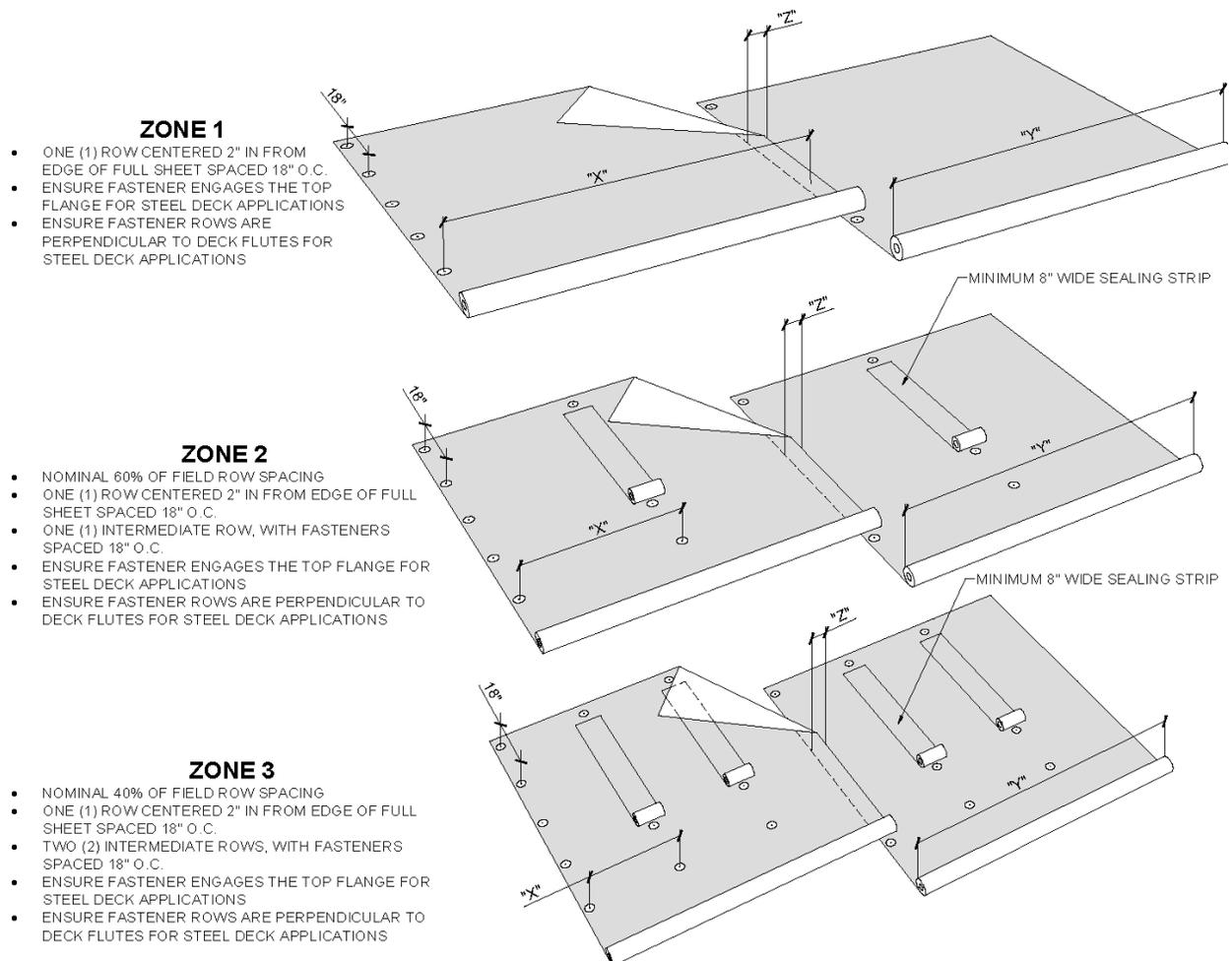
Table 2.2b Mechanically Fastened PVC Field Membrane Fasteners

Name	Graphic	PVC Membrane	Substrate/Deck Type
<p>SOPRAFIX #14 MP FASTENER with SOPRAFIX 2 IN STRESS PLATE, SOPRAFIX #14 MP FASTENER with SOPRAFIX 2.4 IN STRESS PLATE</p>		<p>SENTINEL® P150, SENTINEL® P200, SENTINEL® P150 HFB, SENTINEL® P200 HFB</p>	<p>Steel, Wood, Concrete</p>
<p>SOPRAFIX #15 HD FASTENER with SOPRAFIX 2 IN STRESS PLATE, SOPRAFIX #15 HD FASTENER with SOPRAFIX 2.4 IN STRESS PLATE</p>		<p>SENTINEL® P150, SENTINEL® P200, SENTINEL® P150 HFB, SENTINEL® P200 HFB</p>	<p>Steel, Wood</p>
<p>FLUTED CONCRETE NAIL with SOPRAFIX 2 IN STRESS PLATE, FLUTED CONCRETE NAIL with SOPRAFIX 2.4 IN STRESS PLATE</p>		<p>SENTINEL® P150, SENTINEL® P200, SENTINEL® P150 HFB, SENTINEL® P200 HFB</p>	<p>Concrete</p>
<p>TRUFAST® VERSA-FAST fastener and plate</p>		<p>SENTINEL® P150, SENTINEL® P200, SENTINEL® P150 HFB, SENTINEL® P200 HFB</p>	<p>Cellular lightweight insulating concrete, Aggregate lightweight insulating concrete, Poured gypsum</p>



Roll Width (Y)	Lap Width (Z)	Zone	Pattern	Row Spacing (X)	Fasteners Per Square
120in (3.048m)	6in	Field	18	114in	7
60in (1.524m)		Perimeter	18	54in	15
60in (1.524m)		Corner	18,18	27in	30
82.5in (2.1m)	6in	Field	18	76.5in	11
41.25in (2.1m)		Perimeter	18	35.25in	23
41.25in (2.1m)		Corner	18,18	17.625in	46

Figure 2.2a Mechanically Fastened PVC Field Membrane at 18 in O.C. With Perimeter Half Sheets



- ZONE 1**
- ONE (1) ROW CENTERED 2" IN FROM EDGE OF FULL SHEET SPACED 18" O.C.
 - ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS
 - ENSURE FASTENER ROWS ARE PERPENDICULAR TO DECK FLUTES FOR STEEL DECK APPLICATIONS

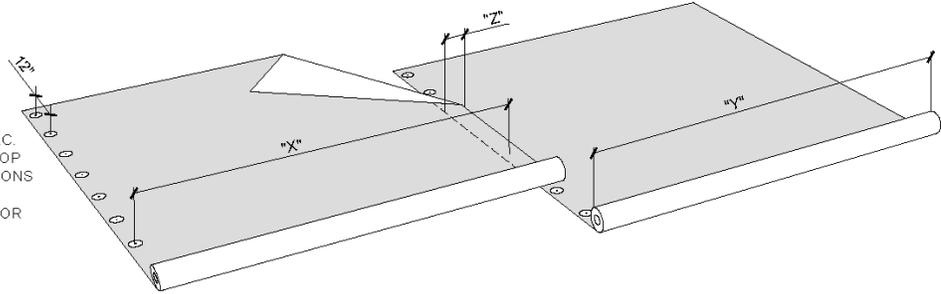
- ZONE 2**
- NOMINAL 60% OF FIELD ROW SPACING
 - ONE (1) ROW CENTERED 2" IN FROM EDGE OF FULL SHEET SPACED 18" O.C.
 - ONE (1) INTERMEDIATE ROW, WITH FASTENERS SPACED 18" O.C.
 - ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS
 - ENSURE FASTENER ROWS ARE PERPENDICULAR TO DECK FLUTES FOR STEEL DECK APPLICATIONS

- ZONE 3**
- NOMINAL 40% OF FIELD ROW SPACING
 - ONE (1) ROW CENTERED 2" IN FROM EDGE OF FULL SHEET SPACED 18" O.C.
 - TWO (2) INTERMEDIATE ROWS, WITH FASTENERS SPACED 18" O.C.
 - ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS
 - ENSURE FASTENER ROWS ARE PERPENDICULAR TO DECK FLUTES FOR STEEL DECK APPLICATIONS

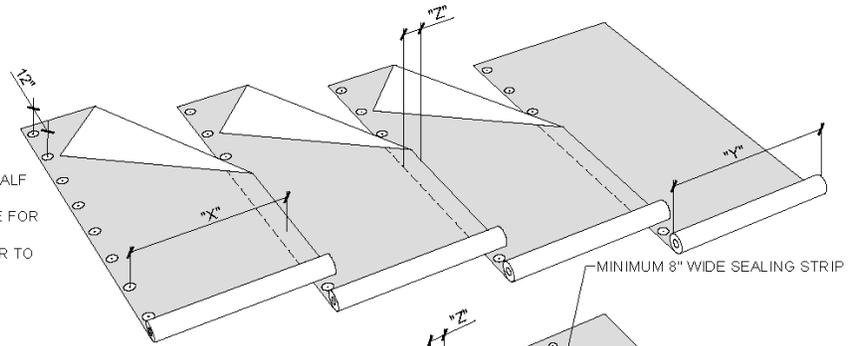
Roll Width (Y)	Lap Width (Z)	Zone	Pattern	Row Spacing (X)	Fasteners Per Square
120in (3.048m)	6in	Field	18	114in	7
		Perimeter	18,18	57in	14
		Corner	18,18,18	38in	21
82.5in (2.1m)	6in	Field	18	76.5in	11
		Perimeter	18,18	38.25in	21
		Corner	18,18,18	25.5in	32

Figure 2.2b Mechanically Fastened PVC Field Membrane at 18 in O.C. With Perimeter Intermediate Fastening

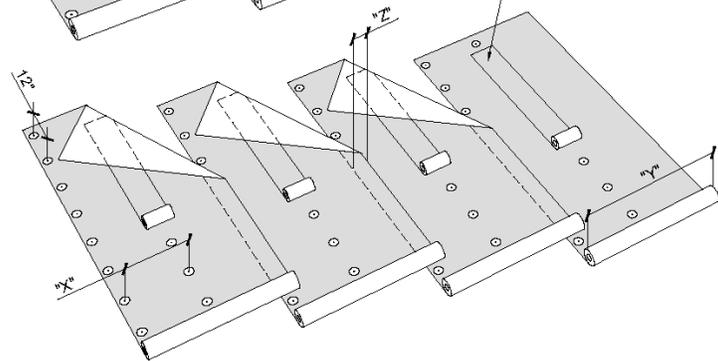
ZONE 1
 ONE (1) ROW CENTERED 2" IN FROM EDGE OF FULL SHEET SPACED 12" O.C.
 ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS
 ENSURE FASTENER ROWS ARE PERPENDICULAR TO DECK FLUTES FOR STEEL DECK APPLICATIONS



ZONE 2
 NOMINAL 60% OF FIELD ROW SPACING
 ONE (1) ROW CENTERED 2" IN FROM EDGE OF HALF SHEET SPACED 12" O.C.
 ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS
 ENSURE FASTENER ROWS ARE PERPENDICULAR TO DECK FLUTES FOR STEEL DECK APPLICATIONS



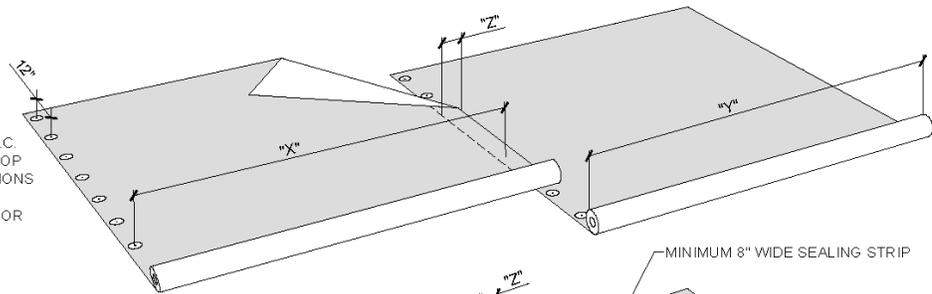
ZONE 3
 NOMINAL 40% OF FIELD ROW SPACING
 ONE (1) ROW CENTERED 2" IN FROM EDGE OF HALF SHEET SPACED 12" O.C.
 ONE (1) INTERMEDIATE ROW, WITH FASTENERS SPACED 12" O.C.
 ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS
 ENSURE FASTENER ROWS ARE PERPENDICULAR TO DECK FLUTES FOR STEEL DECK APPLICATIONS



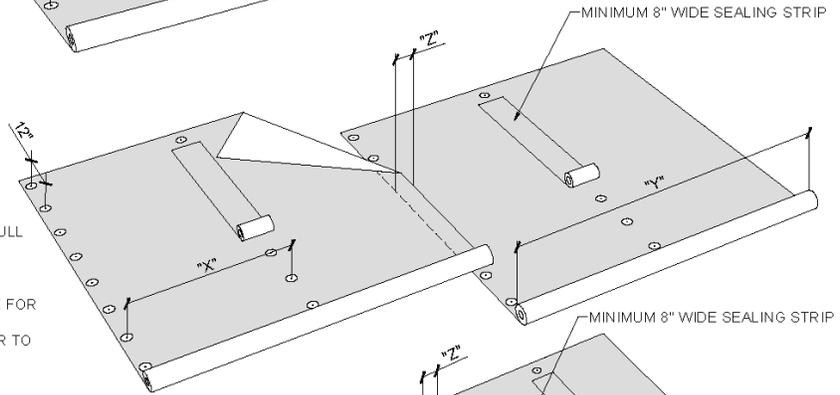
Roll Width (Y)	Lap Width (Z)	Zone	Pattern	Row Spacing (X)	Fasteners Per Square
120in (3.048m)	6in	Field	12	114in	11
60in (1.524m)		Perimeter	12	54in	23
60in (1.524m)	6in	Corner	12, 12	27in	45
82.5in (2.1m)		Field	12	76.5in	16
41.25in (2.1m)		Perimeter	12	35.25in	34
41.25in (2.1m)	6in	Corner	12, 12	17.625in	68
60in (1.524m)		Field	12	54in	23
30in (0.762m)		Perimeter	12	27in	45
30in (0.762m)	6in	Corner	12, 12	13.5in	89

Figure 2.2c Mechanically Fastened PVC Field Membrane at 12 in O.C. With Perimeter Half Sheets

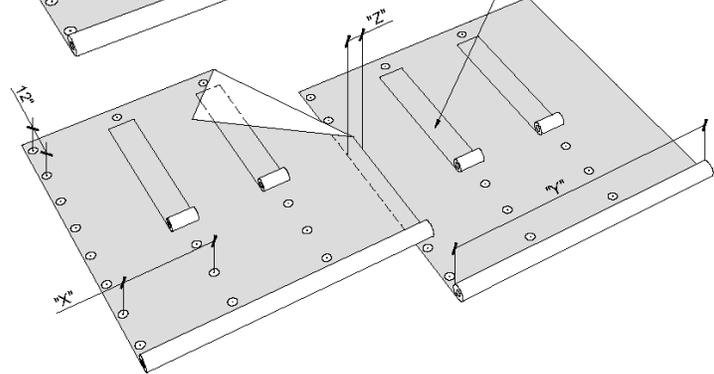
- ZONE 1**
- ONE (1) ROW CENTERED 2" IN FROM EDGE OF FULL SHEET SPACED 12" O.C.
 - ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS
 - ENSURE FASTENER ROWS ARE PERPENDICULAR TO DECK FLUTES FOR STEEL DECK APPLICATIONS



- ZONE 2**
- NOMINAL 60% OF FIELD ROW SPACING
 - ONE (1) ROW CENTERED 2" IN FROM EDGE OF FULL SHEET SPACED 12" O.C.
 - ONE (1) INTERMEDIATE ROW, WITH FASTENERS SPACED 12" O.C.
 - ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS
 - ENSURE FASTENER ROWS ARE PERPENDICULAR TO DECK FLUTES FOR STEEL DECK APPLICATIONS



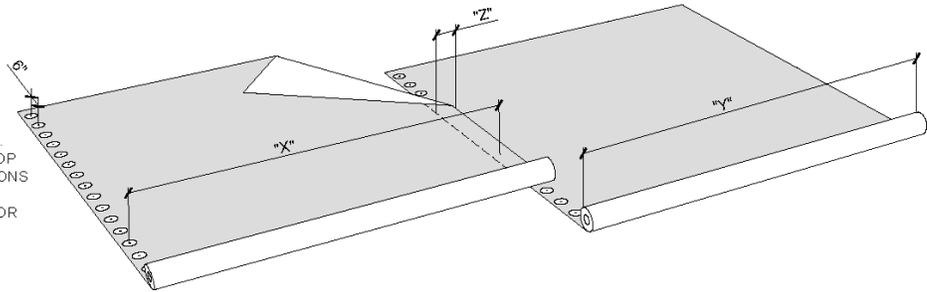
- ZONE 3**
- NOMINAL 40% OF FIELD ROW SPACING
 - ONE (1) ROW CENTERED 2" IN FROM EDGE OF FULL SHEET SPACED 12" O.C.
 - TWO (2) INTERMEDIATE ROWS, WITH FASTENERS SPACED 12" O.C.
 - ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS
 - ENSURE FASTENER ROWS ARE PERPENDICULAR TO DECK FLUTES FOR STEEL DECK APPLICATIONS



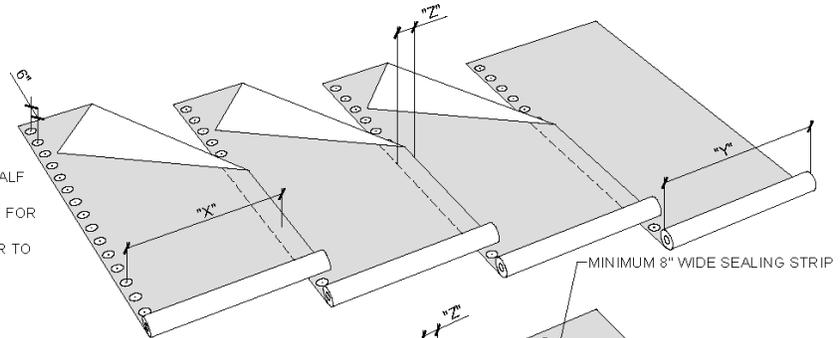
Roll Width (Y)	Lap Width (Z)	Zone	Pattern	Row Spacing (X)	Fasteners Per Square
120in (3.048m)	6in	Field	12	114in	11
120in (3.048m)		Perimeter	12, 12	57in	21
120in (3.048m)		Corner	12, 12, 12	38in	32
82.5in (2.1m)	6in	Field	12	76.5in	16
82.5in (2.1m)		Perimeter	12, 12	38.25in	32
82.5in (2.1m)		Corner	12, 12, 12	25.5in	47
60in (1.524m)	6in	Field	12	54in	23
60in (1.524m)		Perimeter	12, 12	27in	45
60in (1.524m)		Corner	12, 12, 12	18in	67

Figure 2.2d Mechanically Fastened PVC Field Membrane at 12 in O.C. With Perimeter Intermediate Fastening

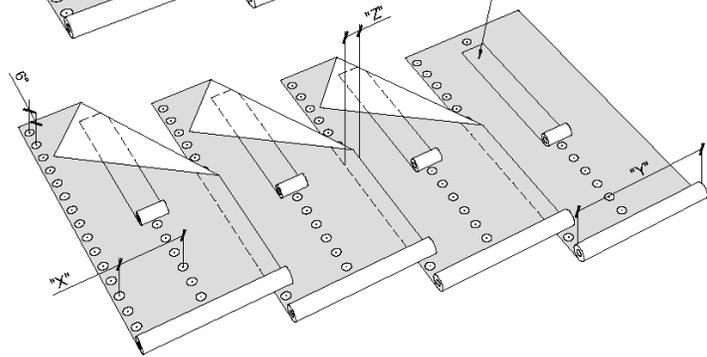
- ZONE 1**
- ONE (1) ROW CENTERED 2" IN FROM EDGE OF FULL SHEET SPACED 6" O.C.
 - ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS
 - ENSURE FASTENER ROWS ARE PERPENDICULAR TO DECK FLUTES FOR STEEL DECK APPLICATIONS



- ZONE 2**
- NOMINAL 60% OF FIELD ROW SPACING
 - ONE (1) ROW CENTERED 2" IN FROM EDGE OF HALF SHEET SPACED 6" O.C.
 - ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS
 - ENSURE FASTENER ROWS ARE PERPENDICULAR TO DECK FLUTES FOR STEEL DECK APPLICATIONS



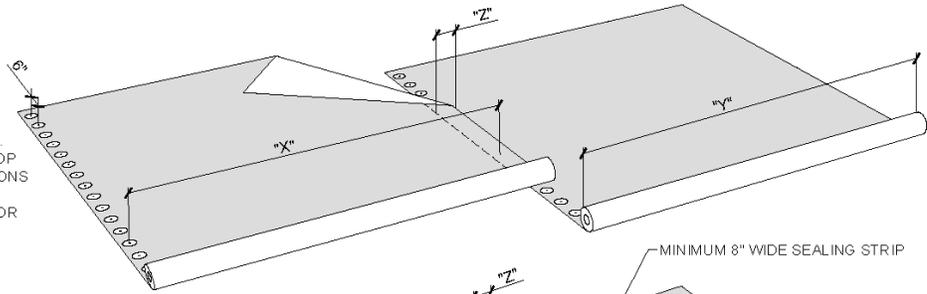
- ZONE 3**
- NOMINAL 40% OF FIELD ROW SPACING
 - ONE (1) ROW CENTERED 2" IN FROM EDGE OF HALF SHEET SPACED 6" O.C.
 - ONE (1) INTERMEDIATE ROW, WITH FASTENERS SPACED 6" O.C.
 - ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS
 - ENSURE FASTENER ROWS ARE PERPENDICULAR TO DECK FLUTES FOR STEEL DECK APPLICATIONS



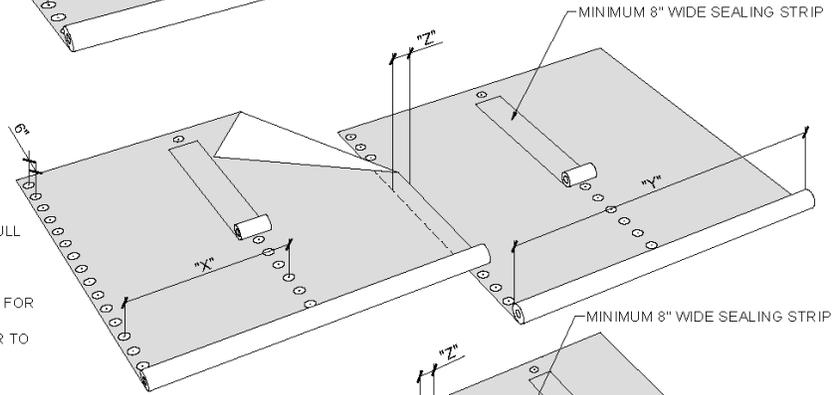
Roll Width (Y)	Lap Width (Z)	Zone	Pattern	Row Spacing (X)	Fasteners Per Square
120in (3.048m)	6in	Field	6	114in	21
60in (1.524m)		Perimeter	6	54in	45
60in (1.524m)		Corner	6,6	27in	89
82.5in (2.1m)	6in	Field	6	76.5in	32
41.25in (2.1m)		Perimeter	6	35.25in	68
41.25in (2.1m)		Corner	6,6	17.625in	137

Figure 2.2e Mechanically Fastened PVC Field Membrane at 6 in O.C. With Perimeter Half Sheets

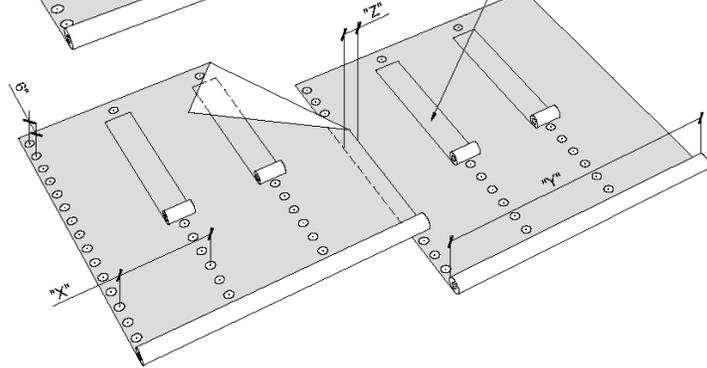
- ZONE 1**
- ONE (1) ROW CENTERED 2" IN FROM EDGE OF FULL SHEET SPACED 6" O.C.
 - ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS
 - ENSURE FASTENER ROWS ARE PERPENDICULAR TO DECK FLUTES FOR STEEL DECK APPLICATIONS



- ZONE 2**
- NOMINAL 60% OF FIELD ROW SPACING
 - ONE (1) ROW CENTERED 2" IN FROM EDGE OF FULL SHEET SPACED 6" O.C.
 - ONE (1) INTERMEDIATE ROW, WITH FASTENERS SPACED 6" O.C.
 - ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS
 - ENSURE FASTENER ROWS ARE PERPENDICULAR TO DECK FLUTES FOR STEEL DECK APPLICATIONS



- ZONE 3**
- NOMINAL 40% OF FIELD ROW SPACING
 - ONE (1) ROW CENTERED 2" IN FROM EDGE OF FULL SHEET SPACED 6" O.C.
 - TWO (2) INTERMEDIATE ROWS, WITH FASTENERS SPACED 6" O.C.
 - ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS
 - ENSURE FASTENER ROWS ARE PERPENDICULAR TO DECK FLUTES FOR STEEL DECK APPLICATIONS



Roll Width (Y)	Lap Width (Z)	Zone	Pattern	Row Spacing (X)	Fasteners Per Square
120in (3.048m)	6in	Field	6	114in	21
120in (3.048m)		Perimeter	6,6	57in	42
120in (3.048m)		Corner	6,6,6	38in	63
82.5in (2.1m)	6in	Field	6	76.5in	32
82.5in (2.1m)		Perimeter	6,6	38.25in	63
82.5in (2.1m)		Corner	6,6,6	25.5in	94

Figure 2.2f Mechanically Fastened PVC Field Membrane at 6 in O.C. With Perimeter Intermediate Fastening

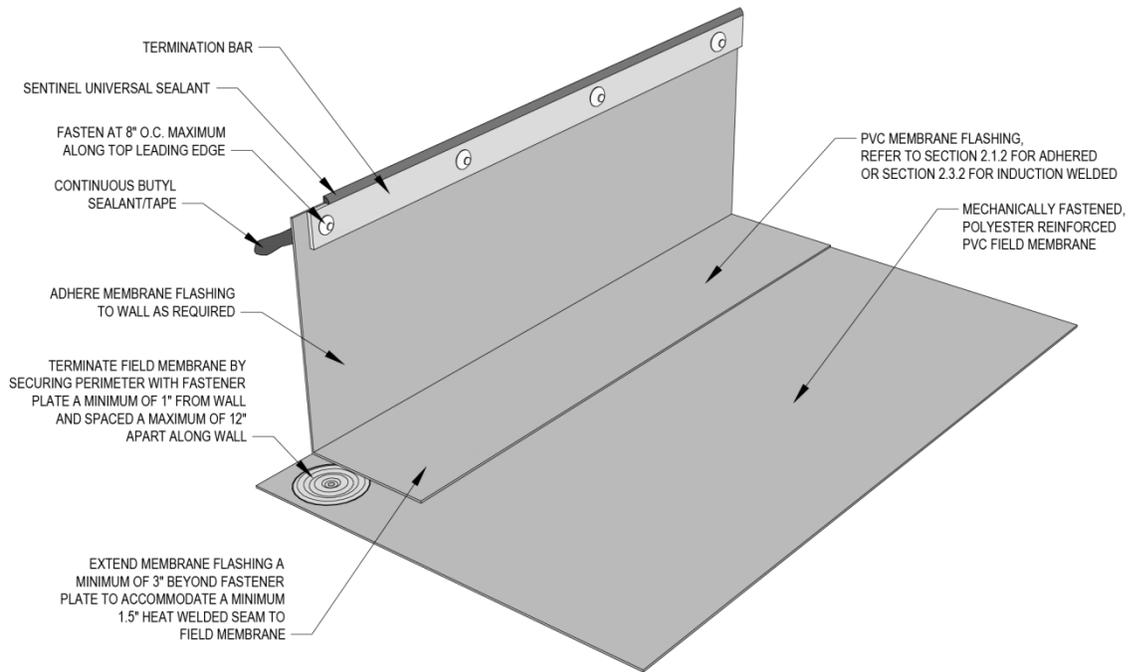


Figure 2.2g Mechanically Fastened PVC Field Membrane at Wall/Curb With Horizontal Perimeter Fastening

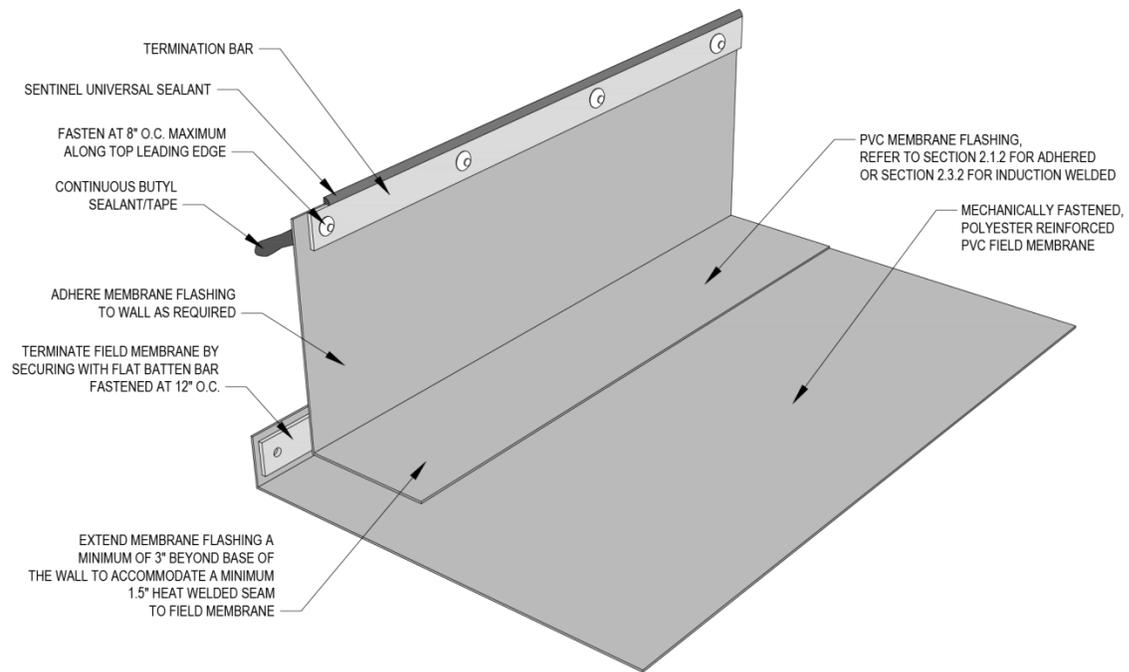


Figure 2.2h Mechanically Fastened PVC Field Membrane at Wall/Curb With Vertical Perimeter Fastening

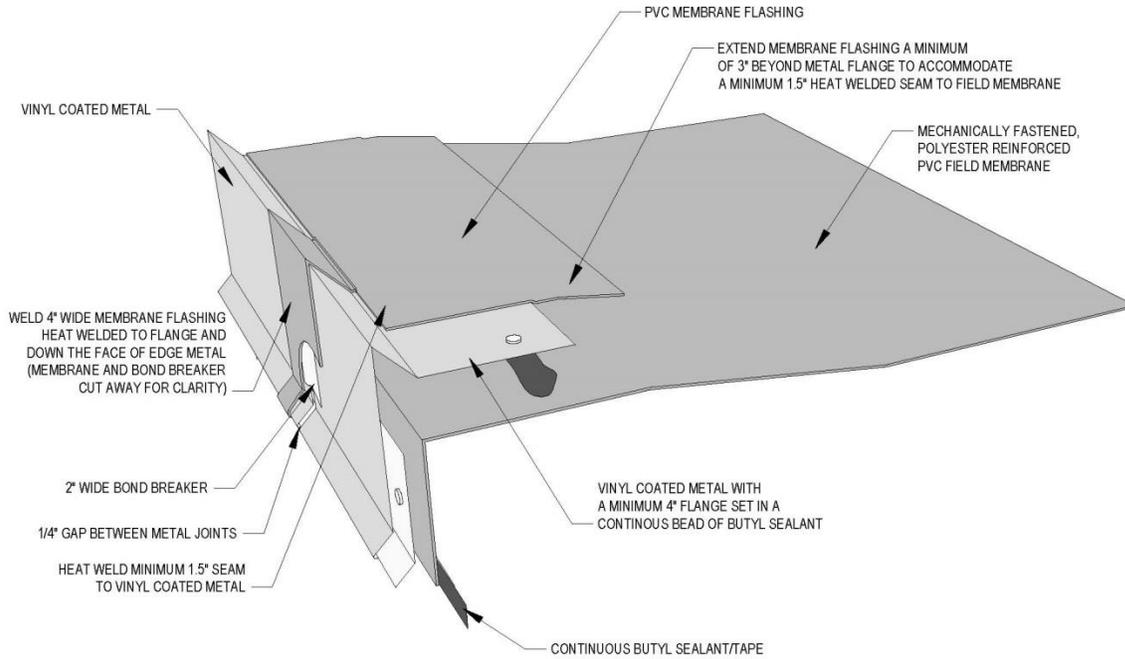


Figure 2.2i Mechanically Fastened PVC Field Membrane at Gravel Stop With Vinyl Coated Fascia

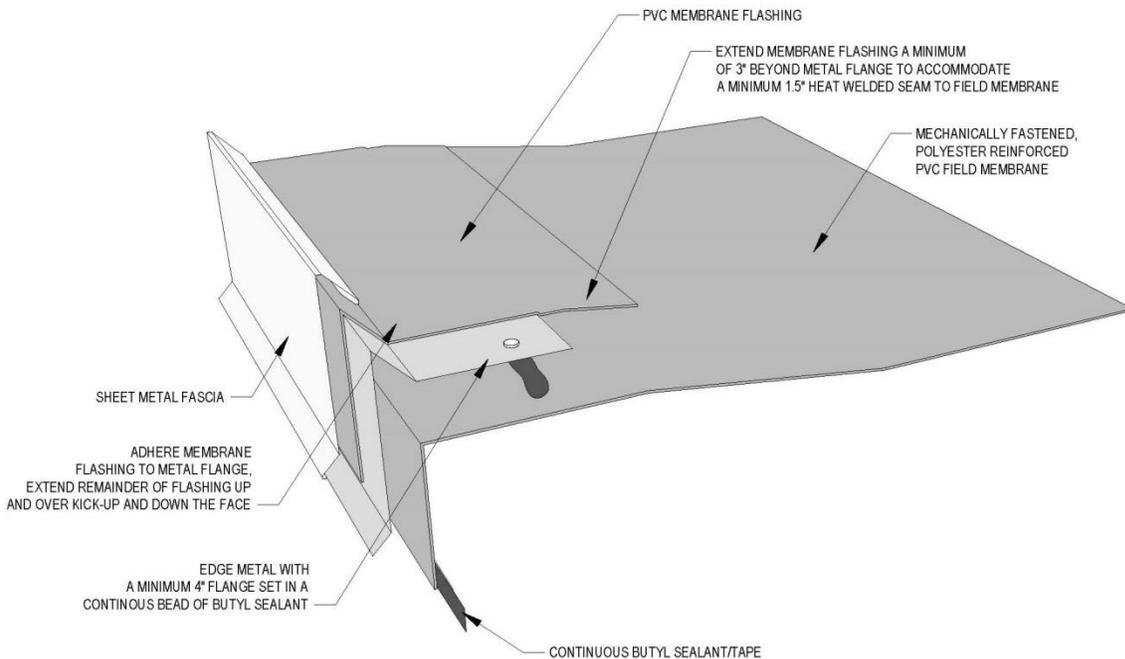


Figure 2.2j Mechanically Fastened PVC Field Membrane at Gravel Stop With Sheet Metal Fascia

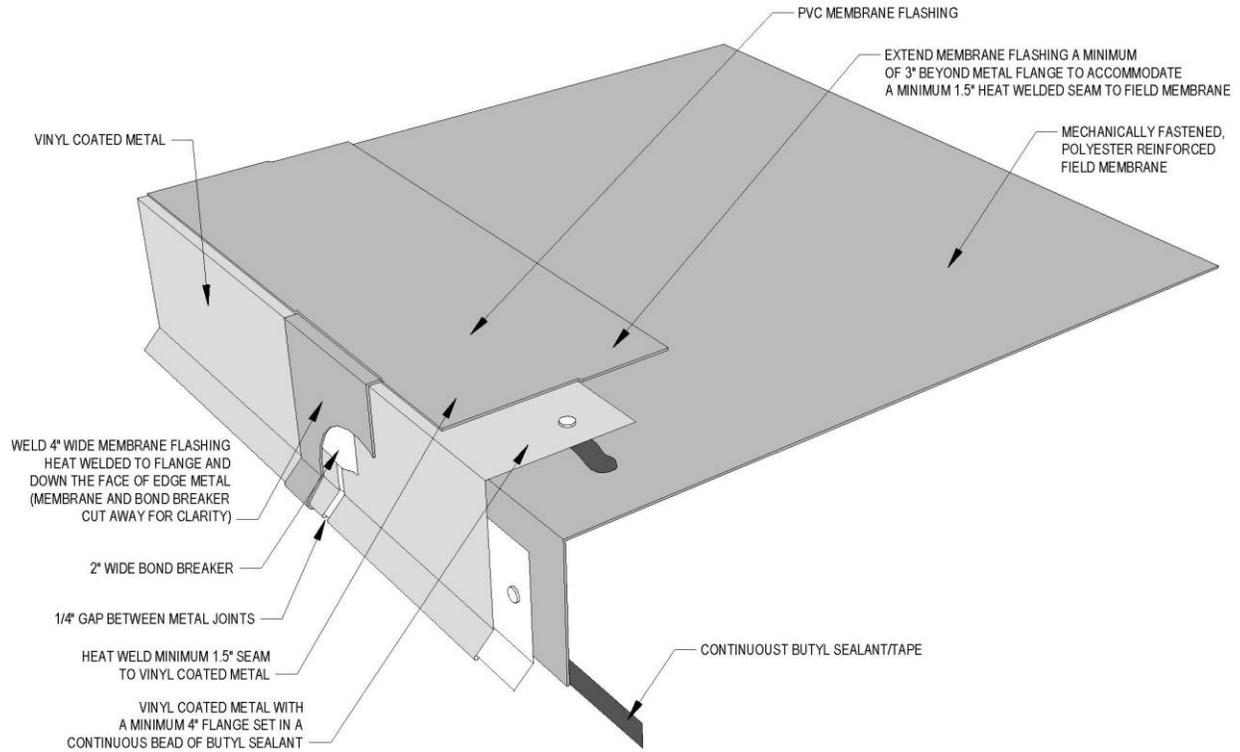


Figure 2.2k Mechanically Fastened PVC Field Membrane at Drip Edge

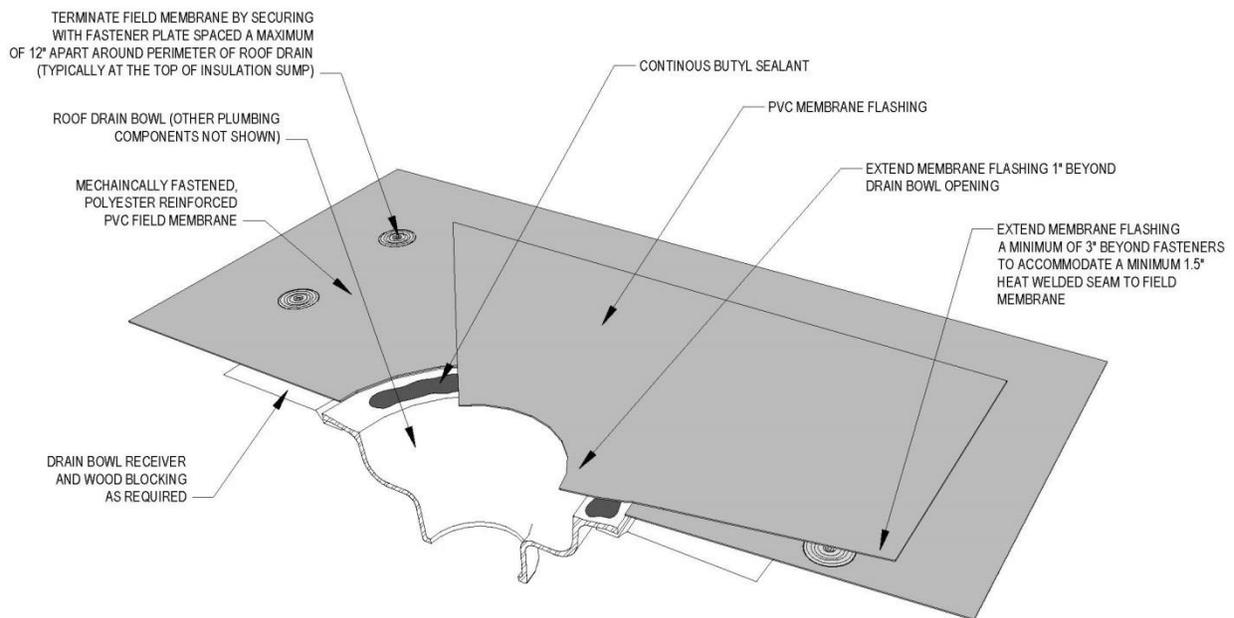


Figure 2.2l Mechanically Fastened PVC Field Membrane at Roof Drain

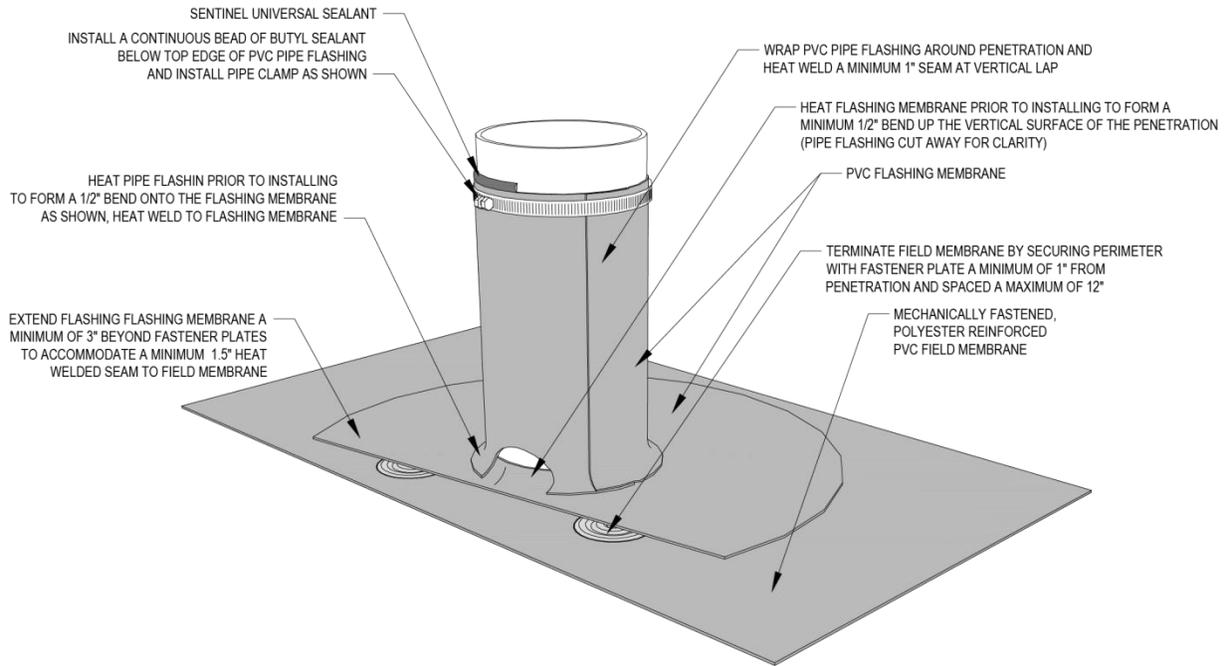


Figure 2.2m Mechanically Fastened PVC Field Membrane at Penetration With Field Fabricated Pipe Flashing

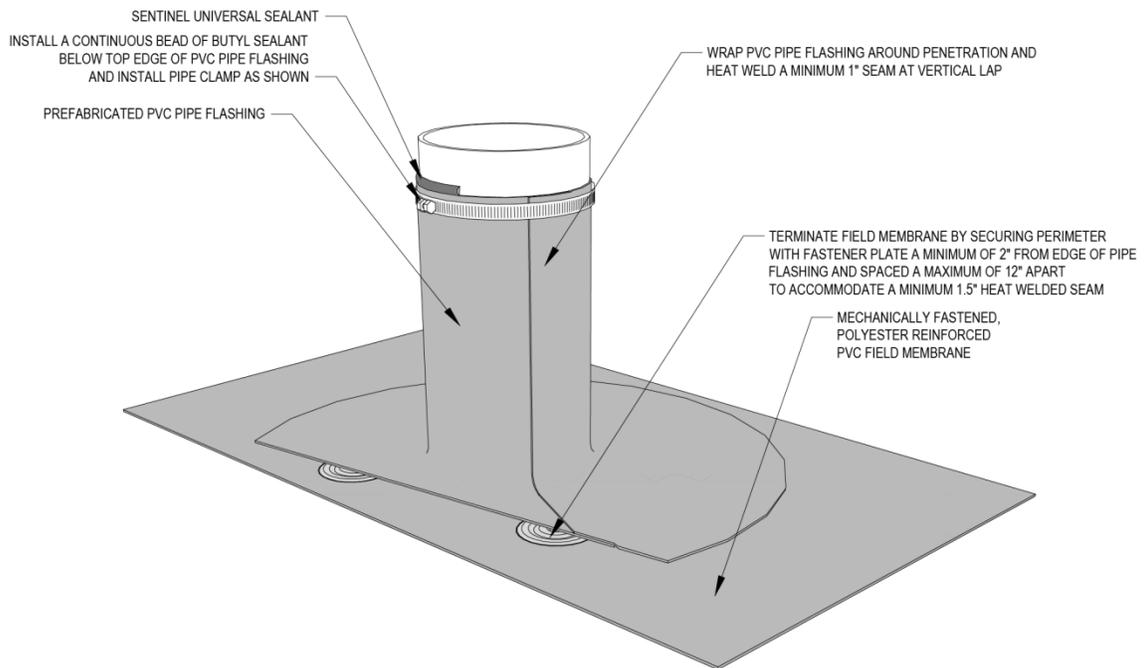


Figure 2.2n Mechanically Fastened PVC Field Membrane at Penetration With Prefabricated Pipe Flashing

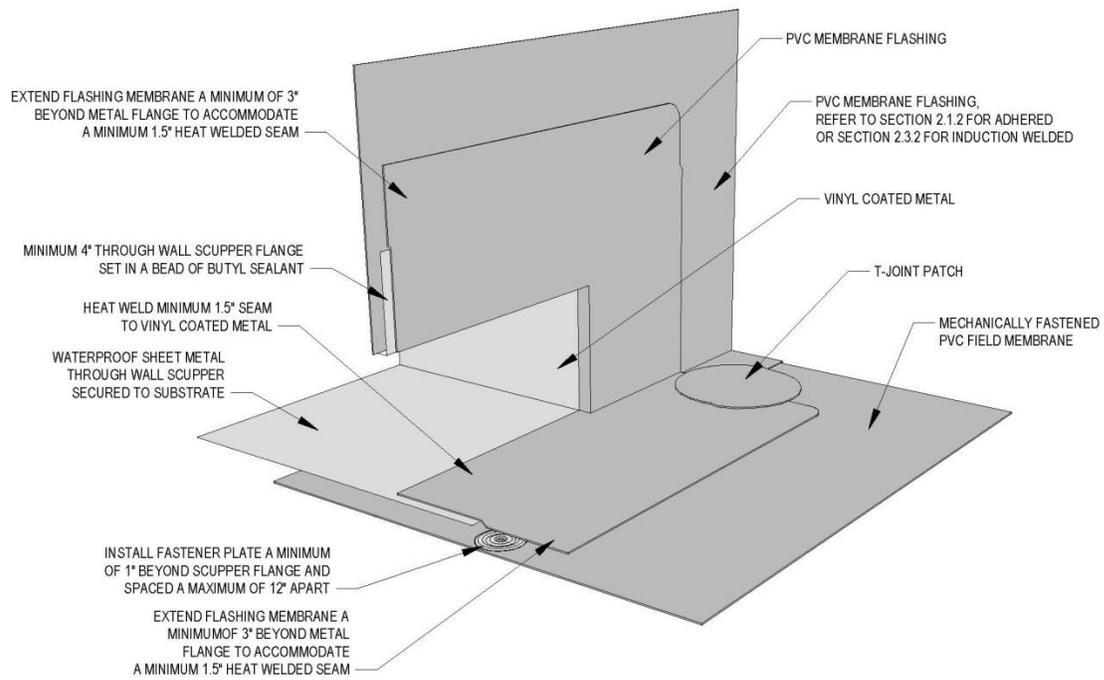


Figure 2.2o Mechanically Fastened PVC Field Membrane at Through Wall Scupper

2.3 INDUCTION WELDED PVC MEMBRANES

2.3.1 INDUCTION WELDED PVC FIELD MEMBRANES

General:

- SENTINEL® PVC field membranes may be induction welded to fastener stress plates for new roof and recover applications.
- Induction welded SENTINEL® PVC field membranes are polyester reinforced, 60 or 80 mils thick, and are bare on the underside. Refer to [Table 2.3.1a](#).
- The induction welding tool, fasteners and 3 in induction welding stress plates must be approved together for use with the specified SENTINEL® PVC membrane. Refer to [Table 2.3.1b](#).
- The fasteners and stress plates are secured to approved roof decks.
- The SENTINEL® PVC field membrane is unrolled over the stress plates and induction welded to the stress plates.
- Refer to the fastener manufacturer's installation instructions and induction welding tool operating instructions.
- Refer to safety data sheets and product data sheets for additional information.

Preparation:

- Ensure the PVC membrane substrate surface has been properly prepared and is clean, dry and free of incompatible materials and debris.
- Examine all roof decks, wall substrates, nailers and other conditions at membrane terminations, transitions and penetrations.
- Ensure the roof deck and all other substrate conditions are acceptable to install the appropriate fasteners.
- Unroll the PVC membrane and allow it to relax.
- Roof recover:
 - Ensure existing roofing systems have been thoroughly evaluated and are determined to be structurally sound, dry and meet all applicable requirements for induction welded recover systems.
 - Ensure existing substrates will accommodate the recover system to provide positive slope for adequate roof drainage.
 - Remove all existing incompatible materials or separate incompatible materials from direct contact with bare PVC. Refer to [Section 1.1](#) or contact [SOPREMA®](#) for additional information.
 - PVC induction welded above approved polystyrene requires an SFSintec 3.5 in diameter FI-Pad disc located between the polystyrene and the 3 in induction welding stress plates to prevent melting the polystyrene. Contact [SOPREMA®](#) for additional information or other approved separation layers.
 - Refer to insulation and cover board installation guidelines for compatible insulation and recover boards, and attachment requirements to existing roofing.
- Test induction welding equipment by welding a sample of PVC to stress plates to ensure settings are satisfactory. Allow the plate to cool, then attempt to pull the PVC from the plate. A satisfactory weld is achieved when the PVC consistently and uniformly delaminates from the reinforcing fabric, leaving residual PVC bonded to the plate.

Application:

- Install fasteners and stress plates as required for wind uplift requirements. Refer to [Figures 2.3.1a through 2.3.1m](#).
- During the same day, induction weld the PVC to all plates that have been installed to prevent condensation from forming on plates overnight.

- Avoid locating membrane side and end laps over the stress plates. Where multiple layers of membrane occur, refer to the induction welding tool operating instructions to adjust settings.
- Ensure the side and end laps are a minimum of 3 in to accommodate minimum 1-1/2 in welded lap seams. Refer to [Figure 4.1a](#).
- Clean side and end laps as necessary before welding seams. Refer to [Section 1.2](#).
- Remove all membrane wrinkles.
- Hot-air weld all laps. Refer to [Section 4.1](#).
- Ensure the induction welding plates and bottom surface of the PVC membrane are dry and free of condensation before beginning induction welding.
- Locate each stress plate beneath the PVC membrane. Center the induction welder over each plate and activate the induction welding tool. Do not move the induction welder during the induction welding cycle.
- Once the weld is complete, immediately place a specialized magnet directly over each plate. Allow the magnets to remain in place until the plates have cooled.
- Where induction welds are suspect, examine the membrane attachment using a suction plate or plunger.
- At the end of the sheet where it terminates at roof edges, walls and penetrations, fasten the perimeter of the membrane with appropriate fasteners and seam plates to the deck or vertical surface at the base of the upstand.

Inspection:

- Carefully probe all seams and t-joints using a rounded-tip probe such as a cotter pin puller. Prevent damage to the membrane during inspection.
- Repair all open seams and damage found during inspection.
- When seam weld quality is suspect, inspect laps using destructive examination methods.
 - Cut 2 in wide weld samples across the seam 6 in on either side of the weld (2 in x 12 in wide strip).
 - Cut a minimum of three (3) sample welds in each suspect area.
 - Peel the test strips apart at the welds.
 - A satisfactory weld is achieved when the PVC consistently and uniformly delaminates from the reinforcing fabric.
- Inspect the membrane each day to ensure the membrane is properly fastened to the substrate.
- Each day, repair all voids, wrinkles, open and damaged laps, and all other deficiencies before proceeding.
- Temporary night seals are required to seal membrane terminations watertight. Remove all temporary night seals before resuming the installation.
- Ensure the membrane is sealed watertight each day.

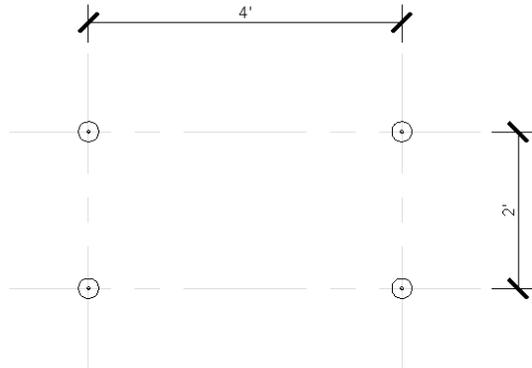
Table 2.3.1a Induction Welded PVC Field Membranes					
Membrane	Thickness	Reinforcement	Backing	Widths	Length
SENTINEL® P150	60 mils	Polyester	Bare	120 in, 60 in	100 ft
SENTINEL® P200	80 mils	Polyester	Bare	120 in, 60 in	65 ft

Table 2.3.1b Induction Welded PVC Field Membrane Fasteners

Name	Graphic	PVC Membrane	Substrate/Deck Type
<p>SOPRIFIX® #12 DP FASTENER with SENTINEL® isoweld Plate</p>		<p>SENTINEL® P150, SENTINEL® P200</p>	<p>Steel, Wood</p>
<p>SOPRIFIX® #14 MP FASTENER with SENTINEL® isoweld Plate</p>		<p>SENTINEL® P150, SENTINEL® P200</p>	<p>Steel, Wood, Concrete</p>
<p>SOPRIFIX® #15 HD FASTENER with SENTINEL® isoweld Plate</p>		<p>SENTINEL® P150, SENTINEL® P200</p>	<p>Steel, Wood</p>

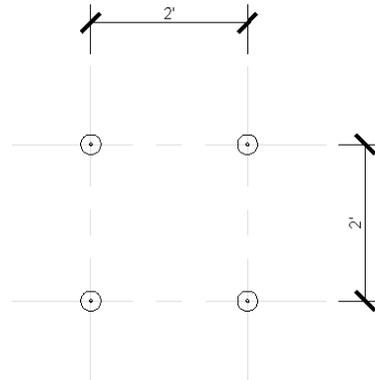
ZONE 1

- APPROXIMATELY 13 FASTENERS PER SQUARE
- ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS
- ENSURE BOARD JOINTS REMAIN FLUSH
- PRESECURE BOARDS WHERE GRID FASTENERS ARE LOCATED GREATER THAN 12" FROM BOARD JOINTS



ZONE 2

- 24" X 24" GRID PATTERN
- APPROXIMATELY 25 FASTENERS PER SQUARE
- ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS
- ENSURE BOARD JOINTS REMAIN FLUSH
- PRESECURE BOARDS WHERE GRID FASTENERS ARE LOCATED GREATER THAN 12" FROM BOARD JOINTS



ZONE 3

- 18" X 24" GRID PATTERN
- APPROXIMATELY 34 FASTENERS PER SQUARE
- ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS
- ENSURE BOARD JOINTS REMAIN FLUSH
- PRESECURE BOARDS WHERE GRID FASTENERS ARE LOCATED GREATER THAN 12" FROM BOARD JOINTS

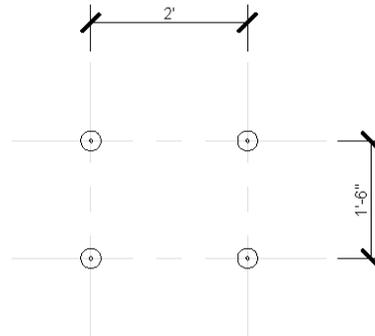
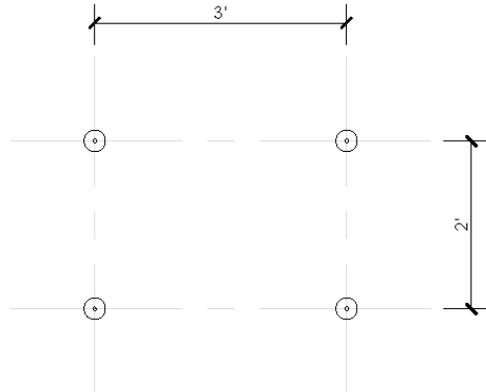


Figure 2.3.1a Induction Welded PVC Field Membrane with 24 in x 48 in Grid Fastening Pattern

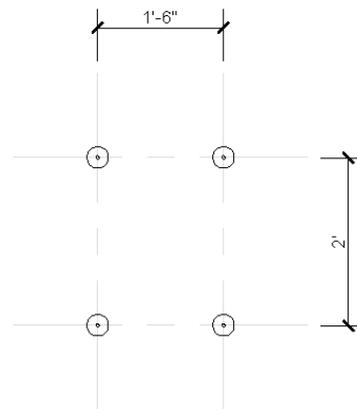
ZONE 1

- APPROXIMATELY 17 FASTENERS PER SQUARE
- ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS
- ENSURE BOARD JOINTS REMAIN FLUSH
- PRESECURE BOARDS WHERE GRID FASTENERS ARE LOCATED GREATER THAN 12" FROM BOARD JOINTS



ZONE 2

- 24" X 18" GRID PATTERN
- APPROXIMATELY 34 FASTENERS PER SQUARE
- ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS
- ENSURE BOARD JOINTS REMAIN FLUSH
- PRESECURE BOARDS WHERE GRID FASTENERS ARE LOCATED GREATER THAN 12" FROM BOARD JOINTS



ZONE 3

- 18" X 18" GRID PATTERN
- APPROXIMATELY 45 FASTENERS PER SQUARE
- ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS
- ENSURE BOARD JOINTS REMAIN FLUSH
- PRESECURE BOARDS WHERE GRID FASTENERS ARE LOCATED GREATER THAN 12" FROM BOARD JOINTS

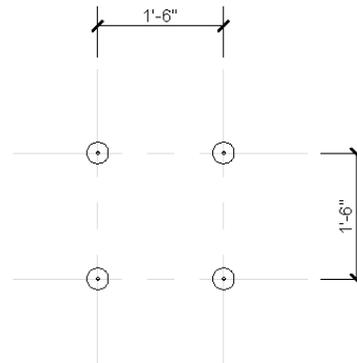
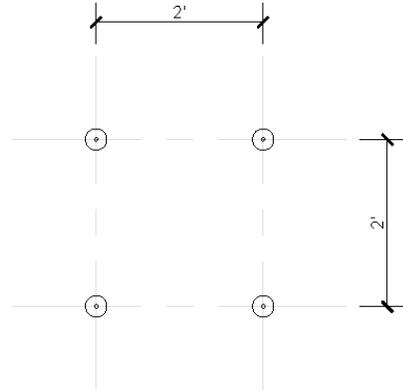


Figure 2.3.1b Induction Welded PVC Field Membrane with 24 in x 36 in Grid Fastening Pattern

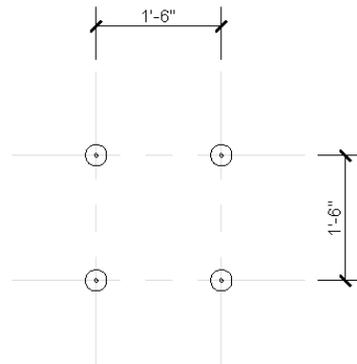
ZONE 1

- APPROXIMATELY 25 FASTENERS PER SQUARE
- ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS
- ENSURE BOARD JOINTS REMAIN FLUSH
- PRESECURE BOARDS WHERE GRID FASTENERS ARE LOCATED GREATER THAN 12" FROM BOARD JOINTS



ZONE 2

- 18" X 18" GRID PATTERN
- APPROXIMATELY 45 FASTENERS PER SQUARE
- ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS
- ENSURE BOARD JOINTS REMAIN FLUSH
- PRESECURE BOARDS WHERE GRID FASTENERS ARE LOCATED GREATER THAN 12" FROM BOARD JOINTS



ZONE 3

- 18" X 12" GRID PATTERN
- APPROXIMATELY 67 FASTENERS PER SQUARE
- ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS
- ENSURE BOARD JOINTS REMAIN FLUSH
- PRESECURE BOARDS WHERE GRID FASTENERS ARE LOCATED GREATER THAN 12" FROM BOARD JOINTS

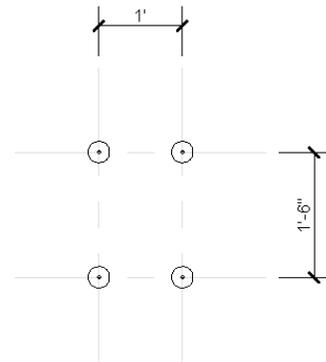
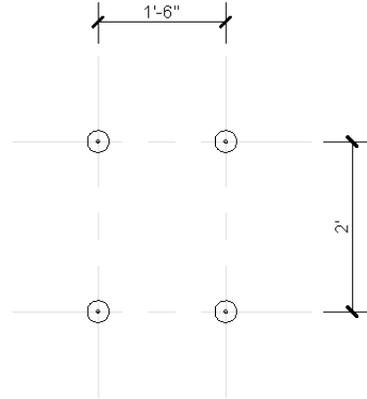


Figure 2.3.1c Induction Welded PVC Field Membrane with 24 in x 24 in Grid Fastening Pattern

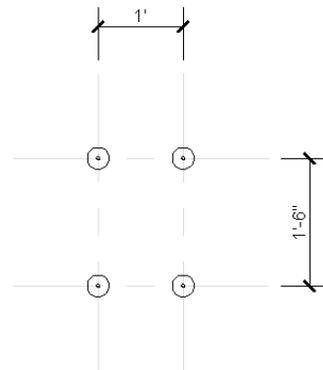
ZONE 1

- APPROXIMATELY 34 FASTENERS PER SQUARE
- ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS
- ENSURE BOARD JOINTS REMAIN FLUSH
- PRESECURE BOARDS WHERE GRID FASTENERS ARE LOCATED GREATER THAN 12" FROM BOARD JOINTS



ZONE 2

- 18" X 12" GRID PATTERN
- APPROXIMATELY 67 FASTENERS PER SQUARE
- ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS
- ENSURE BOARD JOINTS REMAIN FLUSH
- PRESECURE BOARDS WHERE GRID FASTENERS ARE LOCATED GREATER THAN 12" FROM BOARD JOINTS



ZONE 3

- 12" X 12" GRID PATTERN
- APPROXIMATELY 100 FASTENERS PER SQUARE
- ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS
- ENSURE BOARD JOINTS REMAIN FLUSH
- PRESECURE BOARDS WHERE GRID FASTENERS ARE LOCATED GREATER THAN 12" FROM BOARD JOINTS

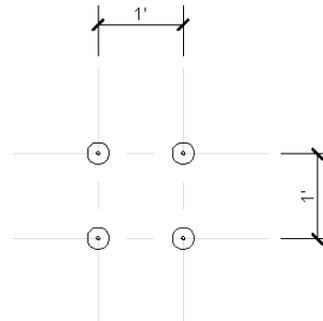
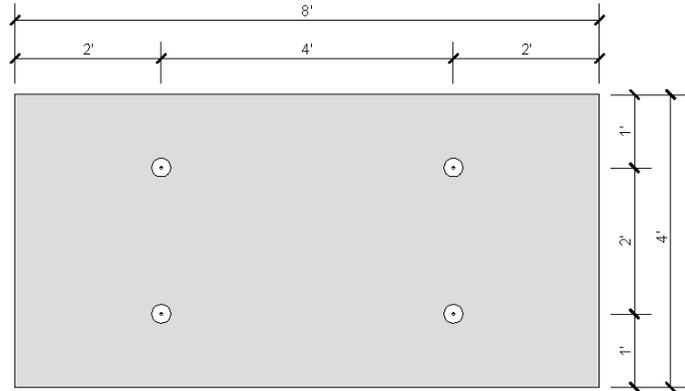
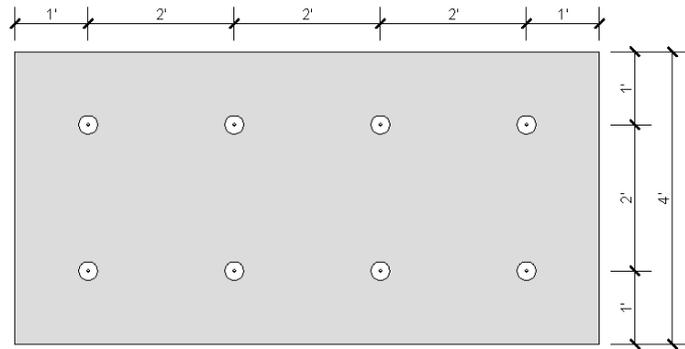


Figure 2.3.1d Induction Welded PVC Field Membrane with 24 in x 18 in Grid Fastening Pattern

- ZONE 1**
- APPROXIMATELY 13 FASTENERS PER SQUARE
 - ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS



- ZONE 2**
- EIGHT (8) FASTENERS PER BOARD
 - APPROXIMATELY 25 FASTENERS PER SQUARE
 - ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS



- ZONE 3**
- TWELVE (12) FASTENERS PER BOARD
 - APPROXIMATELY 38 FASTENERS PER SQUARE
 - ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS

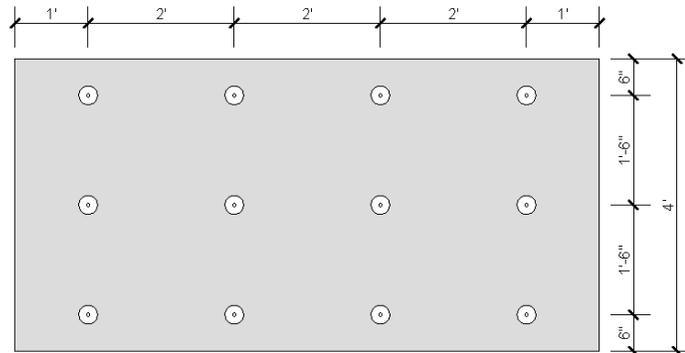
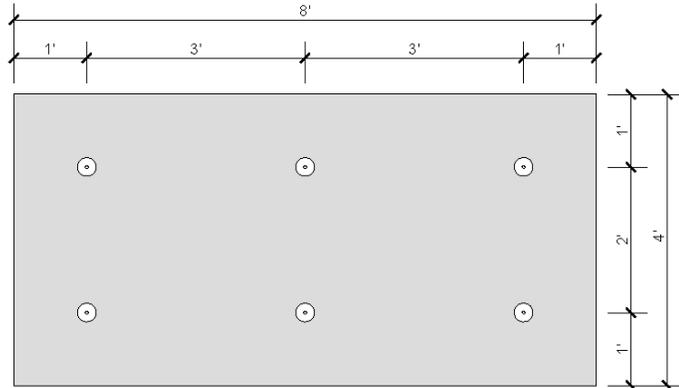
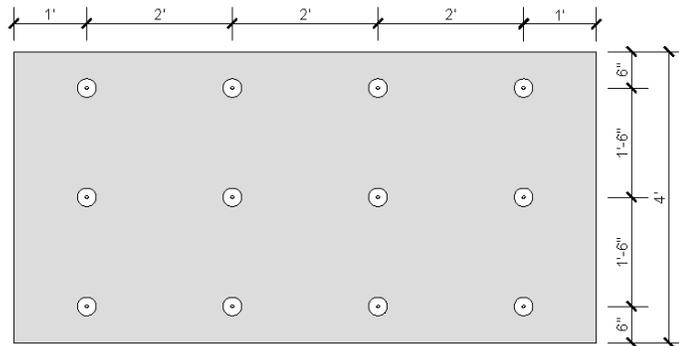


Figure 2.3.1e Induction Welded PVC Field Membrane with 4 Fasteners Per 4 x 8 Board

- ZONE 1**
- APPROXIMATELY 19 FASTENERS PER SQUARE
 - ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS



- ZONE 2**
- TWELVE (12) FASTENERS PER BOARD
 - APPROXIMATELY 38 FASTENERS PER SQUARE
 - ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS



- ZONE 3**
- SIXTEEN (16) FASTENERS PER BOARD
 - APPROXIMATELY 50 FASTENERS PER SQUARE
 - ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS

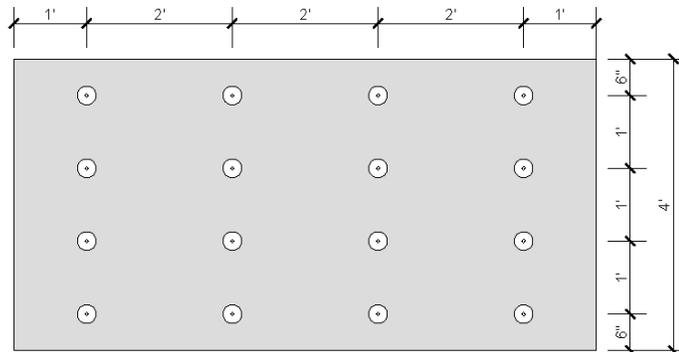
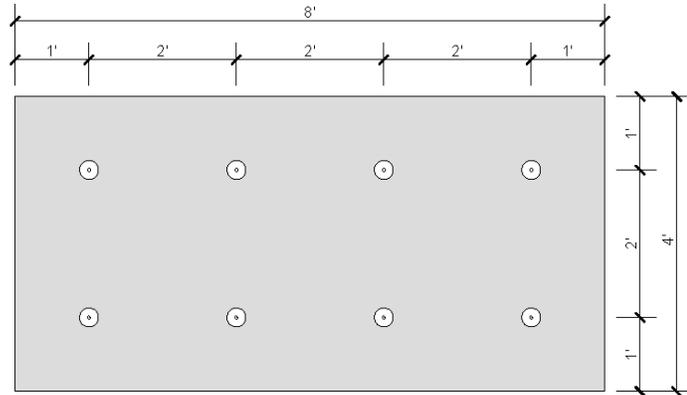
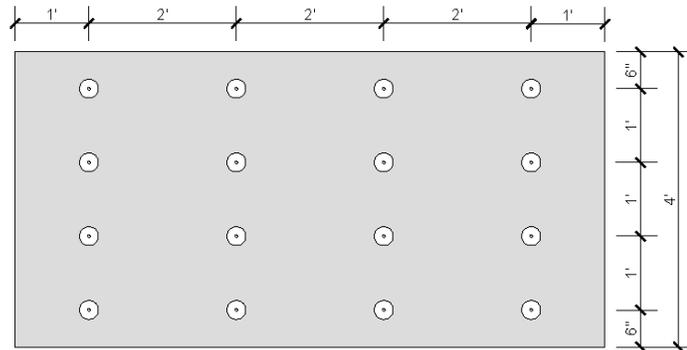


Figure 2.3.1f Induction Welded PVC Field Membrane with 6 Fasteners Per 4 x 8 Board

- ZONE 1**
- APPROXIMATELY 25 FASTENERS PER SQUARE
 - ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS



- ZONE 2**
- SIXTEEN (16) FASTENERS PER BOARD
 - APPROXIMATELY 50 FASTENERS PER SQUARE
 - ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS



- ZONE 3**
- TWENTY-FOUR (24) FASTENERS PER BOARD
 - APPROXIMATELY 75 FASTENERS PER SQUARE.
 - ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS

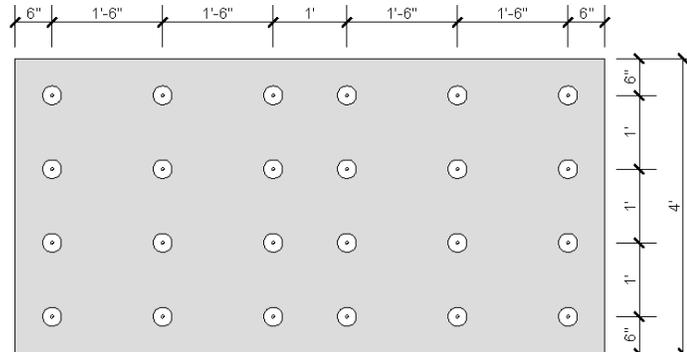
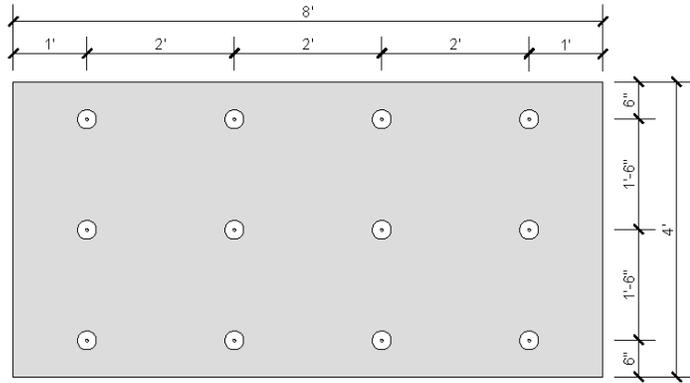
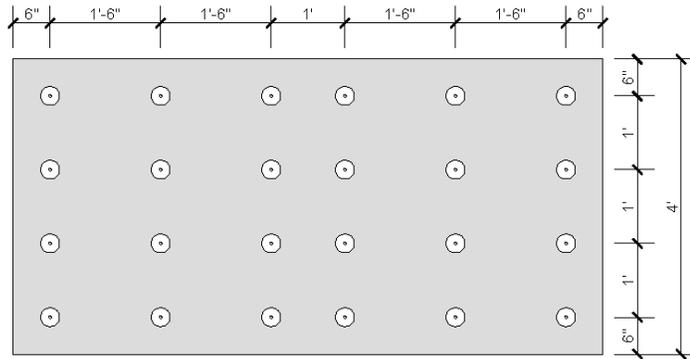


Figure 2.3.1g Induction Welded PVC Field Membrane with 8 Fasteners Per 4 x 8 Board

- ZONE 1**
- APPROXIMATELY 38 FASTENERS PER SQUARE
 - ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS



- ZONE 2**
- TWENTY-FOUR (24) FASTENERS PER BOARD
 - APPROXIMATELY 75 FASTENERS PER SQUARE
 - ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS



- ZONE 3**
- THIRTY-TWO (32) FASTENERS PER BOARD
 - APPROXIMATELY 100 FASTENERS PER SQUARE.
 - ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS

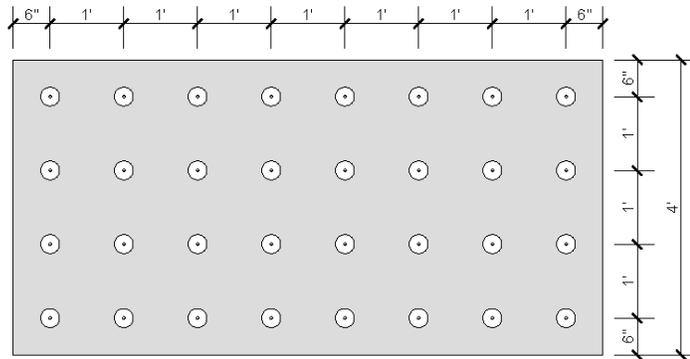
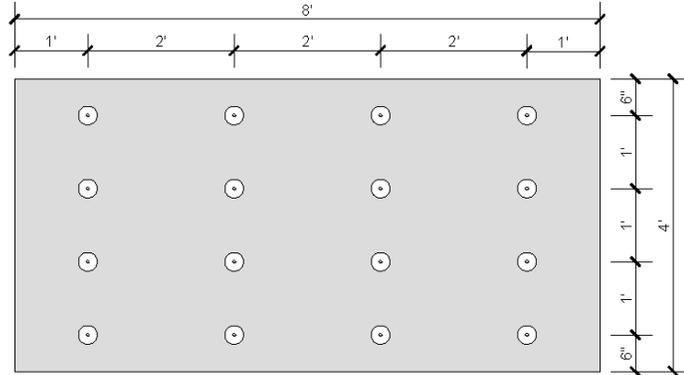
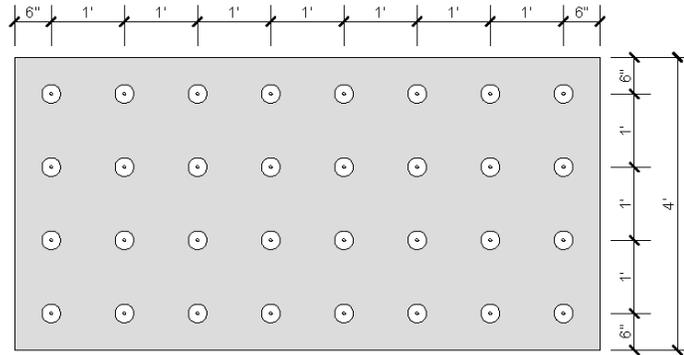


Figure 2.3.1h Induction Welded PVC Field Membrane with 12 Fasteners Per 4 x 8 Board

- ZONE 1**
- APPROXIMATELY 50 FASTENERS PER SQUARE
 - ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS



- ZONE 2**
- THIRTY-TWO (32) FASTENERS PER BOARD
 - APPROXIMATELY 100 FASTENERS PER SQUARE
 - ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS



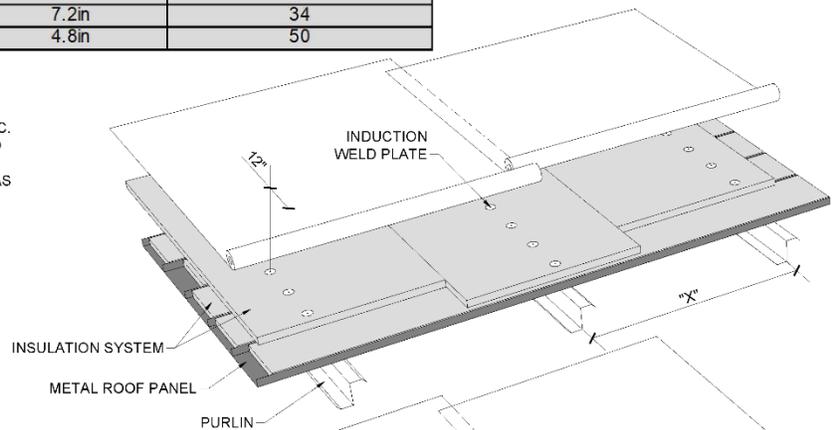
- ZONE 3**
- PRESCRIPTIVE ENHANCEMENT WILL REQUIRE MORE THAN 32 FASTENERS PER BOARD
 - ALTERNATE ATTACHMENT METHODS SHOULD BE CONSIDERED FOR CORNER ENHANCEMENTS
 - CONTACT SOPREMA TECHNICAL SUPPORT FOR ADDITIONAL INFORMATION.

Figure 2.3.1i Induction Welded PVC Field Membrane with 16 Fasteners Per 4 x 8 Board

Purlin Spacing (X)	Zone	Fastener Spacing	Fasteners Per Square
60in	1	12in	20
	2	7.2in	34
	3	4.8in	50

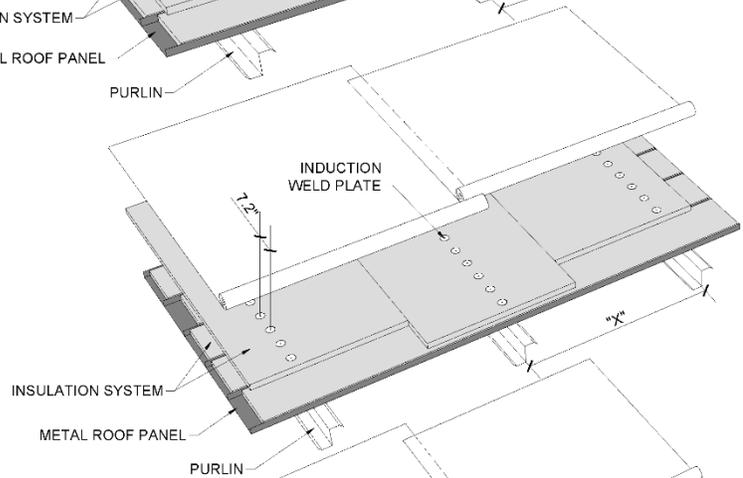
ZONE 1

- ONE (1) ROW FASTENED TO PURLIN AT 12" O.C.
- ENSURE INSULATION SYSTEM CONFORMS TO SUBSTRATE
- PRELIMINARY FASTEN INSULATION SYSTEM AS REQUIRED (NOT SHOWN FOR CLARITY)



ZONE 2

- ONE (1) ROW FASTENED TO PURLIN AT A MAXIMUM SPACING OF 7.2" O.C.
- ENSURE INSULATION SYSTEM CONFORMS TO SUBSTRATE
- PRELIMINARY FASTEN INSULATION SYSTEM AS REQUIRED (NOT SHOWN FOR CLARITY)
- IF THERE ARE ADDITIONAL PURLINS AT THE ROOF PERIMETER, ENHANCEMENTS MAY BE ACHIEVED BY ADDING ADDITIONAL ROWS OF FASTENERS. CONTACT SOPREMA TECHNICAL SUPPORT FOR ADDITIONAL INFORMATION.



ZONE 3

- ONE (1) ROW FASTENED TO PURLIN AT A MAXIMUM SPACING OF 4.8" O.C.
- ENSURE INSULATION SYSTEM CONFORMS TO SUBSTRATE
- PRELIMINARY FASTEN INSULATION SYSTEM AS REQUIRED (NOT SHOWN FOR CLARITY)
- IF THERE ARE ADDITIONAL PURLINS AT THE ROOF CORNER, ENHANCEMENTS MAY BE ACHIEVED BY ADDING ADDITIONAL ROWS OF FASTENERS. CONTACT SOPREMA TECHNICAL SUPPORT FOR ADDITIONAL INFORMATION.

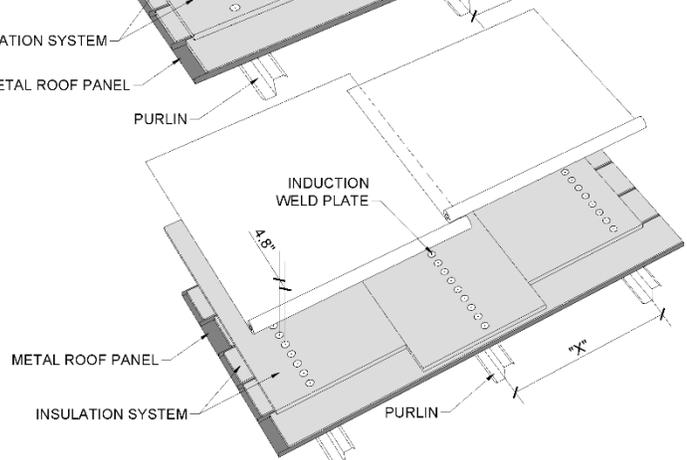
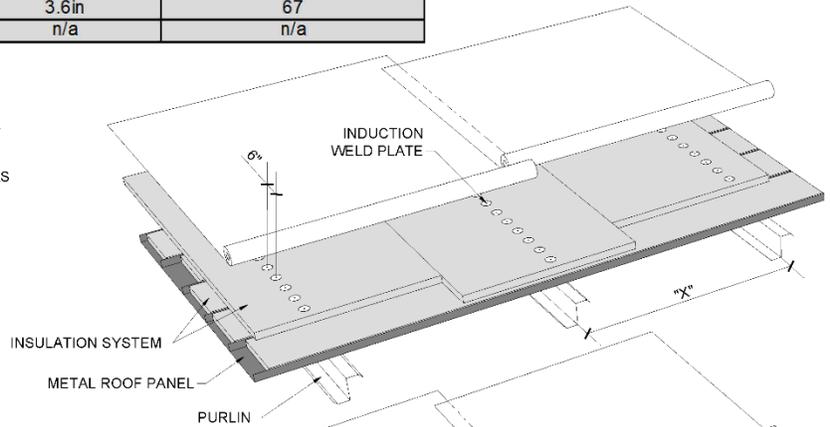


Figure 2.3.1j Induction Welded PVC Field Membrane with Fasteners Into Purlins At 12 in O.C.

Purlin Spacing (X)	Zone	Fastener Spacing	Fasteners Per Square
60in	1	6in	40
	2	3.6in	67
	3	n/a	n/a

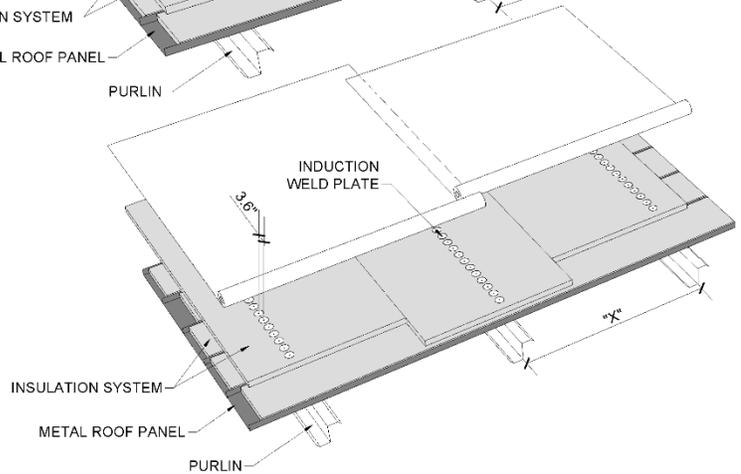
ZONE 1

- ONE (1) ROW FASTENED TO PURLIN AT 6" O.C.
- ENSURE INSULATION SYSTEM CONFORMS TO SUBSTRATE
- PRELIMINARY FASTEN INSULATION SYSTEM AS REQUIRED (NOT SHOWN FOR CLARITY)



ZONE 2

- ONE (1) ROW FASTENED TO PURLIN AT A MAXIMUM SPACING OF 3.6" O.C.
- ENSURE INSULATION SYSTEM CONFORMS TO SUBSTRATE
- PRELIMINARY FASTEN INSULATION SYSTEM AS REQUIRED (NOT SHOWN FOR CLARITY)
- IF THERE ARE ADDITIONAL PURLINS AT THE ROOF PERIMETER, ENHANCEMENTS MAY BE ACHIEVED BY ADDING ADDITIONAL ROWS OF FASTENERS. CONTACT SOPREMA TECHNICAL SUPPORT FOR ADDITIONAL INFORMATION.



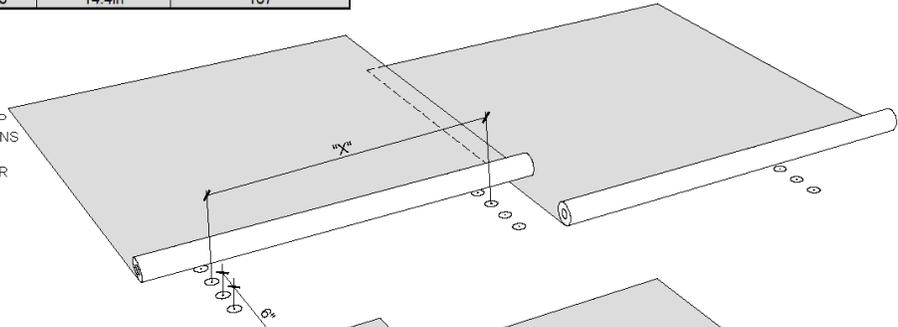
ZONE 3

- PRESCRIPTIVE ENHANCEMENT WILL REQUIRE FASTENERS SPACED LESS THAN 3" O.C.
- ALTERNATE ATTACHMENT METHODS SHOULD BE CONSIDERED FOR CORNER ENHANCEMENTS. CONTACT SOPREMA TECHNICAL SUPPORT FOR ADDITIONAL INFORMATION.
- IF THERE ARE ADDITIONAL PURLINS AT THE ROOF CORNER, ENHANCEMENTS MAY BE ACHIEVED BY ADDING ADDITIONAL ROWS OF FASTENERS. CONTACT SOPREMA TECHNICAL SUPPORT FOR ADDITIONAL INFORMATION.

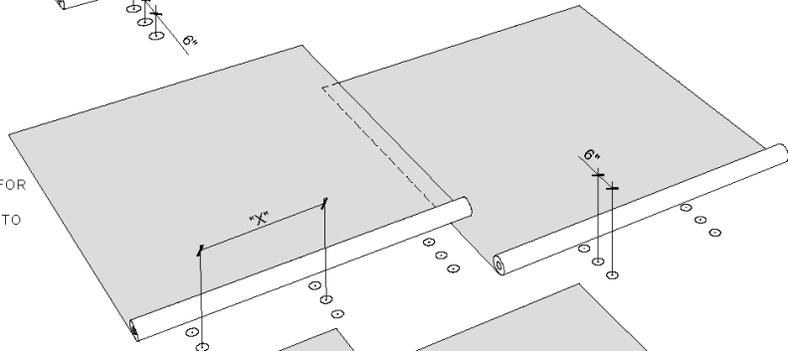
Figure 2.3.1k Induction Welded PVC Field Membrane with Fasteners Into Purlins At 6 in O.C.

Zone 1 Row Spacing	Fastener Spacing	Zone	Row Spacing (X)	Fasteners Per Square
72in	6in	1	72in	34
		2	43.2in	56
		3	28.8in	84
60in	6in	1	60in	40
		2	36in	67
		3	24in	100
48in	6in	1	48in	50
		2	28.8in	84
		3	19.2in	125
36in	6in	1	36in	67
		2	21.6in	112
		3	14.4in	167

- ZONE 1**
- ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS
 - ENSURE FASTENER ROWS ARE PERPENDICULAR TO DECK FLUTES FOR STEEL DECK APPLICATIONS



- ZONE 2**
- NOMINAL 60% OF FIELD ROW SPACING
 - ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS
 - ENSURE FASTENER ROWS ARE PERPENDICULAR TO DECK FLUTES FOR STEEL DECK APPLICATIONS



- ZONE 3**
- NOMINAL 40% OF FIELD ROW SPACING
 - ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS
 - ENSURE FASTENER ROWS ARE PERPENDICULAR TO DECK FLUTES FOR STEEL DECK APPLICATIONS

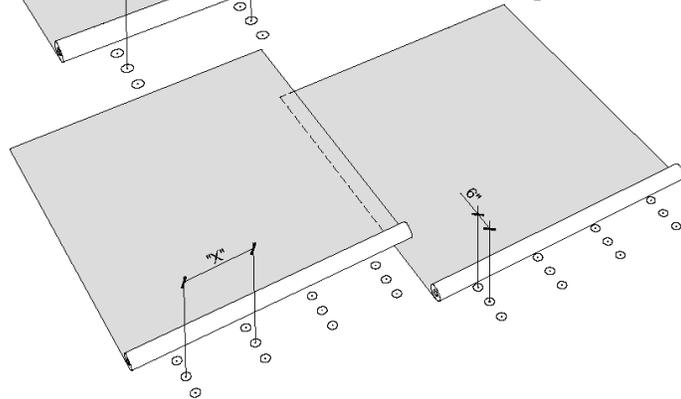
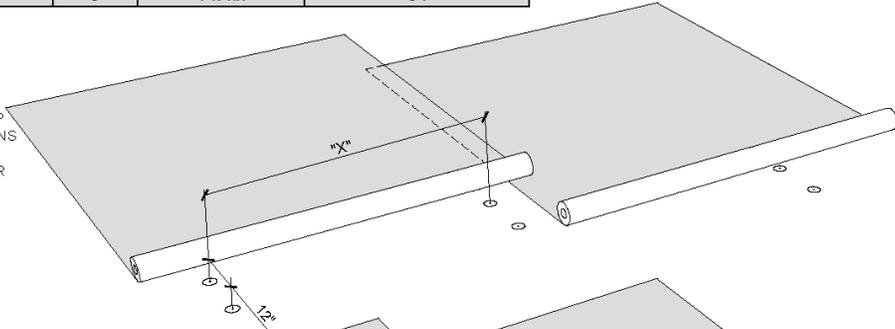


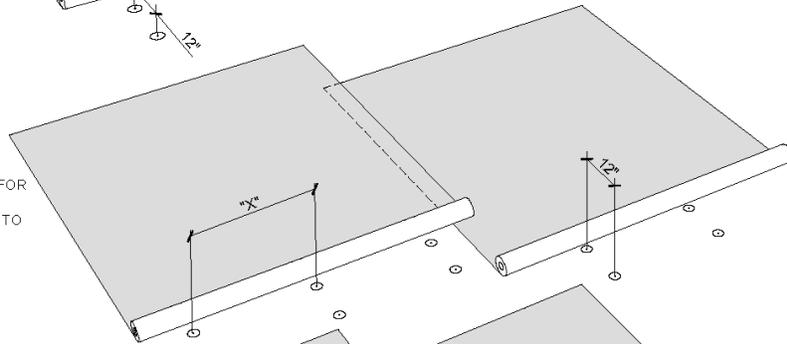
Figure 2.3.1 Induction Welded PVC Field Membrane with Row Fasteners At 6 in O.C.

Zone 1 Row Spacing	Fastener Spacing	Zone	Row Spacing (X)	Fasteners Per Square
60in	12in	1	60in	20
		2	36in	34
		3	24in	50
48in	12in	1	48in	25
		2	28.8in	42
		3	19.2in	63
36in	12in	1	36in	34
		2	21.6in	56
		3	14.4in	84

- ZONE 1**
- ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS
 - ENSURE FASTENER ROWS ARE PERPENDICULAR TO DECK FLUTES FOR STEEL DECK APPLICATIONS



- ZONE 2**
- NOMINAL 60% OF FIELD ROW SPACING
 - ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS
 - ENSURE FASTENER ROWS ARE PERPENDICULAR TO DECK FLUTES FOR STEEL DECK APPLICATIONS



- ZONE 3**
- NOMINAL 40% OF FIELD ROW SPACING
 - ENSURE FASTENER ENGAGES THE TOP FLANGE FOR STEEL DECK APPLICATIONS
 - ENSURE FASTENER ROWS ARE PERPENDICULAR TO DECK FLUTES FOR STEEL DECK APPLICATIONS

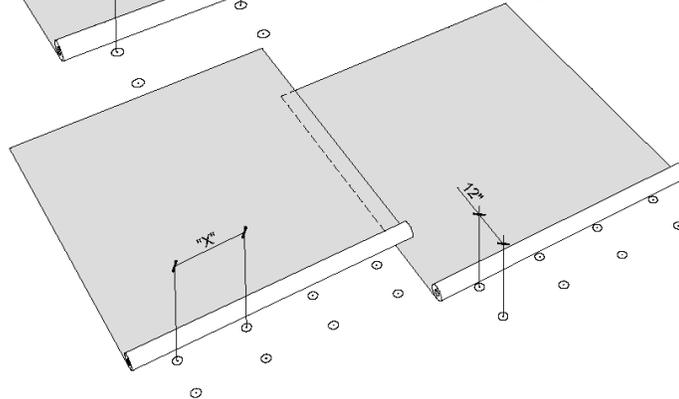


Figure 2.3.1m Induction Welded PVC Field Membrane with Row Fasteners At 12 in O.C.

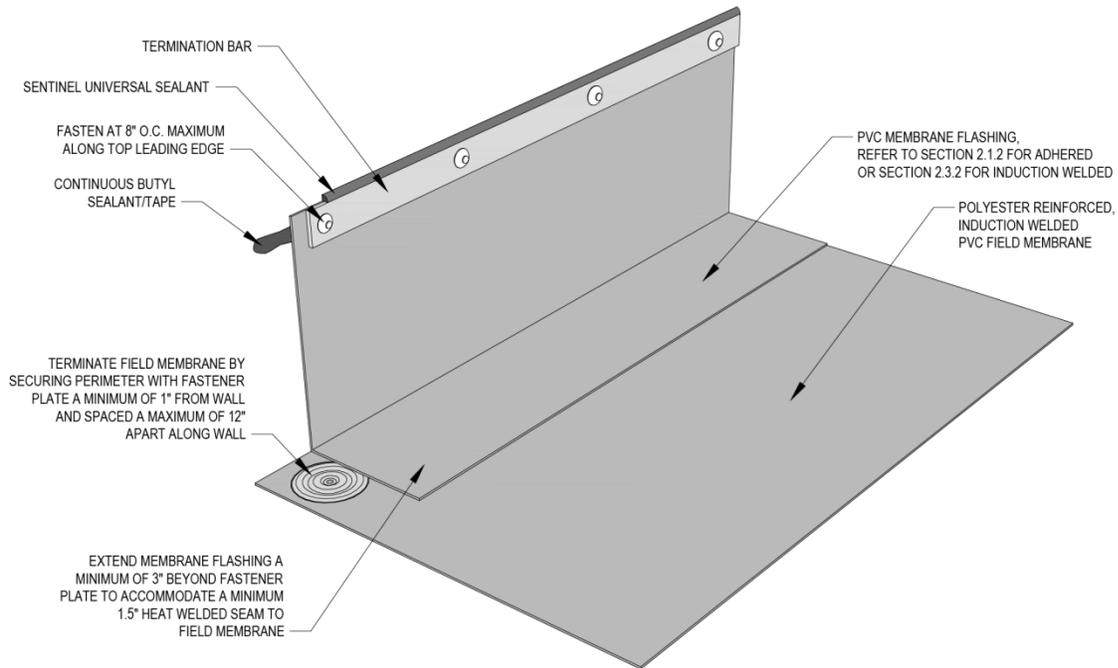


Figure 2.3.1n Induction Welded PVC Field Membrane at Wall/Curb With Horizontal Perimeter Fastening

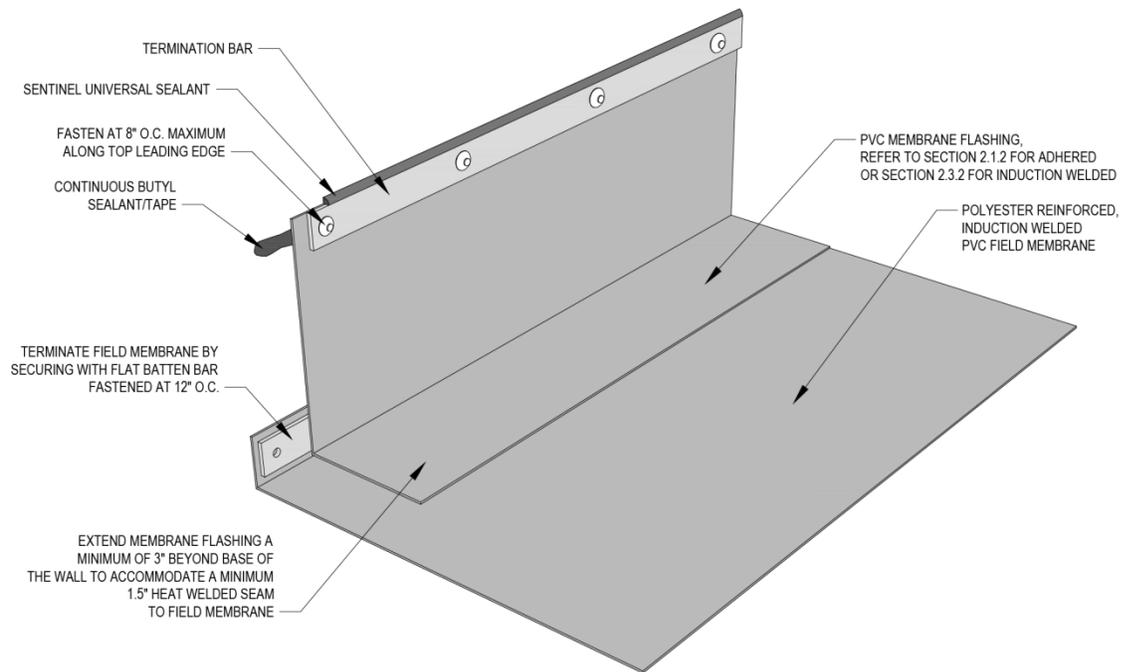


Figure 2.3.1o Induction Welded PVC Field Membrane at Wall/Curb With Vertical Perimeter Fastening

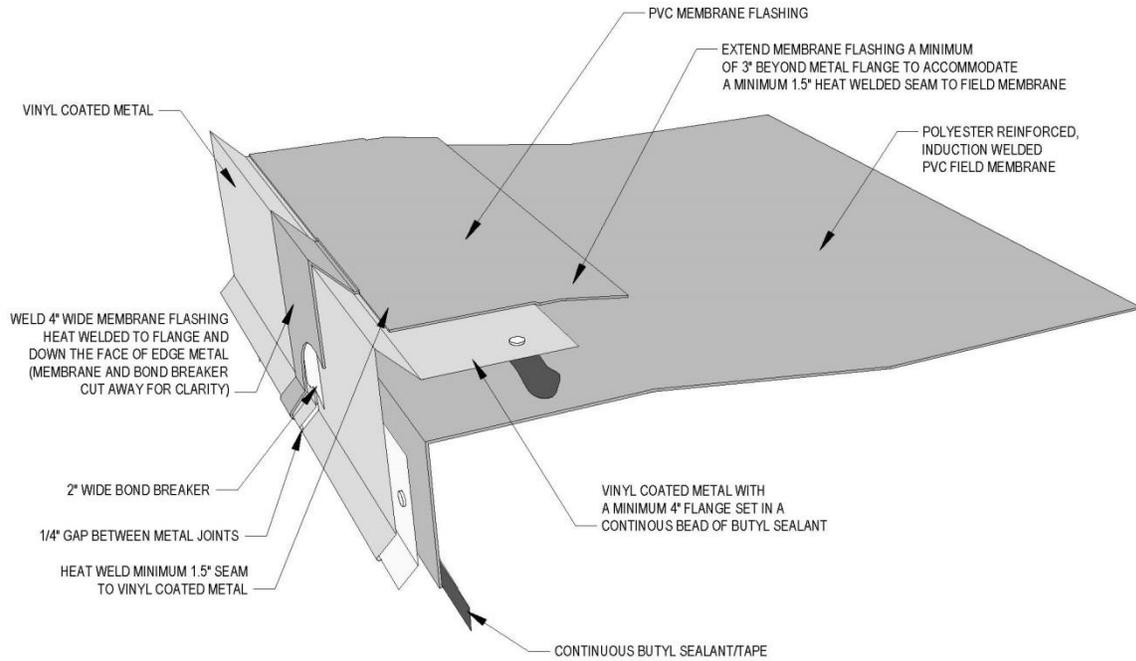


Figure 2.3.1p Induction Welded PVC Field Membrane at Gravel Stop Edge With Vinyl Coated Metal Fascia

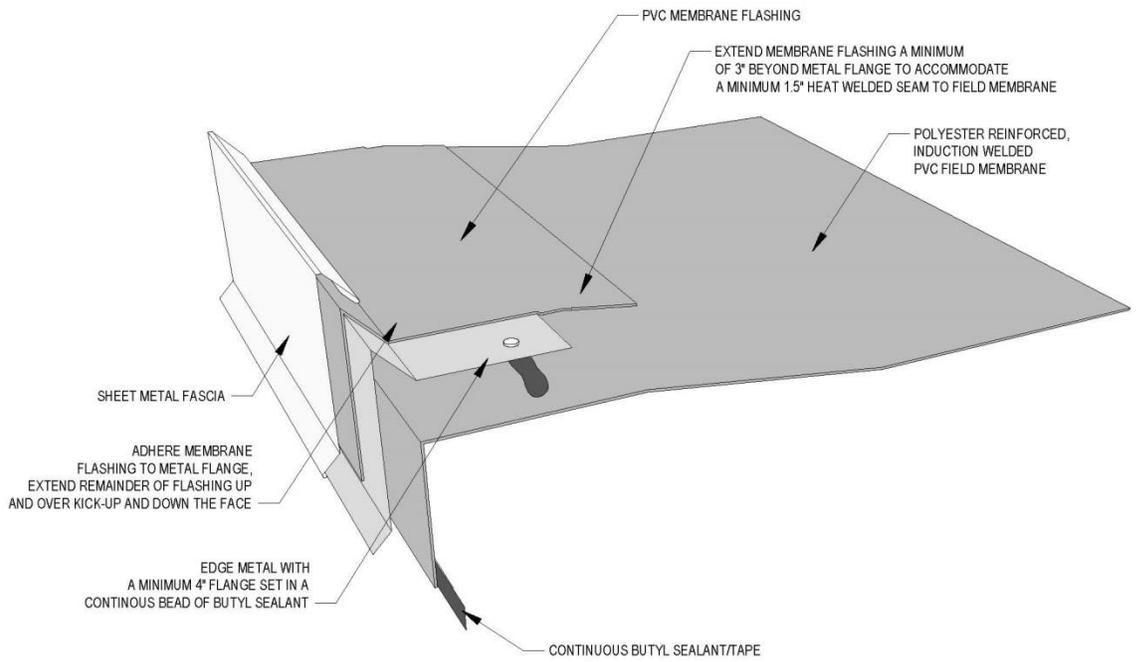


Figure 2.3.1q Induction Welded PVC Field Membrane at Gravel Stop Edge With Sheet Metal Fascia

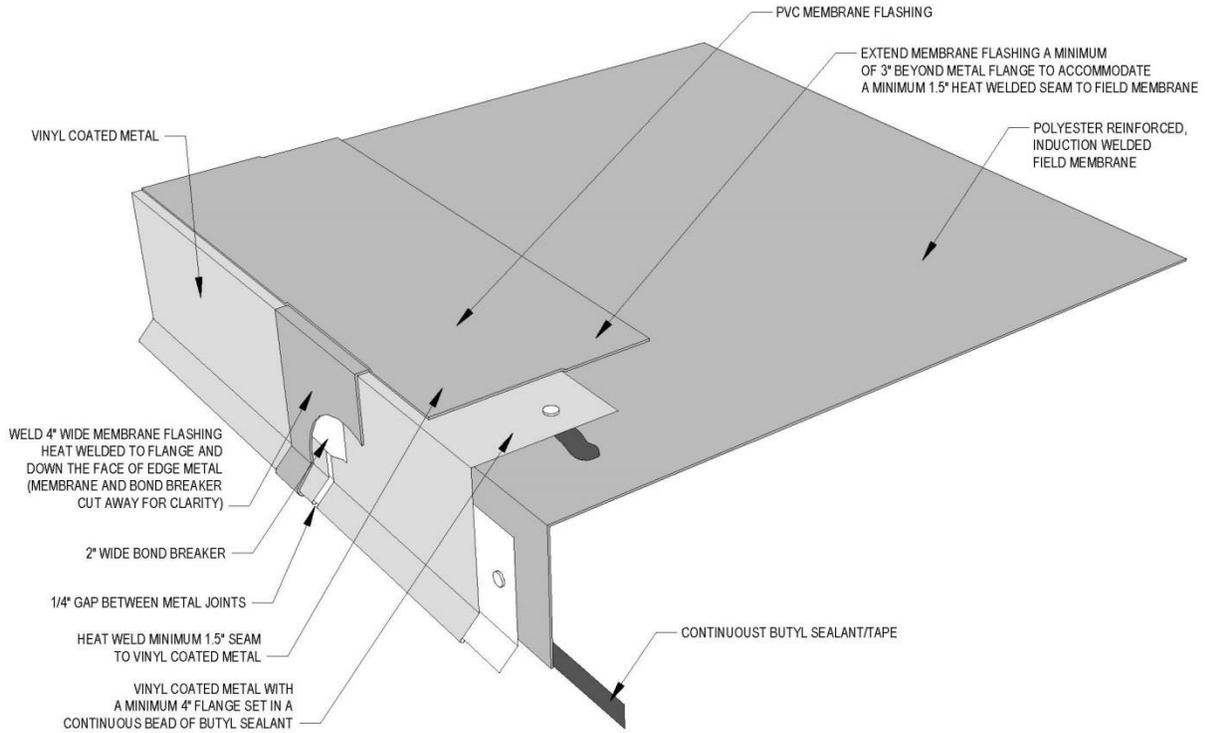


Figure 2.3.1r Induction Welded PVC Field Membrane at Drip Edge

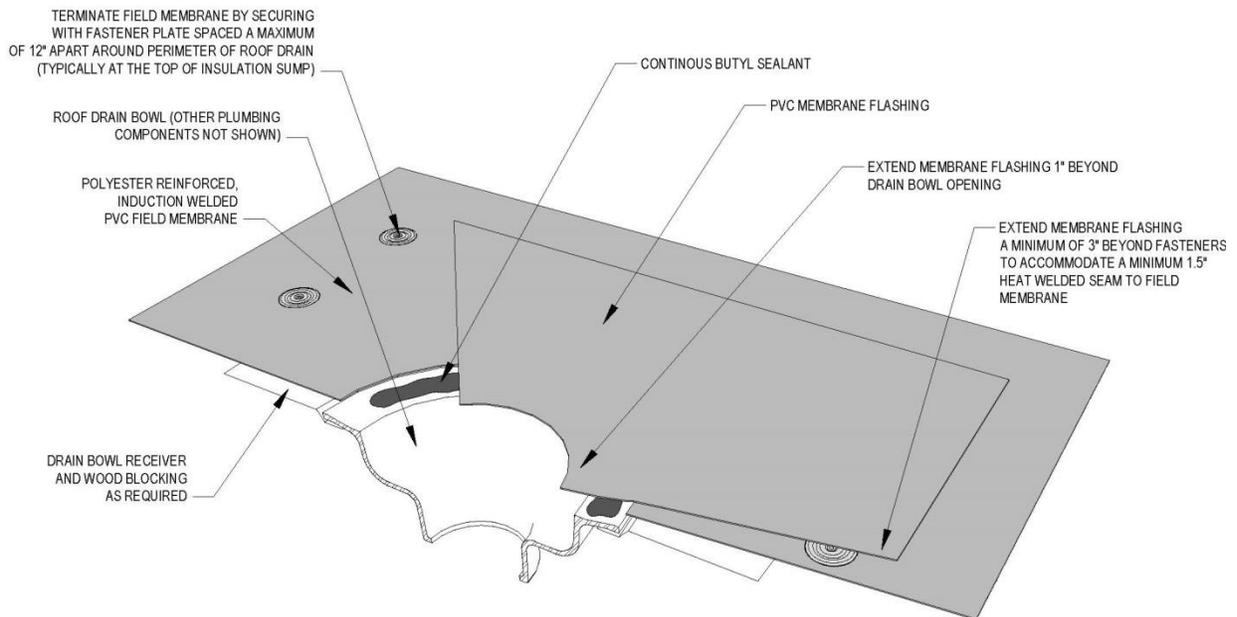


Figure 2.3.1s Induction Welded PVC Field Membrane at Roof Drain

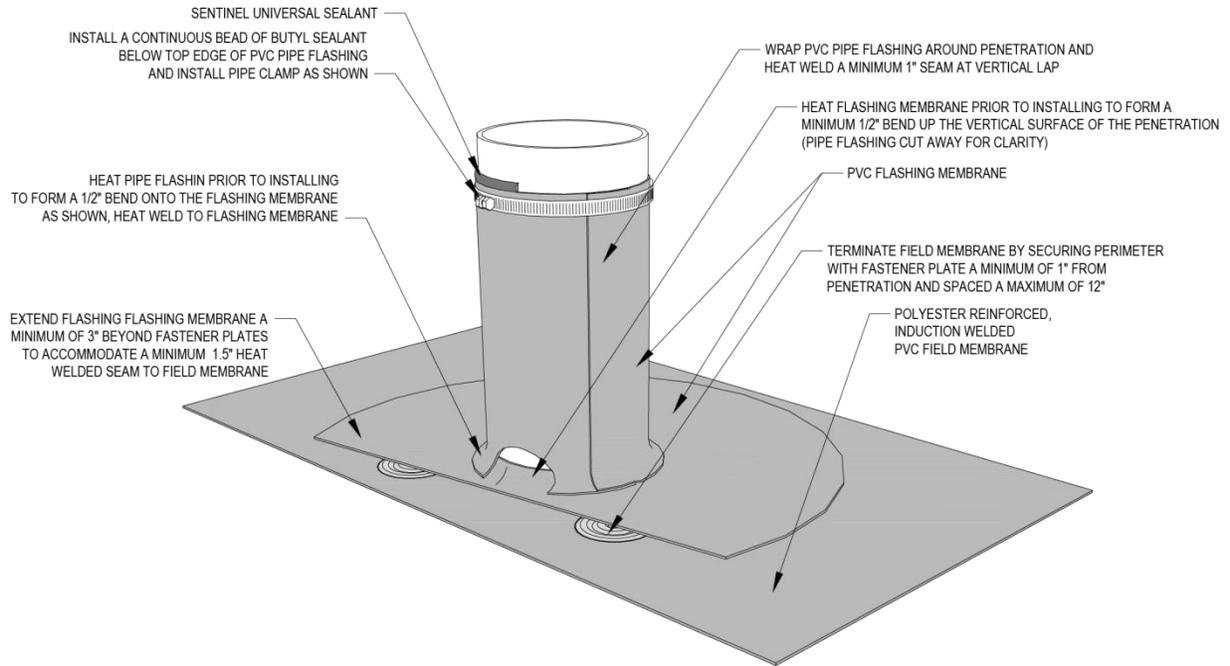


Figure 2.3.1t Induction Welded PVC Field Membrane at Roof Penetration With Field Fabricated Pipe Flashing

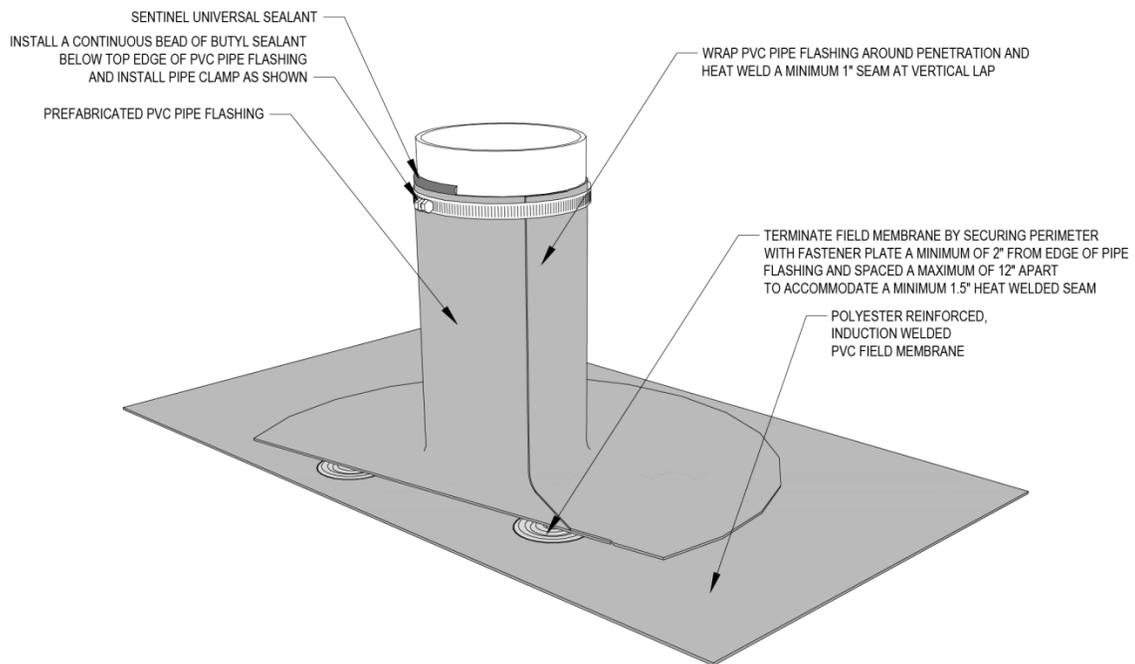


Figure 2.3.1u Induction Welded PVC Field Membrane at Roof Penetration With Prefabricated Pipe Flashing

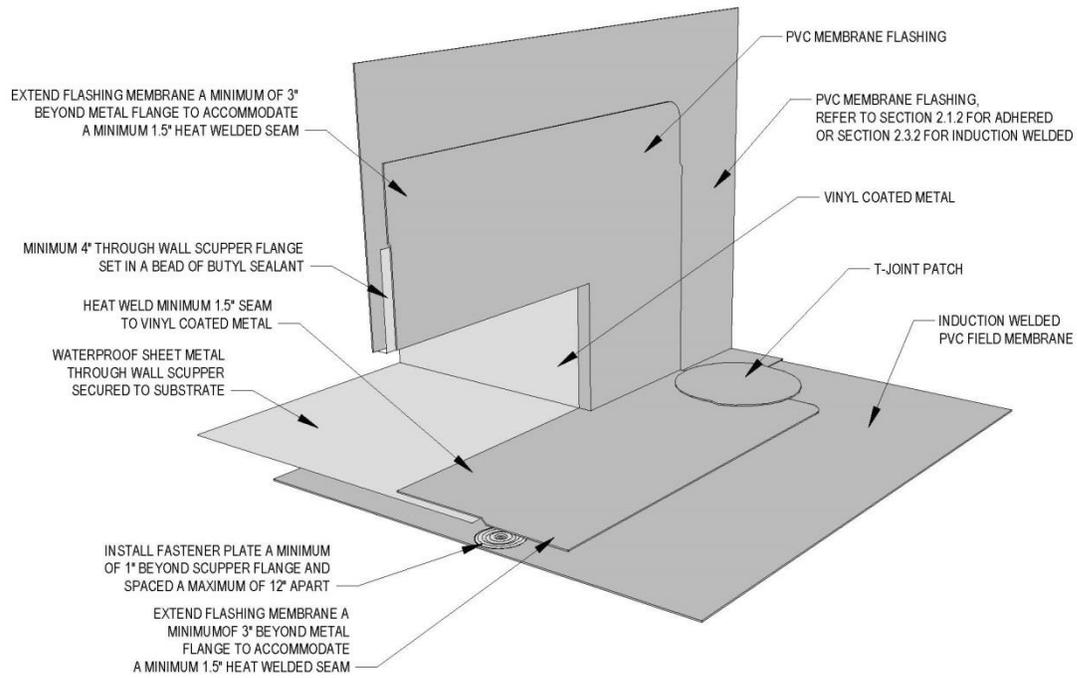


Figure 2.3.1v Induction Welded PVC Field Membrane at Through Wall Scupper

2.3.2 INDUCTION WELDED PVC FLASHING MEMBRANES

General:

- SENTINEL® PVC flashing membranes may be induction welded to fastener stress plates for new roof and recover applications.
- Induction welded SENTINEL® PVC field membranes are polyester reinforced, 60 or 80 mils thick, and are bare on the underside. Refer to [Table 2.3.2a](#).
- The induction welding tool, fasteners and 3 in induction welding stress plates must be approved together for use with the specified SENTINEL® PVC membrane. Refer to [Table 2.3.2b](#).
- The fasteners and stress plates are secured to the flashing substrate, then the SENTINEL® PVC flashing membrane is applied over the 3 in stress plates and induction welded to the plates.
- Refer to the fastener manufacturer's installation instructions and induction welding tool operating instructions.
- Refer to safety data sheets and product data sheets for additional information.

Preparation:

- Ensure the PVC flashing substrate surface has been properly prepared and is clean, dry and free of incompatible materials and debris. Separate PVC flashing from residual asphalt, coal tar pitch, coatings and other existing flashing materials.
- Examine curbs, wall substrates, nailers and all other flashing substrate conditions.
- Ensure the flashing substrate conditions are acceptable to install the appropriate fasteners.
- Unroll the PVC membrane flashing and allow it to relax.
- Roof recover flashings:
 - Ensure existing flashing substrates have been thoroughly evaluated and are determined to be structurally sound, dry and meet all applicable requirements for induction welded flashings.
 - Remove or otherwise prepare existing flashings or coatings to ensure the surface is smooth and will provide a satisfactory substrate for new induction welded SENTINEL® PVC flashing.
 - Remove all existing incompatible materials or separate incompatible materials from direct contact with bare PVC. Refer to [Section 1.1](#) or contact [SOPREMA®](#) for additional information.
 - Where existing bitumen products and coating cannot be completely removed, install new gypsum or cement roof boards, or other acceptable wall sheathing, to provide a new substrate for induction welded PVC flashing.
- Test induction welding equipment by welding a sample of PVC to stress plates to ensure settings are satisfactory. Allow the plate to cool, then attempt to pull the PVC from the plate. A satisfactory weld is achieved when the PVC consistently and uniformly delaminates from the reinforcing fabric, leaving residual PVC bonded to the plate.

Application:

- Install fasteners and induction welding plates to the vertical substrate a maximum of 12 in on-centers in both directions. Refer to [Table 2.3.2b](#) and [Figures 2.3.2a](#) and [2.3.2b](#).
- During the same day, induction weld the PVC to all plates that have been installed to prevent condensation from forming on plates overnight.
- Cut the PVC membrane to the desired length to conform to flashing conditions.
- Loose lay the PVC membrane over the flashing substrate and fasten at the leading top edge, or as required to secure the flashing in place.
- Ensure the side laps are a minimum of 3 in to accommodate minimum 1-1/2 in welded lap seams.
- Avoid locating membrane side and end laps over the stress plates. Where multiple layers of membrane occur, refer to the induction welding tool operating instructions to adjust settings.
- Clean side and end laps as necessary before welding seams. Refer to [Section 1.2](#).

- Remove all membrane wrinkles.
- Hot-air weld all side laps. Refer to [Section 4.1](#).
- Ensure the induction welding plates and bottom surface of the PVC membrane are dry and free of condensation before beginning induction welding.
- Locate each stress plate beneath the PVC membrane. Center the induction welder over each plate and activate the induction welding tool. Do not move the induction welder during the induction welding cycle.
- Once the weld is complete, immediately place a specialized magnet directly over each plate. Allow the magnets to remain in place until the plates have cooled.
- Where induction welds are suspect, examine the membrane attachment using a suction plate or plunger.
- Install butyl water cutoff, fasten and seal the top leading edge to vertical surfaces. Refer to [Figures 2.3.2a through 2.3.2b](#).

Inspection:

- Carefully probe all seams and t-joints using a rounded-tip probe such as a cotter pin puller. Prevent damage to the membrane during inspection.
- Repair all open seams and damage found during inspection.
- When seam weld quality is suspect, inspect laps using destructive examination methods.
 - Cut 2 in wide weld samples across the seam 6 in on either side of the weld (2 in x 12 in wide strip).
 - Cut a minimum of three (3) sample welds in each suspect area.
 - Peel the test strips apart at the welds.
 - A satisfactory weld is achieved when the PVC consistently and uniformly delaminates from the reinforcing fabric.
- Inspect the membrane each day to ensure the membrane is properly fastened to the substrate.
- Each day, repair all voids, wrinkles, open and damaged laps, and all other deficiencies before proceeding.
- Temporary night seals are required to seal membrane terminations watertight. Remove all temporary night seals before resuming the installation.
- Ensure the membrane is sealed watertight each day.

Table 2.3.2a Induction Welded PVC Flashing Membranes					
Membrane	Thickness	Reinforcement	Backing	Widths	Length
SENTINEL® P150	60 mils	Polyester	Bare	120 in, 60 in	100 ft
SENTINEL® P200	80 mils	Polyester	Bare	120 in, 60 in	65 ft

Table 2.3.2b Induction Welded PVC Flashing Membrane Fasteners

Name	Graphic	PVC Membrane	Substrate/Deck Type
<p>SOPRIFIX® #12 DP FASTENER with SENTINEL® isoweld Plate</p>		<p>SENTINEL® P150, SENTINEL® P200</p>	<p>Steel, Wood</p>
<p>SOPRIFIX® #14 MP FASTENER with SENTINEL® isoweld Plate</p>		<p>SENTINEL® P150, SENTINEL® P200</p>	<p>Steel, Wood, Concrete</p>
<p>SOPRIFIX® #15 HD FASTENER with SENTINEL® isoweld Plate</p>		<p>SENTINEL® P150, SENTINEL® P200</p>	<p>Steel, Wood</p>
<p>Approved anchor with SENTINEL® isoweld Plate</p>		<p>SENTINEL® P150, SENTINEL® P200</p>	<p>Concrete, Masonry</p>

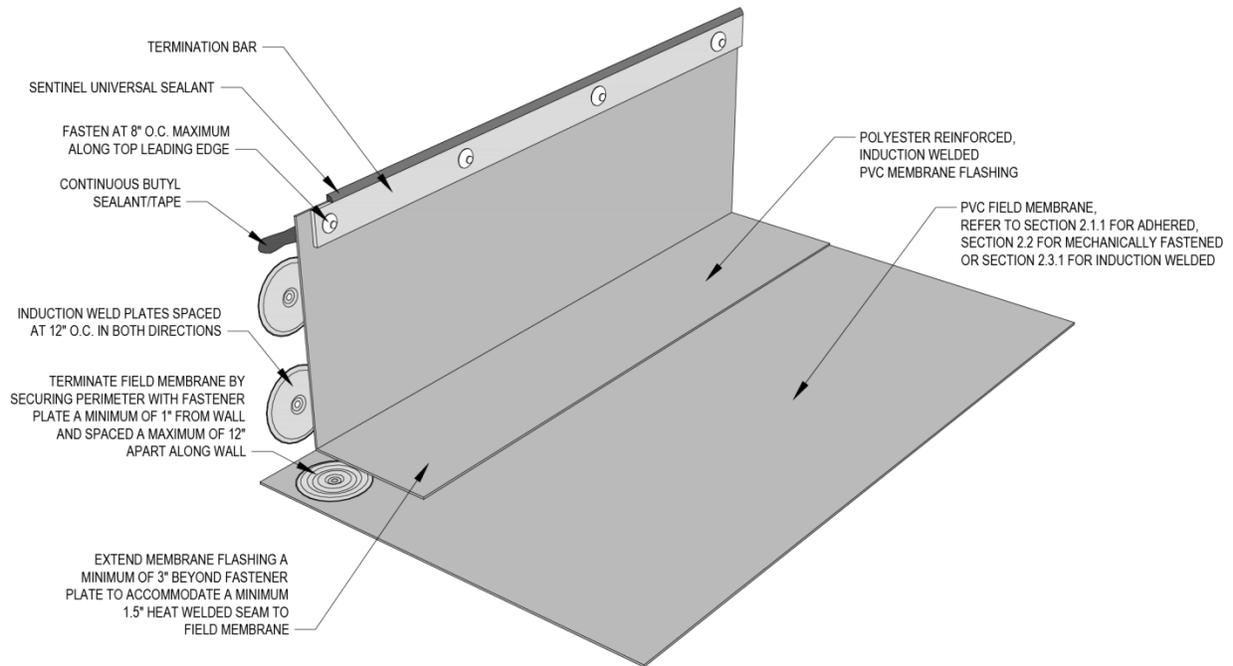


Figure 2.3.2a Induction Welded PVC Flashing Membrane at Wall/Curb With Horizontal Perimeter Fastening

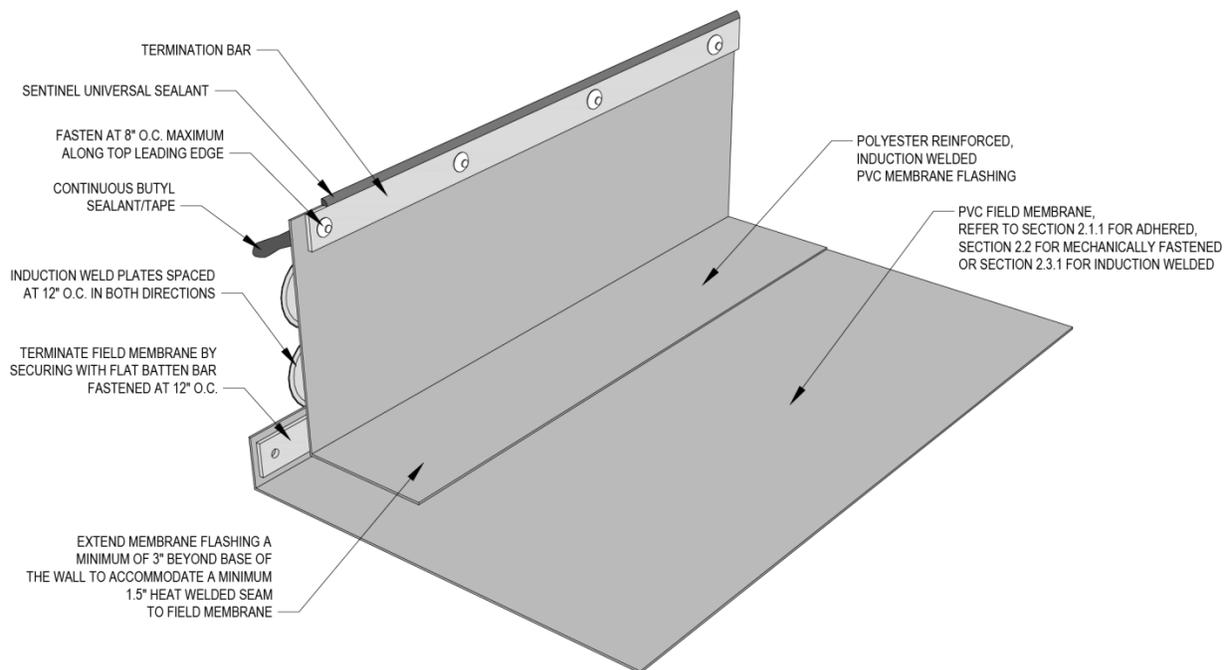


Figure 2.3.2b Induction Welded PVC Flashing Membrane at Wall/Curb With Vertical Perimeter Fastening

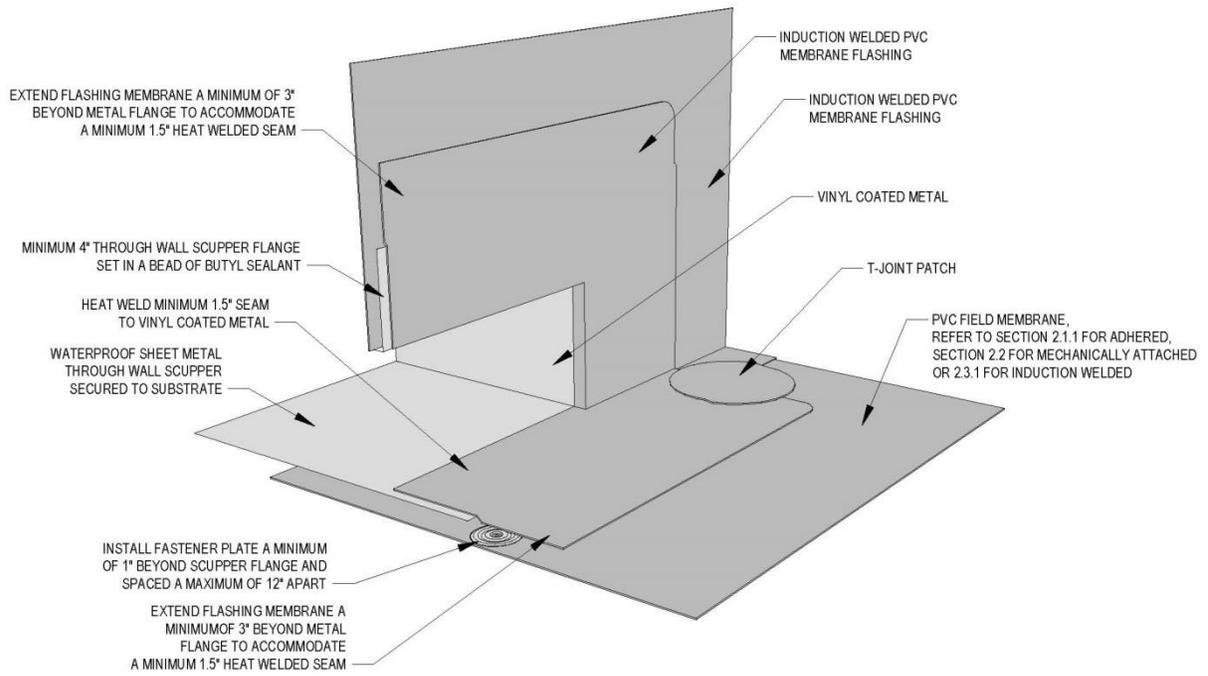


Figure 2.3.2c Induction Welded PVC Flashing Membrane at Through Wall Scupper

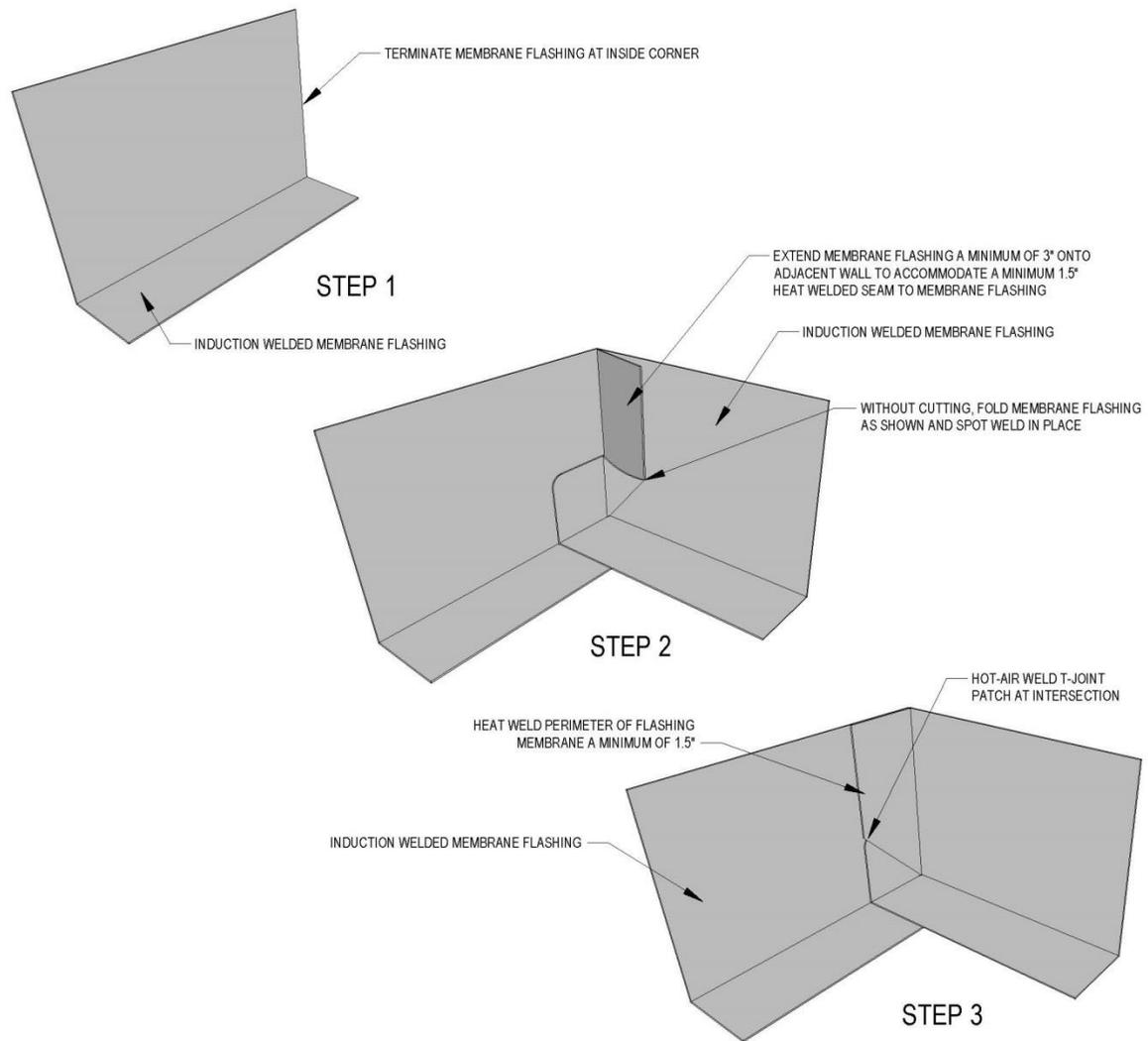


Figure 2.3.2d Induction Welded PVC Flashing Membrane at Field Fabricated Inside Corner

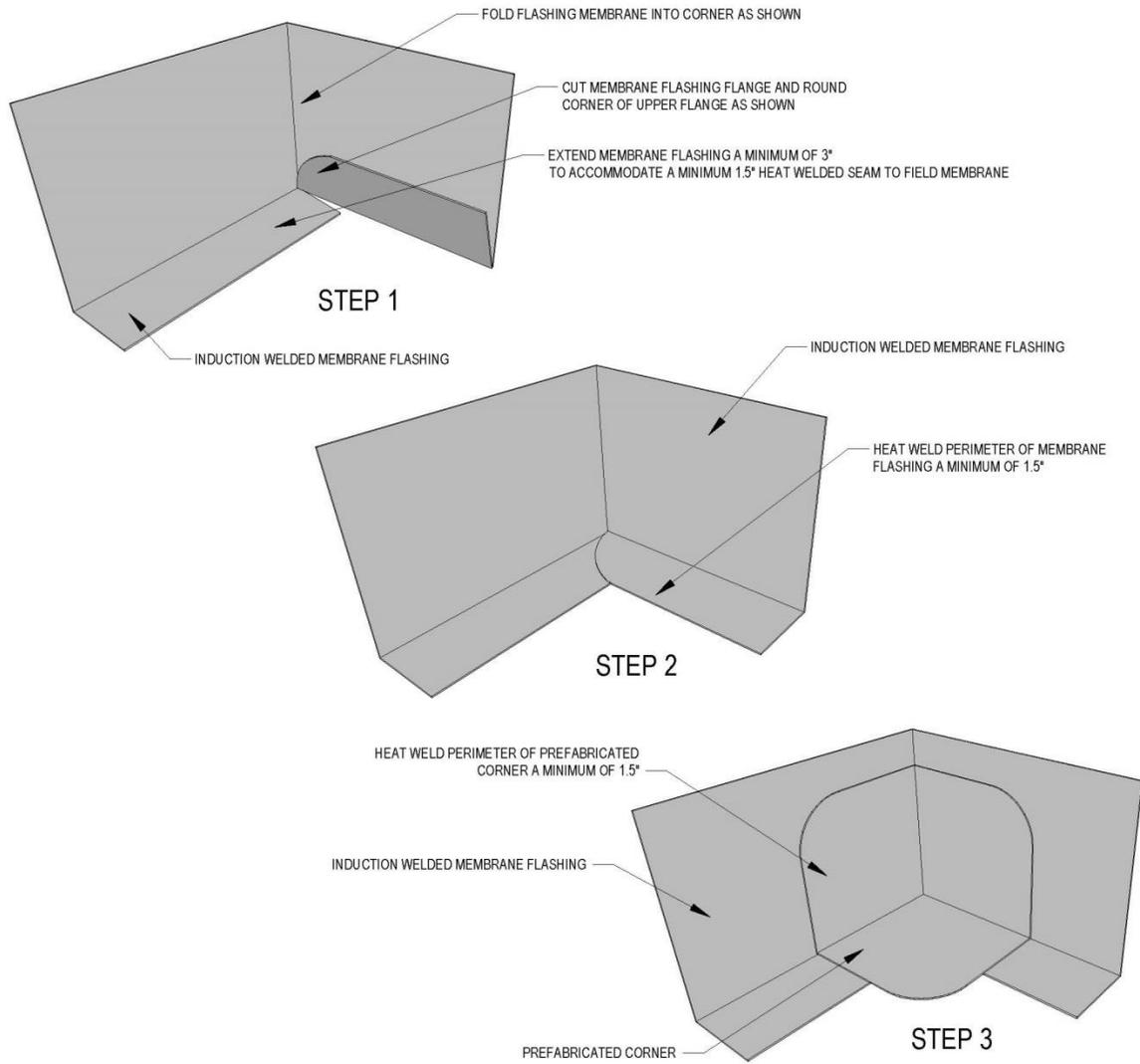


Figure 2.3.2e Induction Welded PVC Flashing Membrane at Prefabricated Inside Corner

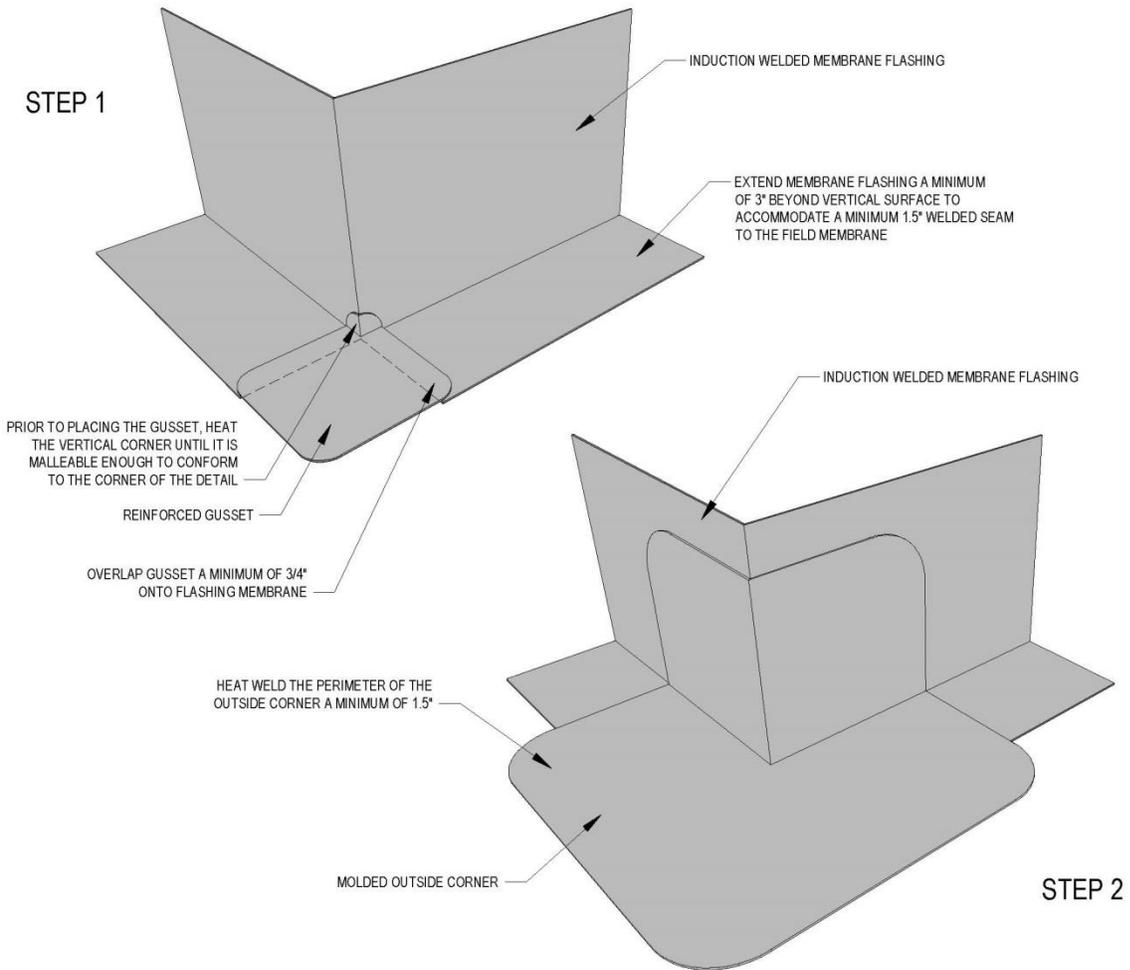


Figure 2.3.2f Induction Welded PVC Flashing Membrane at Molded Outside Corner

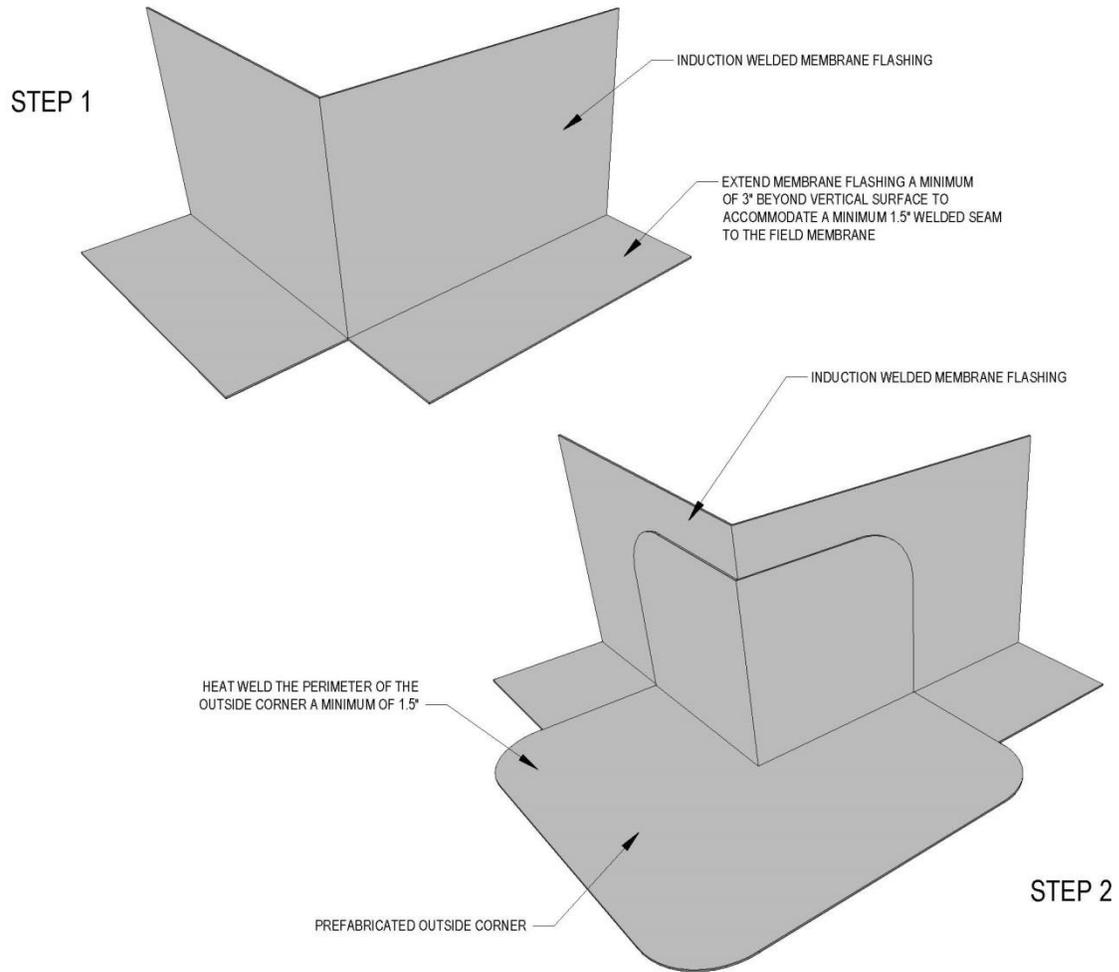


Figure 2.3.2g Induction Welded PVC Flashing Membrane at Prefabricated Outside Corner

3 POLYMETHYL METHACRYLATE (PMMA)/POLYMETHACRYLATE (PMA) LIQUID-APPLIED FLASHING FOR PVC ROOFING

General:

- [SOPREMA®](#) offers [ALSAN® RS 230 FLASH](#) or [ALSAN® RS 260 LO FLASH](#) liquid-applied, reinforced flashing systems as acceptable alternates to PVC flashing membranes.
- ALSAN® RS liquid-applied flashing systems may be used with adhered PVC membranes to form waterproof flashings for roof transitions, terminations and penetrations. Refer to [Figures 3a through 3c](#).
- Refer to ALSAN® RS detail drawings, product data sheets, safety data sheets and published guidelines for additional information.

Preparation:

- Ensure all substrates are sound, dry clean and free of dust, debris, and adhesives.
- PVC membrane preparation:
 - Ensure the PVC field membrane is fastened to the substrate at all membrane terminations before installing liquid-applied flashing.
 - Install [SENTINEL® T-JOINT PATCHES](#) over exposed fasteners and stress plates.
 - Lightly abrade the PVC membrane surface using a scouring pad only where liquid-applied flashing is to be applied.
 - Wipe the PVC membrane surface clean using [ALSAN® RS CLEANER](#), and allow to fully dry.
- Metal substrate preparation:
 - Prepare approved metal surfaces to near-white finish by abrasion and wipe clean with [ALSAN® RS CLEANER](#) before applying ALSAN® RS liquid-applied flashing systems.
- Concrete and masonry substrate preparation:
 - Substrates should be smooth and free of spalls, voids, blow holes and loose materials.
 - Use mechanical scarifying, grinding or shot blasting methods where necessary to provide a smooth, open surface free of laitance. The surface profile should be prepared to ICRI Concrete Surface Profile CSP 3, CSP 4 or SCP 5; CSP 3 being the preferred profile.
 - Refer to ASTM D4259 and D5295 for surface preparation guidance.
- Other approved substrates: Contact [SOPREMA®](#) and refer to ALSAN® RS installation instructions for other approved substrates and priming requirements.
- Conduct adhesion/peel tests by applying ALSAN® RS primer and liquid-applied membrane where necessary to ensure satisfactory adhesion is achieved.

Application:

- SENTINEL® PVC membranes do not require ALSAN® RS primers.
- Refer to [Table 3a](#) for substrates that require priming.
 - [ALSAN® RS 276 PRIMER](#) and [ALSAN® RS 222 PRIMER](#)
 - Refer to product data sheets and safety data sheets, as well as ALSAN® RS installation instructions.
 - Using a slow-speed mechanical agitator, thoroughly stir the entire container.
 - Mix primer resin and catalyst approximately 2 minutes using a clean spiral agitator on slow speed or stir stick until evenly mixed. Do not aerate. Mix only the amount of primer that can be used within the application time.
 - Apply the appropriate specified primer to dry, compatible substrates as required to enhance adhesion of new specified flashing materials. Refer to [Table 3a](#).
 - Apply primer using brush or roller at the rate published on the product data sheet. Do not allow heavy accumulations of primer.
 - Allow primer to fully cure before membrane application.

- [ALSAN® RS METAL PRIMER](#)
 - Refer to product data sheets and safety data sheets, as well as ALSAN® RS installation instructions.
 - Using a slow-speed mechanical agitator, thoroughly stir the entire container.
 - Apply primer using brush or roller at the rate published on the product data sheet.
 - ALSAN® RS membranes and flashings should be installed to the primed surface within 24 hours of primer application.
- Pre-cut [ALSAN® RS FLEECE](#) polyester reinforcement to conform to roof terminations, transitions and penetrations. Cut reinforcement to ensure a minimum 2 in overlap of fleece at side-laps and end-laps. Ensure the liquid-applied flashing membrane is fully reinforced.
- Apply the base coat of catalyzed [ALSAN® RS 230 FLASH](#) or [ALSAN® RS 260 LO FLASH](#) resin onto the substrate using a brush or roller, working the liquid resin into the surface for complete coverage and full adhesion.
- Immediately apply the [ALSAN® RS FLEECE](#) reinforcing into the wet base coat of resin. Using a brush or roller, work the [ALSAN® RS FLEECE](#) reinforcement into the wet resin while applying the second coat of catalyzed ALSAN® RS FLASH resin to fully encapsulate the fleece.
- Extend the [ALSAN® RS 230 FLASH](#) or [ALSAN® RS 260 LO FLASH](#) resin a maximum of 1/4 in beyond the reinforcement.

Inspection:

- As project conditions vary, monitor changing conditions, Adjust primer and membrane application methods as necessary to achieve the desired results.
- Refer to ALSAN® RS installation instructions for additional guidance.

Table 3a ALSAN® RS Flashing Substrate Primer	
Substrate	Primer
Prepared structural concrete	Prime with ALSAN® RS 276 or ALSAN® RS 222 PRIMER
Prepared masonry	Prime with ALSAN® RS 276 or ALSAN® RS 222 PRIMER
Conditioned, un-treated wood	Prime with ALSAN® RS 276 or ALSAN® RS 222 PRIMER
Approved gypsum roof boards	Prime with ALSAN® RS 276 or ALSAN® RS 222 PRIMER
Approved cement roof boards	Prime with ALSAN® RS 276 or ALSAN® RS 222 PRIMER
Prepared metal	Optional ALSAN® RS METAL PRIMER
SENTINEL® P150 , SENTINEL® P200 , SENTINEL® G150 , SENTINEL® G200 , SENTINEL® P150 HFB , SENTINEL® P200 HFB ,	Do not prime. Refer to <i>Preparation</i> .
SENTINEL® COPPERART P150 , SENTINEL® COPPERART P150 HFB , SENTINEL® SILVERART P150 , SENTINEL® SILVERART P150 HFB	ALSAN® RS is not compatible.

*Do not apply ALSAN® RS directly to exposed adhesives or [SENTINEL® UNIVERSAL SEALANT](#) sealant.

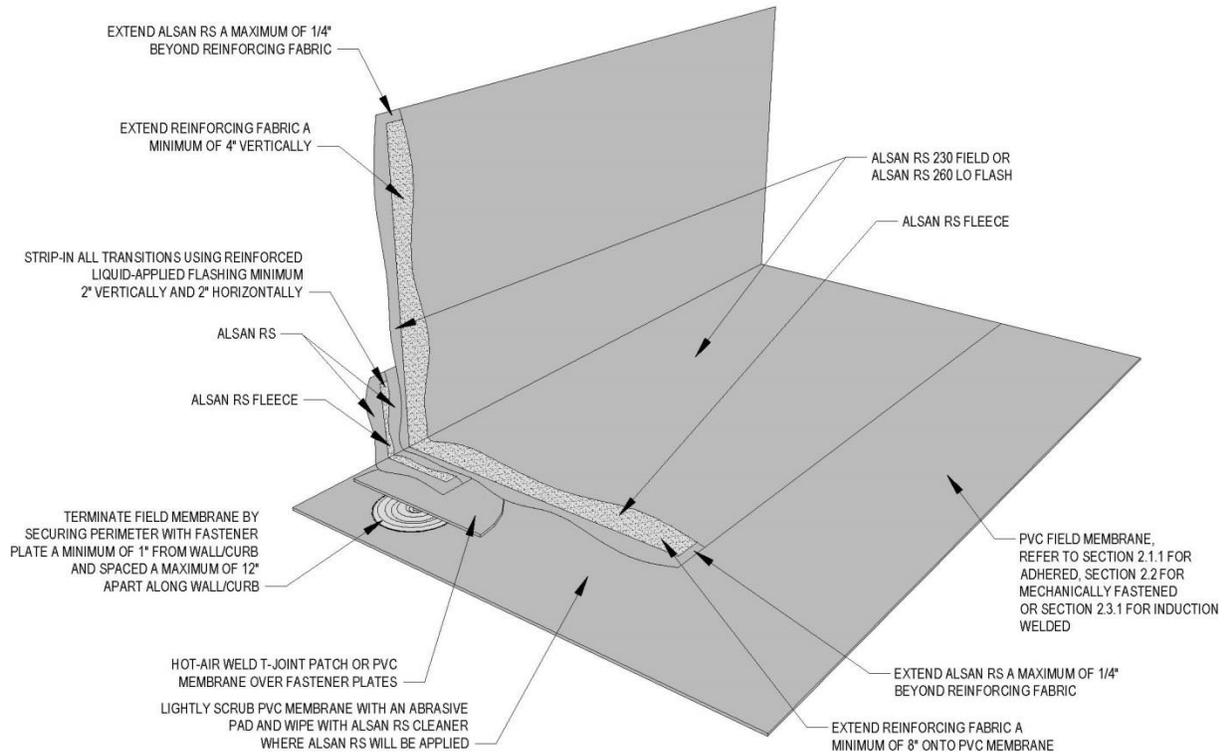


Figure 3a ALSAN® RS Wall/Curb Flashing on PVC Membrane With Horizontal Perimeter Fastening

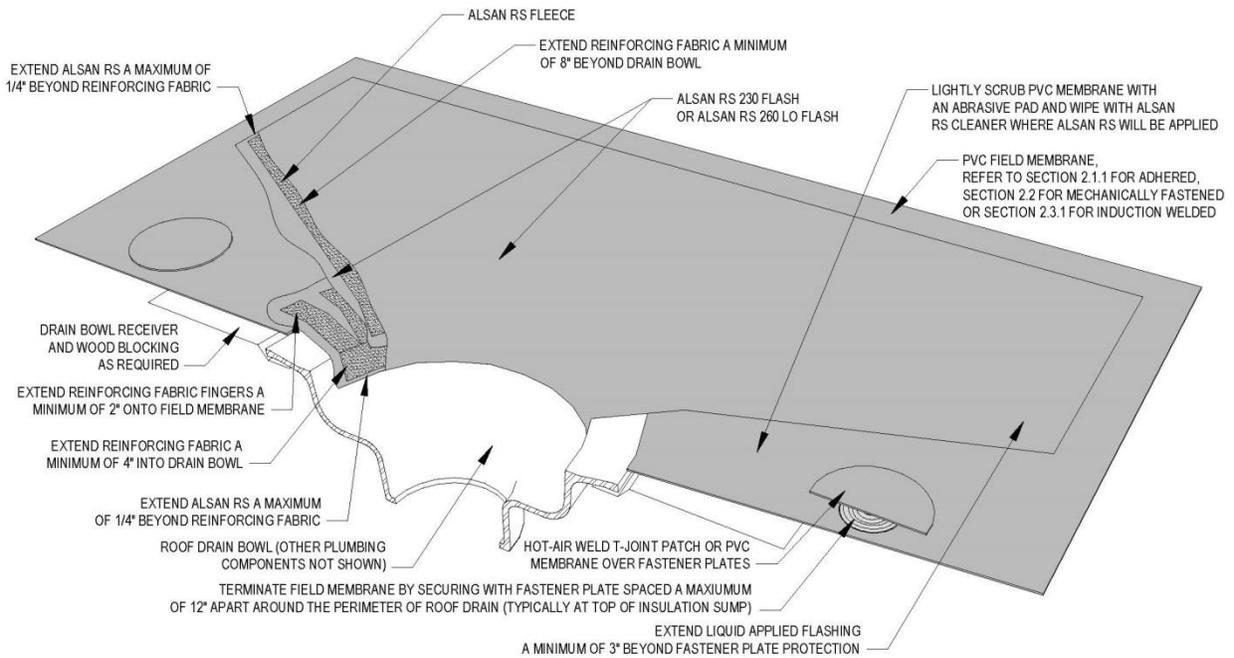


Figure 3b ALSAN® RS Roof Drain Flashing on PVC Membrane With Horizontal Perimeter Fastening

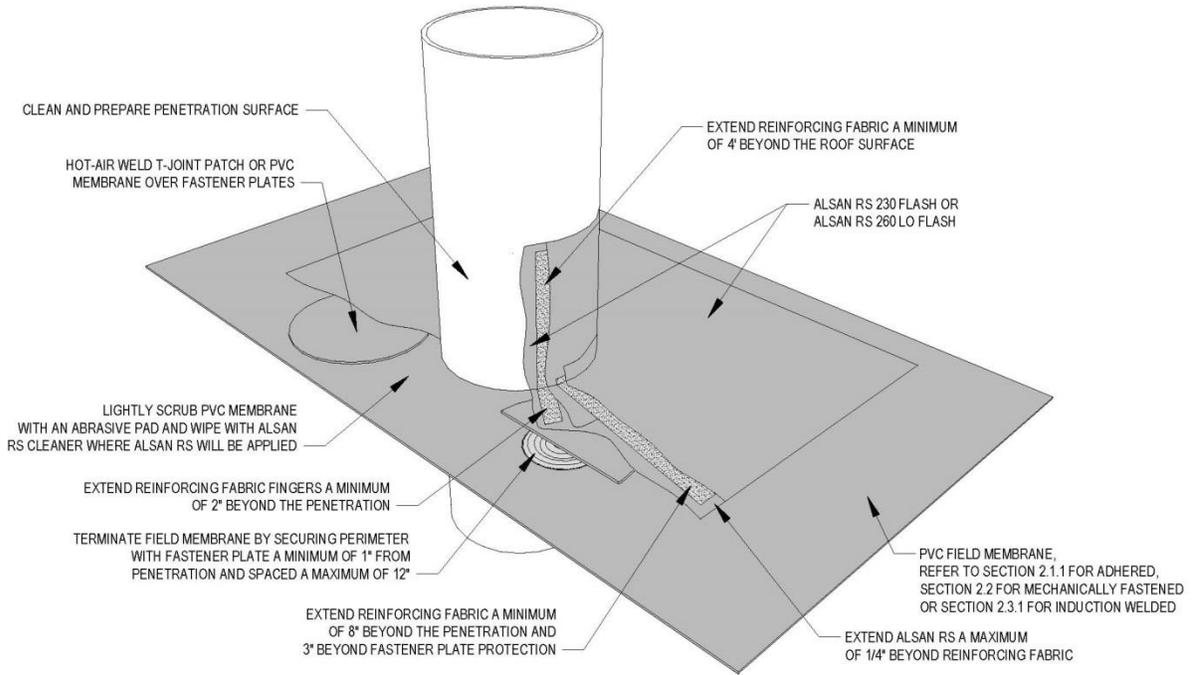


Figure 3c ALSAN® RS Penetration Flashing on PVC Membrane With Horizontal Perimeter Fastening

4 MISCELLANEOUS

4.1 PVC HOT-AIR WELDED SIDE AND END LAPS

General:

- All SENTINEL® PVC membranes require a minimum 1-1/2 in continuous hot-air welded seam at all side and end laps.
- Refer to [Section 1.3](#) for hot-air welding procedures.

Preparation:

- Ensure all substrates and bottom surfaces of bare membranes are dry and free of debris.
- Clean laps as necessary. Refer to [Section 1.2](#).

Application:

- Hot-air welders shall be used to seal all membrane lap seams.
- Position the membrane so that it overlaps the adjacent membrane at the required side lap width.
- Weld the laps using an automatic welding machine or hand welder to maintain a 1-1/2 in uniform, continuous weld. Refer to [Section 1.3](#).
- At end-laps of bare PVC, dog-ear and round all corners. Extend the end-lap a minimum of 3 in beyond the adjacent roll. Refer to [Figure 4.1a](#).
- Adhered fleece-backed membrane end-laps shall be butted together and a 6 in membrane coverstrip shall be welded over the butted joint. Refer to [Figure 4.1b](#).
- [SENTINEL® T-JOINT PATCHES](#) shall be hot-air welded to the membrane at all t-joint intersections. Chamfer the welding seam prior to installing [SENTINEL® T-JOINT PATCHES](#) using an edging tool or by heating the edge and rolling.
- [SENTINEL® CUT EDGE SEALANT](#) shall be installed at all non-factory cut edges for [SENTINEL® COPPERART P150](#) and [SENTINEL® SILVERART P150](#) membranes only.

Inspection:

- Carefully probe all seams and t-joints using a rounded-tip probe such as a cotter pin puller. Prevent damage to the membrane during inspection.
- Repair all open seams and damage found during inspection.
- When seam weld quality is suspect, inspect laps using destructive examination methods.
 - Cut 2 in wide weld samples across the seam 6 in on either side of the weld (2 in x 12 in wide strip).
 - Cut a minimum of three (3) sample welds in each suspect area.
 - Peel the test strips apart at the welds.
 - A satisfactory weld is achieved when the PVC breaks, or consistently and uniformly delaminates from the reinforcing fabric.
- Inspect the membrane each day to ensure the membrane is properly fastened to the substrate.
- Each day, repair all voids, wrinkles, open and damaged laps, and all other deficiencies before proceeding.
- Temporary night seals are required to seal membrane terminations watertight. Remove all temporary night seals before resuming the installation.
- Ensure the membrane is sealed watertight each day.

<i>Table 4.1a PVC Membrane End-Laps</i>		
Membrane	End Lap	Application
SENTINEL® P150	3 in minimum overlap	Minimum 1.5 in continuous weld.
SENTINEL® P200	3 in minimum overlap	Minimum 1.5 in continuous weld.
SENTINEL® G150	3 in minimum overlap	Minimum 1.5 in continuous weld.
SENTINEL® G200	3 in minimum overlap	Minimum 1.5 in continuous weld.
SENTINEL® P150 HFB	Butt end laps	Minimum 6 in SENTINEL® P150 or SENTINEL® P200 cover strip centered over end laps with a minimum 1.5 in continuous weld on each side.
SENTINEL® P200 HFB	Butt end laps	Minimum 6 in SENTINEL® P200 cover strip centered over end laps with a minimum 1.5 in continuous weld on each side.
SENTINEL® COPPERART P150	3 in minimum overlap	Minimum 1.5 in continuous weld. Apply SENTINEL® CUT EDGE SEALANT at non factory cut edges.
SENTINEL® SILVERART P150	3 in minimum overlap	Minimum 1.5 in continuous weld. Apply SENTINEL® CUT EDGE SEALANT at non factory cut edges.
SENTINEL® COPPERART P150 HFB	Butt end laps	Minimum 6 in SENTINEL® COPPERART P150 cover strip centered over end laps with a minimum 1.5 in continuous weld on each side.
SENTINEL® SILVERART P150 HFB	Butt end laps	Minimum 6 in SENTINEL® SILVERART P150 cover strip centered over end laps with a minimum 1.5 in continuous weld on each side.

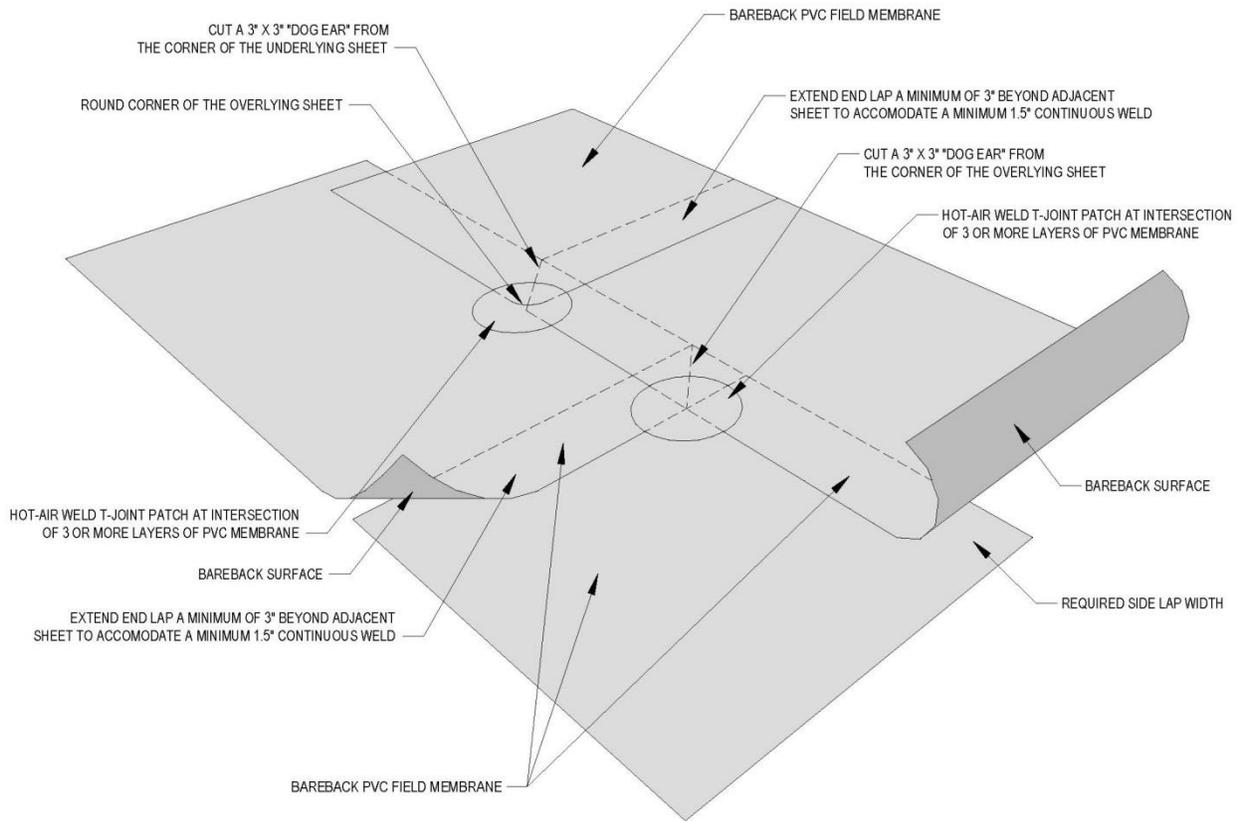


Figure 4.1a Bare PVC Field Membrane Side And End Laps

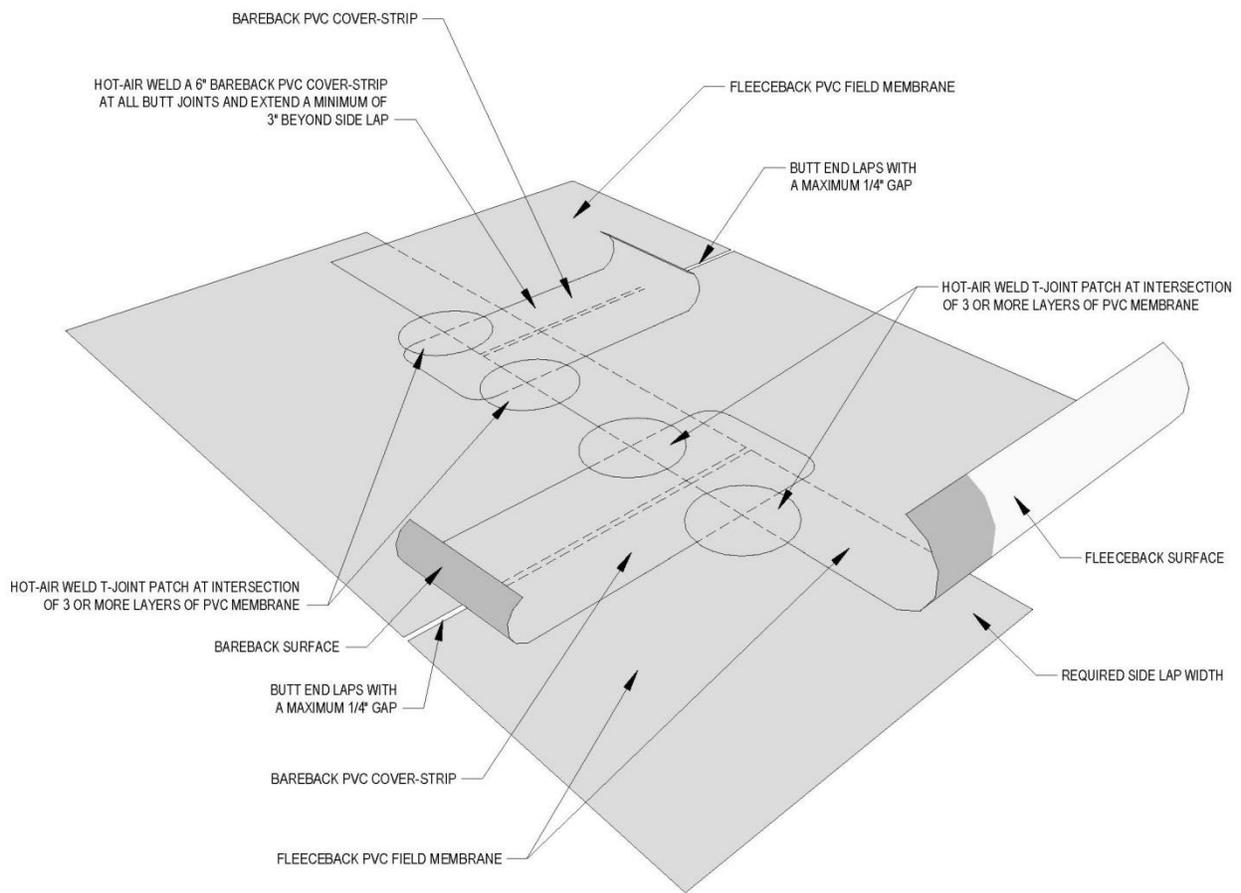


Figure 4.1b Fleece-backed PVC Field Membrane Side And End Laps

4.2 VINYL RIBS

General:

- [SENTINEL® PVC PROFILE BARS](#) are extruded, pliable PVC bars designed to provide the PVC membrane with the appearance of a standing seam metal roof. The PVC profile bars are installed for aesthetics, thus spacing and location should be carefully coordinated with the owner.

Preparation:

- Ensure vinyl ribs and membrane surfaces are clean, dry and free of debris. Refer to [Section 1.2](#).

Application:

- Use care when installing the profile bars to ensure they are true and straight, with uniform spacing between the profile bars.
- Typically, PVC membranes receiving vinyl profile bars will be installed with side-laps parallel to the slope. Therefore, profile bars should be installed so that a profile bar is located at the edge of each side-lap.
- Space profile bars evenly between side-laps to desired spacing.
- Spot weld the center of the profile bar to hold the profile bar in place.
- Use a hand welder to weld the profile bars to the membrane providing a continuous weld on each side of the profile bar.

Inspection:

- Ensure ribs are continuously welded along each side of the rib.

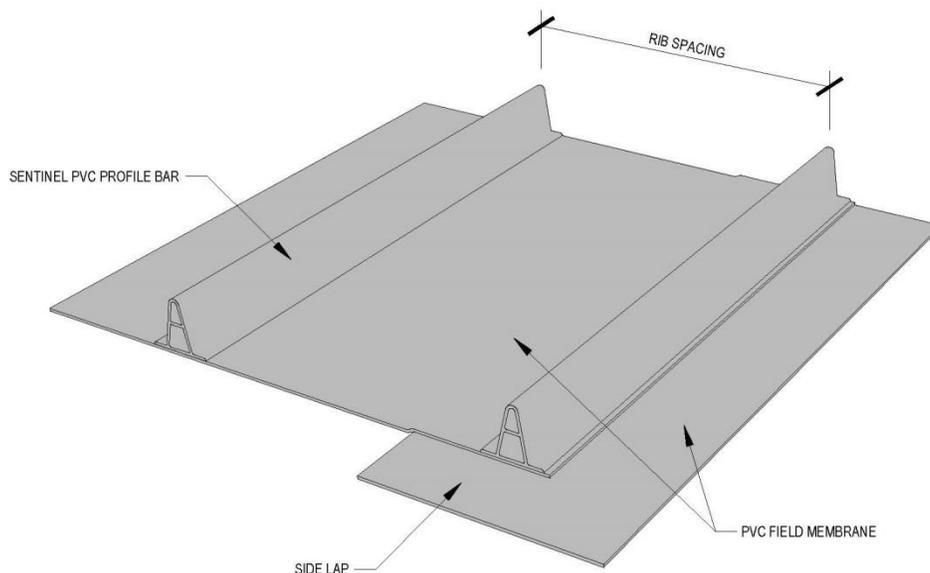


Figure 4.2a PVC Vinyl Ribs

4.3 PVC WALKWAYS & SACRIFICIAL PROTECTION PADS

General:

- [SENTINEL® WALKWAY PAD](#) protects roof membranes from damage caused by foot traffic or other rooftop activities. This product is compatible with new or existing PVC roof membranes.
- [SENTINEL® WALKWAY PAD](#) is also used as a sacrificial layer for additional protection when rooftop equipment, fixtures, lightning protection, etc. are installed directly on the roof surface.
- Other bare PVC membranes may also be used in lieu of [SENTINEL® WALKWAY PAD](#). Refer to [Figures 4.3a through 4.3b](#).

Preparation:

- Ensure walkways, sacrificial protection pads and membrane surfaces are clean, dry and free of debris. Refer to [Section 1.2](#).

Application:

- Roll out walkways and protection pads and cut desired length and allow to relax in the desired position. Walkway pads should be cut in maximum 10' lengths.
- Walkways and protection pads should be placed a minimum of 2 in from membrane side laps, end laps, and flashing membranes. Refer to [Figure 4.3a](#).
- [SENTINEL® S BONDING ADHESIVE](#) may be used in the field of walkways and protection pads to adhere to the PVC membrane if desired.
- Use a hot-air welder to weld the walkway and protection pad to the membrane providing a minimum 1.5 in wide continuous weld around the entire perimeter.
- When rooftop equipment and fixtures are to be installed directly onto the roof surface, ensure the sacrificial membrane is installed to protect the underlying PVC membrane.
- For equipment protection pads such as for lightning protection, refer to [Figure 4.3b](#).

Inspection:

- Ensure walkways and sacrificial protection pads have a continuous weld around the perimeter.

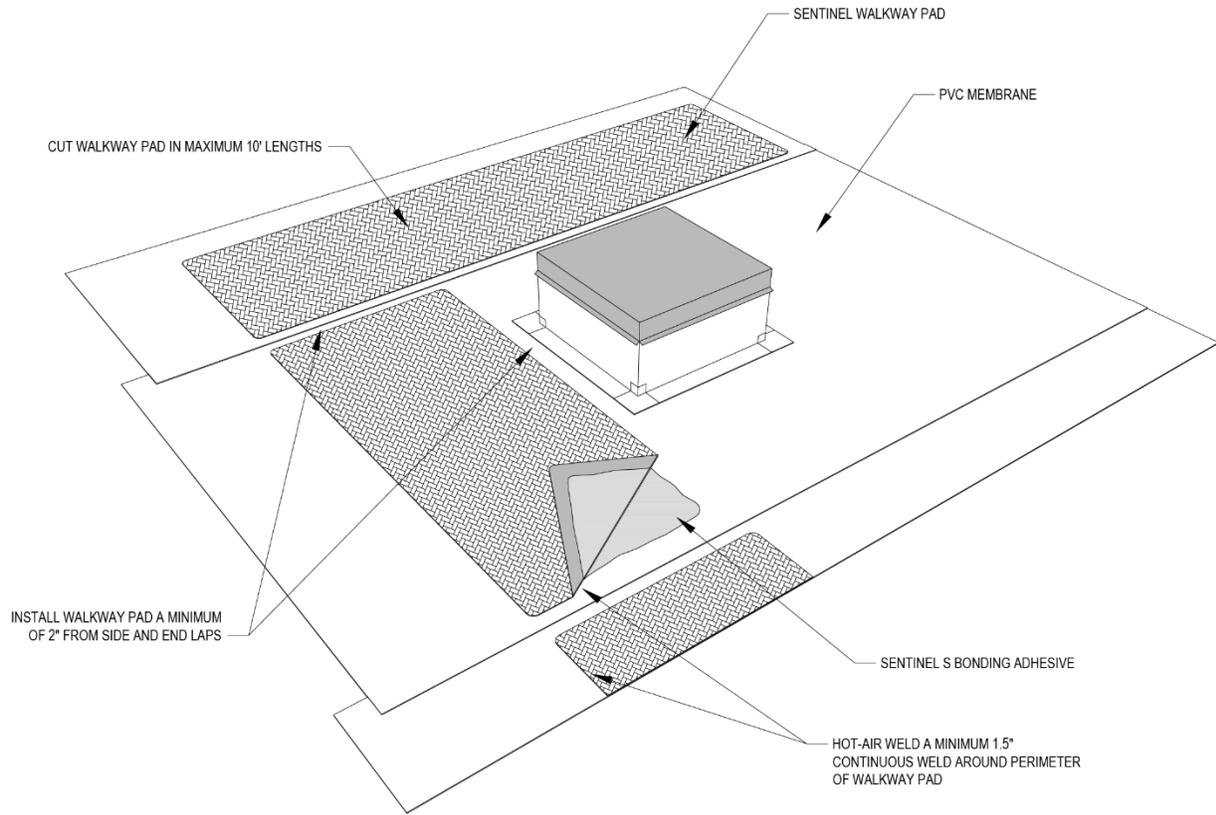


Figure 4.3a Walkways

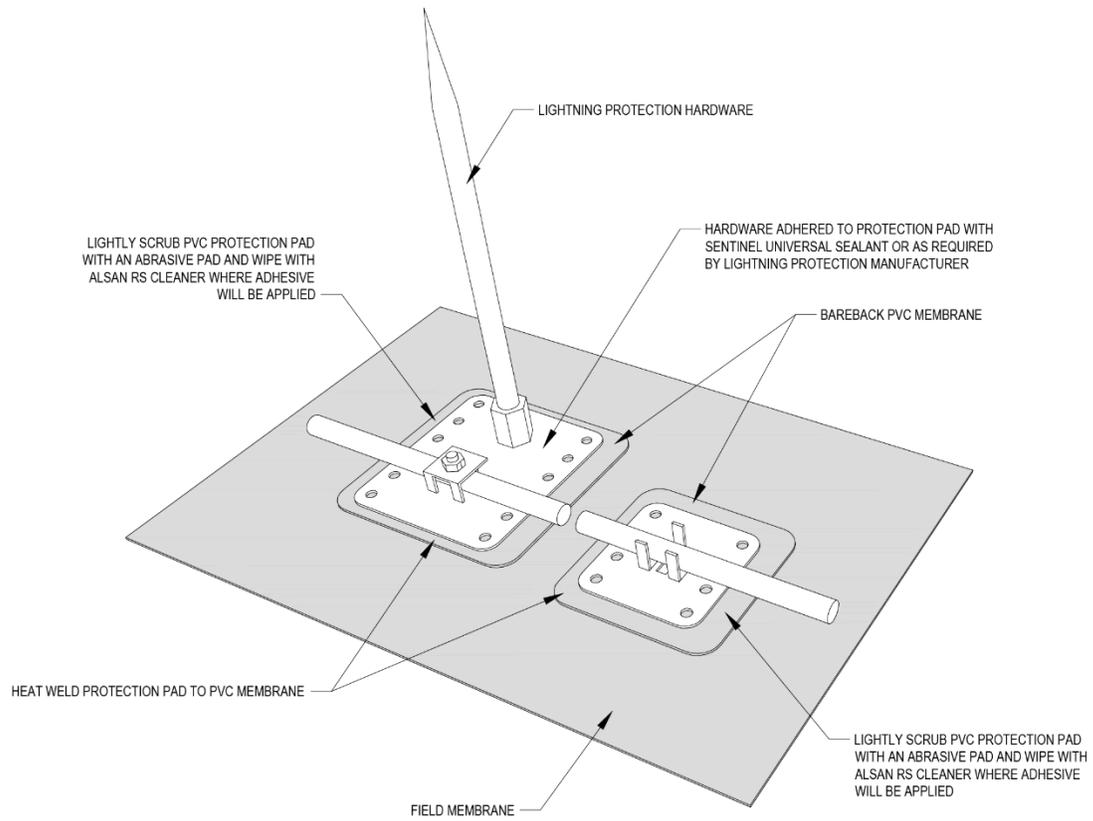


Figure 4.3b Sacrificial Protection Pads

4.4 PVC ACCESSORIES

General:

- Refer to [Table 4.3a](#) for SENTINEL® PVC membrane and flashing accessories products and basic application.
- Refer to the Product Data Sheets and Safety Data Sheets for additional product information.

Table 4.3a PVC Accessories	
Product	Application
SENTINEL® VCM*	Polyvinyl-coated sheet metal used to produce shop fabricated edge metals and other details for welding PVC membranes.
SENTINEL® COPPERART VCM	Copper-colored polyvinyl-coated sheet metal used to produce shop fabricated edge metals and other details for welding PVC membranes.
SENTINEL® SILVERART VCM	Silver-colored polyvinyl-coated sheet metal used to produce shop fabricated edge metals and other details for welding PVC membranes.
SENTINEL® SKIRTED DRIP EDGE	Polyvinyl-coated sheet metal edge with a factory applied PVC membrane skirt used to terminate PVC membranes at roof edges.
SENTINEL® MOLDED OUTSIDE CORNERS*	Injection-molded, unreinforced PVC flashings used to flash outside corners.
SENTINEL® MOLDED INSIDE CORNERS*	Injection-molded, unreinforced PVC flashings used to flash inside corners.
SENTINEL® MOLDED UNIVERSAL CORNERS*	Injection-molded, unreinforced PVC flashings used to flash inside and outside corners.
SENTINEL® PVC PREFABRICATED OUTSIDE CORNERS*	Fiberglass reinforced PVC flashings used to flash outside corners.
SENTINEL® PVC PREFABRICATED INSIDE CORNERS*	Fiberglass reinforced PVC flashings used to flash inside corners.
SENTINEL® PVC COPPERART PREFABRICATED OUTSIDE CORNERS	Copper-colored fiberglass reinforced PVC flashings used to flash outside corners.
SENTINEL® PVC COPPERART PREFABRICATED INSIDE CORNERS	Copper-colored fiberglass reinforced PVC flashings used to flash inside corners.
SENTINEL® PVC SILVERART PREFABRICATED OUTSIDE CORNERS	Silver-colored fiberglass reinforced PVC flashings used to flash outside corners.
SENTINEL® PVC SILVERART PREFABRICATED INSIDE CORNERS	Silver-colored fiberglass reinforced PVC flashings used to flash inside corners.
SENTINEL® T-JOINT PATCHES*	Round, polyester reinforced PVC patches used to seal t-joint intersections.
SENTINEL® PVC PROFILE BAR*	Extruded PVC ribs welded to PVC membranes to simulate the appearance of a standing seam metal roof.
SENTINEL® PVC COPPERART PROFILE BAR	Copper-colored extruded PVC ribs welded to PVC membranes to simulate the appearance of a standing seam metal roof.
SENTINEL® PVC SILVERART PROFILE BAR	Silver-colored extruded PVC ribs welded to PVC membranes to simulate the appearance of a standing seam metal roof.

Product	Application
SENTINEL® PVC PIPE FLASHINGS*	Fiberglass reinforced prefabricated PVC pipe flashings used to flash round penetrations.
SENTINEL® PVC SPLIT PIPE BOOT	Prefabricated PVC split pipe flashing for penetrations 1 in to 6 in.
SENTINEL® PVC SPLIT PIPE BOOT	Prefabricated PVC split pipe flashing for penetrations 6 in to 12 in.
SENTINEL® PVC CLOSED PIPE BOOT	Prefabricated PVC pipe flashing for penetrations 1 in to 6 in.
SENTINEL® PVC CLOSED PIPE BOOT	Prefabricated PVC pipe flashing for penetrations 6 in to 12 in.
SENTINEL® WALKWAY PAD	Slip resistant PVC protective pad used to create a walk path and protect field membranes from traffic.
SENTINEL® UNIVERSAL SEALANT*	Moisture curing, polyether, elastomeric sealant for PVC membrane terminations.
SENTINEL® CUT EDGE SEALANT	Sealant used to seal non-factory cut edges of SENTINEL® COPPERART P150 and SENTINEL® SILVERART P150 .
BUTYL SEALANT	100 percent solids, water cutoff, gun-grade butyl used to seal flashing details between PVC membrane and approved substrates.
BUTYL TAPE	100 percent solids, water cutoff tape to seal flashing details between PVC membrane and approved substrates.
FOIL TAPE BOND BREAKER	Bond breaker tape, nominal 2 in wide, adhesive-backed aluminum foil: <ul style="list-style-type: none"> • Applied to vinyl coated metal edge detail joints prior to stripping-in joints with PVC flashing membrane. • Applied to pipes and other flashing substrates to cover incompatible materials such as asphalt.

*Refer to product data sheets or contact [SOPREMA®](#) for color options.