EPDM INSTALLATION GUIDE

INTRODUCTION

General Information

This HANDBOOK has been designed to give the user a GENERAL DESCRIPTION of a fully adhered roof system. This HANDBOOK is intended as a broad reference aid and is not intended or meant to be all-inclusive.

User Cautions and Warnings!

Read Caution labels on all adhesive, primer and sealant containers. These materials contain petroleum distillates and are **extremely flammable.** Care must be taken to avoid open flames. Do not smoke when using these products. Product labels, **Material Safety Data Sheet** and **Technical Information** Sheet contain information for proper use of these products and should be consulted.

Adhesives should be used in a well-ventilated area. Avoid inhalation of fumes. Care should be taken to insure fumes do not enter building through windows or fresh-air-intake ventilation fans.

Avoid adhesive contact with eyes. Safety glasses should be worn. If adhesive comes in contact with eyes, flush for 15 minutes and call physician.

Avoid adhesive contact with skin. Chemically resistant gloves are required. If adhesive comes in contact with skin, wash with soap and water.

Safeguard against falling by reading ladder manufacturer's warnings and by establishing a perimeter warning system by using ropes with flags attached. Surfaces can be slippery when wet or covered with frost. Always work with a friend and never work with your back to the roof's edge

Care must be taken with fasteners that penetrate a deck to avoid contact with plumbing or electric wiring.

Reroofing over a wet substrate is not good roofing practice. All wet material should be removed.

Condensation may occur when applying Bonding Adhesive at temperatures below 40 degrees when there is high humidity. If droplets of water are noted, discontinue installation until weather conditions improve. At that time reapply a thin coat of adhesive over the old coat of adhesive and continue installation.

Allow adhesives to adequately dry to avoid blistering of membrane. Given time blistering will likely go down and roof will perform for the long term.

Positive drainage of at least one-eighth inch (1/8”) in twelve inches (12”) is required for warranty coverage.

Tools Needed

The following list is for reference only, as tools and equipment may vary from project to project:

- 2-inch steel or hard rubber hand roller
- Stiff broom
- 9-inch paint roller frame & several medium nap, solvent compatible roller covers
- Safety glasses and eye cleaning solution
- Mastic gun
- crayon
- Screw gun and hammer drill
- Hacksaw and blades
- Solvent resistant rubber gloves
- Stir stick for adhesives
- Tin Snips
- Scissors & tape measure
- Hammer
- Duct tape
- Chalk Line
- Cotton rags
- craft Knife

SECTION 1

Products

EPDM Roofing Membrane: Synthetic rubber (ethylene propylene diene monomer) membrane used for flat and low-sloped roofs.

SOLVENT BASED BONDING ADHESIVE: Used to adhere EPDM membrane to insulations (excluding polystyrene), plywood, OSB, concrete, block or brick. This yellow colored adhesive comes in 1-gallon cans or 5-gallon pails. Average coverage is 60 sq. ft. per gallon. Coverage may increase depending on the porosity of the substrate. Apply *Solvent Based Bonding Adhesive* by rolling to clean, dry, grease free surfaces. Both surfaces to be bonded must be coated with the bonding adhesive. An open time of five to thirty minutes is recommended before

assembly depending on ambient conditions. The adhesive should be allowed to dry until it does not stick to a dry finger touch. Toluene is excellent for post application clean up. Avoid prolonged and repeated contact with skin. Shelf life is 1 year when stored at temperature no higher than 90 degrees F in unopened containers. Where possible we recommend the use of **WATER BASED BONDING ADHESIVE** as opposed to solvent based.

WATER BASED BONDING ADHESIVE: A user friendly bonding adhesive used to adhere EPDM to a porous rigid board substrate such as plywood or OSB Board. *Water Based Bonding Adhesive* has an advantage over *Solvent Based Bonding Adhesive* as it needs to be applied to only one surface when adhering to plywood and OSB, the membrane can be laid into the adhesive without waiting for the adhesive to dry.

With this adhesive you can reposition the membrane during installation thus wrinkles are easily eliminated. As the adhesive does not cure for 24 to 48 hours, be careful not to move the membrane when walking on it. This adhesive is applied at a rate of 10 – 12 mils that is 100 - 120 sq ft per gallon. This product should not be used to seam EPDM panels together. Care must be taken to insure this product does not freeze and can only be applied when temperatures are 40 degrees Fahrenheit and rising and with no chance of temperatures below freezing within the next 48 hours.

Follow all label directions and precautions. Shelf life is approximately 1 year when stored in a warm room with temperature range between 40 and 80 degrees. **This material should not be allowed to freeze. If the product looks like cottage cheese when opened it should not be used.**

QUICKPRIME-PLUS: A solvent-based primer designed to clean and prime the membrane prior to application of **QUICKSEAM products. QUICKSEAM products will not adhere, or perform over time, if *QUICKPRIME-Plus* is not used.** *Primer(quickprime plus)* must be applied with a ***Scrubber Pad. Quickprime plus*** can be used on galvanized steel, stainless steel, and aluminum/metal drip edge in conjunction with the application of **quickseam** taped products on these surfaces.

Membrane surfaces must be clean, dry and free of foreign materials. The solids suspended in the ***quickprime plus*** tend to settle to the bottom of the container and should be thoroughly stirred before use. During use, re-stir frequently (every 15 - 20 minutes). The primer must be used full strength - **DO NOT DILUTE.**

Quickprime plus contains ingredients which could be harmful is mishandled. **It is important to read and follow all label safety instructions**. It is important to store product in original, unopened container, indoors, and out of direct sunlight at temperatures below 80 degrees F. The shelf life is approximately 24 months if stored in original unopened containers at temperatures between 60 degrees and 80 degrees F. ROTATE STOCK.

SEAM TAPE: A butyl tape used to adhere one membrane to another. ***Seam Tape*** has been formulated to provide high initial strength in both sheer and peel. Its performance over the full range of rooftop weather is unsurpassed as it is unaffected by heat or cold. **Quickprime p*lus*** must be applied to the membrane surface, with a ***Scrubber Pad***, prior to applying the ***Seam Tape***. Roll entire surface with a steel hand roller after mating the surfaces. ***Lap sealant*** is not required when using ***Seam Tape. Seam Tape*** is a cured material and will not degrade in normal

warehouse storage. In time, the release paper may become difficult to remove. For this reason, the recommended shelf life is 12 months.

COVER STRIP:. The product is a laminated, cured EPDM membrane and butyl tape rolled on a release paper and used as a "self-sticking" cover strip. ***Cover Strip*** is a black EPDM rubber based product developed for use with the EPDM roofing membrane ***Cover Strip*** *Tape* is used to cover cuts in the field membrane or over the exposed fasteners attaching metal drip edge. Surfaces should be primed with ***quickprime-plus*** before installation and should be rolled with a steel hand roller after installation. ***Cover Strip*** *Tape* will not degrade in normal warehouse storage. In time, the release paper may become difficult to remove. For this reason, the recommended shelf life is 12 months. ***Cover Strip*** is also used to repair membrane if it is damage by falling limbs etc. Be certain to clean the area to be repaired with ***Membrane Cleaner*** and prime with **quickprime plus** using a ***Scrubber Pad***.

UNCURED FLASHING (formflash): Moldable EPDM membrane is used for flashing details, protrusions, T-Joint patches and field seams incorporating angle changes. **Formflash** has the same ingredients as the field sheet. The only difference is it was never put in an oven and cured. Because it is uncured it can be molded into the shape of inside and outside corners, pipe flashings, etc. The heat of the summer sun will cause the flashing to cure in much the same manner as the field sheet. ***Formflash*** has a self-adhering backing and should be applied using **quickprime plus**.. Store in original unopened cartons at temperatures between 60 degrees F and 80 degrees F until ready for use. During hot weather, do not expose to sunlight/elevated temperatures until ready for use.

LAP SEALANT: Used to caulk exposed edges of rubber to rubber seams, edges of uncured EPDM flashings, top of ***Termination Bar*** and top of ***Pipe Boot Clamps***. Approximate coverage is 25 ft. per 10.3 oz. Tube. Toluene or Xylene are excellent for post application clean up.

WATER BLOCK MASTIC: Mastic serves as a compression gasket preventing contaminates from accessing the roof system where the membrane has been mechanically terminated. Mastic is applied between the substrate and membrane prior to installing ***Termination Bar*** and prior to installing the ***Pipe Boot Clamp.*** Coverage is approximately 20 ft. per 10.3 oz. tube. Also used as a temporary overnight sealant or water-stop.

TERMINATION BAR: 5' or 10' lengths of aluminum bar with holes 6 inches O.C. used to mechanically secure membrane at walls, curbs, chimneys, etc. May be used in lieu of metal drip edge on fascias. All holes in ***Termination Bar*** must be filled with appropriate fasteners.

QUICK SEAM PEEL-AND-STICK PIPE BOOT: Multi-size (1" to 6 7/8" diameter), premolded, EPDM boot used to flash pipes. *Peel-and-Stick Pipe Boot* is supplied with tape backing and release paper applied to bottom flange. *Pipe Boot* should be terminated at top with stainless steel *Pipe Boot Clamps*, which are included with the product.

SCREWS (2 5/8") AND PLATES: There are 250 each Phillips truss head screws with #3 recess and 3 inch plates in each box. Screws and plates are used to install insulation board to the roof deck. The fastening pattern should be one set (screw and plate) to every two sq. ft. of insulation board for the perimeter of roofs and one set to every four sq. ft. of insulation board for the remainder of the roof. See "Roof Surface Preparation" section in this manual for the proper fastening pattern. **This and other sizes of screws are available.** Assembled screws and plates are also available.

SCRUBBER PAD: This is a specially designed pad and handle that is used to roughen the membrane surface and apply ***quickprime-plus*** with out the user coming in contact with the primer. Its use is highly recommended.

HAND ROLLER: This is a specially designed hand roller that is of sufficient weight to roll seams without tiring the user. Its use is highly recommended.

WALKWAY PADS: These are 30" x 30" skid resistant, molded EPDM pads that can be adhered to the membrane in much the same manner as laying tile. These pads come with a QUICKSEAM peel and stick tape for ease of installation. They are used on high traffic areas and are often used for walk out decks to protect the membrane.

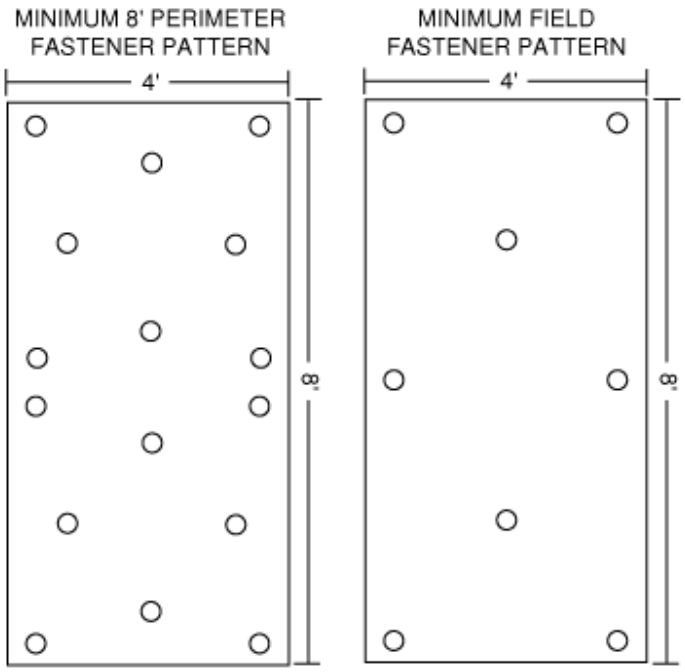
SECTION 2 ; INSTALLING THE EPDM

Roof Surface Preparation;- insulated roof (warm roof)

EPDM roof membrane will adhere to certain isocyanurate insulation boards compatible with EPDM adhesives. **Solvent based adhesive will melt polystyrene. Water based adhesive will not adhere to polystyrene.** The roof membrane will also adhere to plywood, OSB (Oriented Strand Board), and timber boarding and concrete. Polystyrene insulation may not be adhered directly to rubber membrane. If polystyrene insulation is used, cover insulation with OSB or plywood. Butt all insulation boards together, staggering all of the joints. All spaces larger than one-quarter of an inch must be filled to provide a uniform, smooth surface.

Screws and deck plates shall be applied at the minimum rate of eight (8) per 4 ft. x 8 ft. sheet of insulation, and five (5) per 4 ft. x 4 ft. sheet or as required by the insulation manufacturer. When installing insulation around the perimeter, the fastening pattern is one (1) screw and one (1) deck plate every two (2) square feet (that is sixteen fasteners per 4 ft. x 8 ft. sheet). Examples of fastening patterns are shown in Figure 1. **NOTE:** Extra fasteners should be installed around protrusions such as pipes, chimneys, skylights and irregularities in the roof deck.

Figure 1 — Fastening Pattern



Do not install more insulation than can be covered with the membrane by the end of the day.

Reroofing over a wet substrate is not good roofing practice. All wet material should be removed and replaced.

The roof surface must be dry. Moisture will cause poor membrane adhesion and blistering.

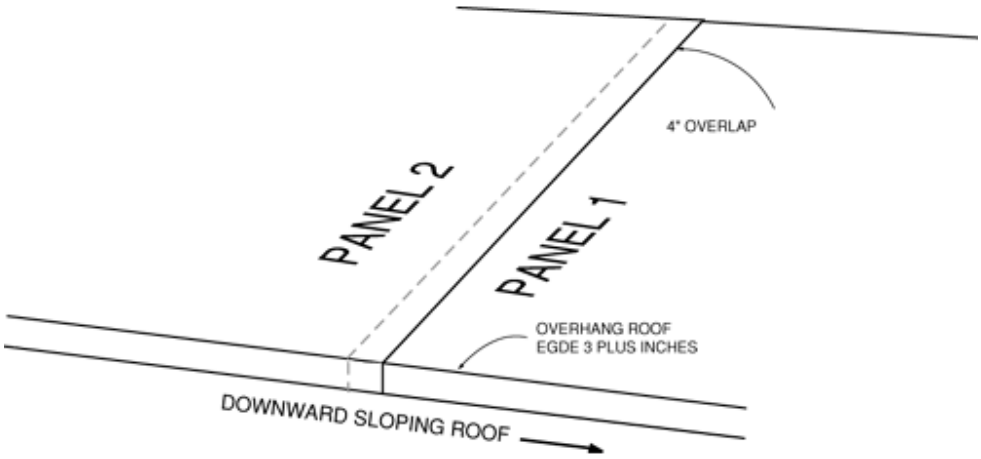
The roof surface should be swept to remove dirt, dust and other loose particles.

Good roofing practice dictates that the roof surface must have positive drainage of at least 1/8 inch in 12 inches.

Laying Out the EPDM Membrane

Unroll the EPDM membrane over the substrate so that the sheet is in the desired position and is wrinkle free. If more than one sheet of membrane is required always place the first sheet of membrane at the low point on the roof. Subsequent sheets would over lap the prior sheet at least 4” if using *seam tape*, 6” if using *rubber to rubber adhesive,* moving up the roof. Care should be taken to insure membrane overhangs perimeter of the roof at least three inches (3”).

Figure 2

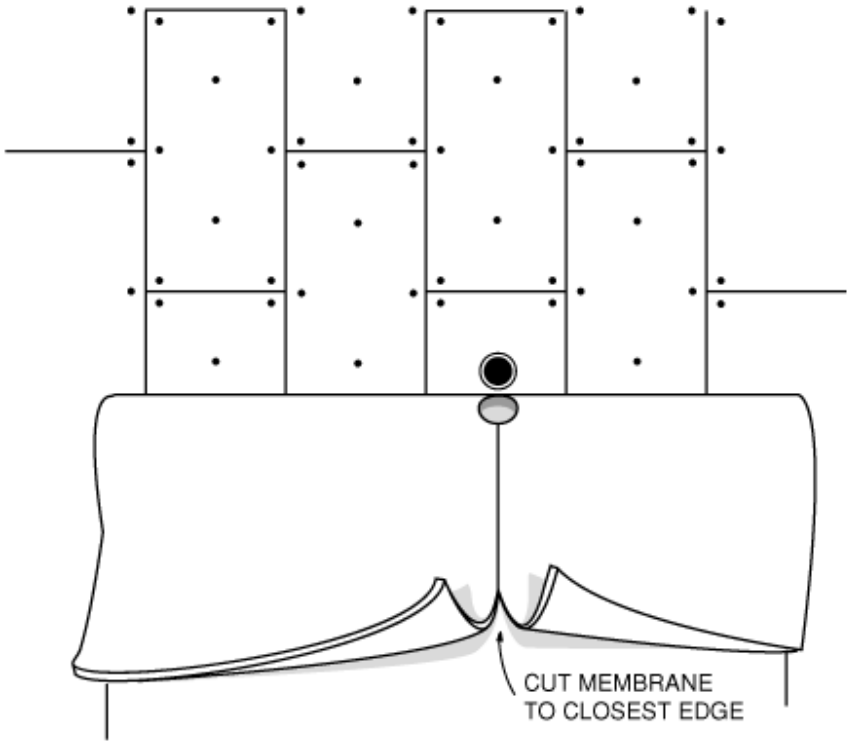


Allow the membrane to relax. Depending on weather conditions, this could take from fifteen (15) to thirty (30) minutes. Use strips of duct tape on upper edge of membrane to keep the membrane from moving.

Pipe Penetrations

When laying out the field sheets and a pipe is encountered, roll the folded membrane to the pipe. Be sure to maintain the proper alignment of the sheet with the roof edge, wall, and seams. Make a straight cut from the pipe to the nearest edge of the field sheet. Cut a hole to match the diameter of the pipe and roll the field sheet around the pipe. Check the final position of the sheet, making certain the membrane does not bridge up the pipe.

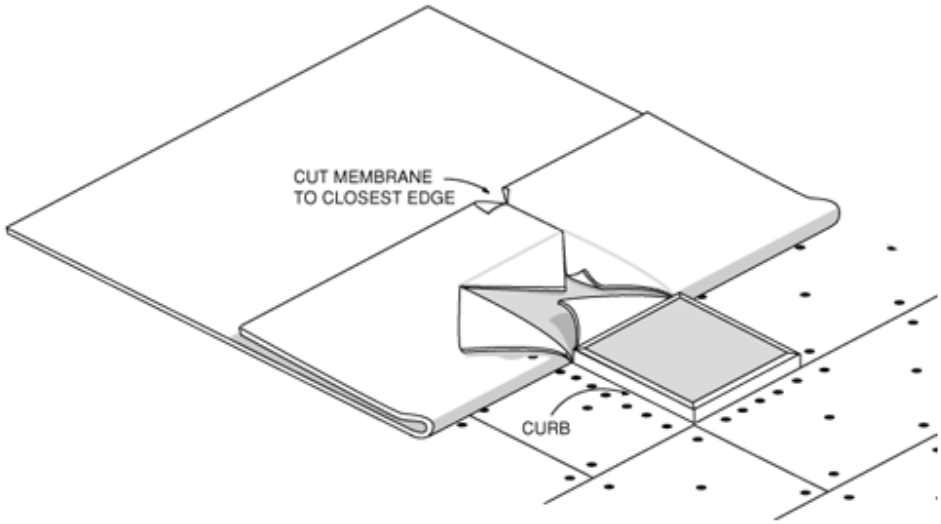
Figure 3



Protrusion In The Roof

When laying out the field sheet and a curb (chimney, skylight, etc.) is encountered, unroll the folded membrane up to the curb while maintaining proper sheet alignment with walls, perimeter edges and other protrusions.

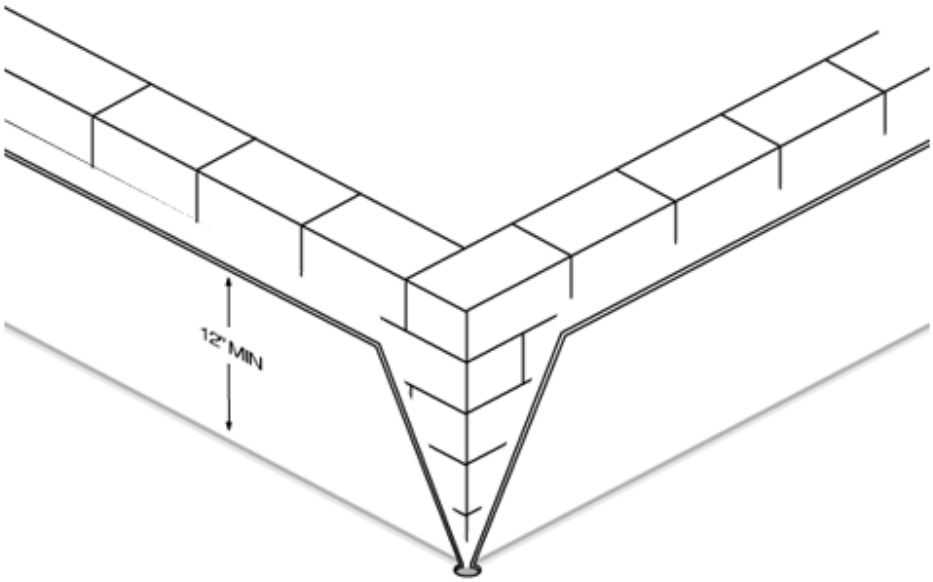
Figure 4



Measure the width and depth of the unit and transfer the corresponding dimensions onto the folded membrane. Draw an X inside the box. Cut the X mark and from one corner cut a straight line to the nearest edge of the membrane. Roll the membrane around the unit, leaving a triangle of membrane turning up all four (4) sides. Using a standard paper punch or scissors, punch or cut a round hole at every angle change of the membrane at the outside corners. (This will prevent the cut in the membrane from continuing.)

After all cuts are made and the membrane has been correctly positioned, fold the membrane back and begin bonding procedures. After the field membrane is complete, bond the triangles up the sides of the unit (chimney, skylight, etc.). Take care to bond the membrane into the angle change so that the membrane is completely adhered. Membrane should travel up the wall at least twelve inches (12”) or to the top of the opening if it is less than twelve inches (12”).

Figure 5

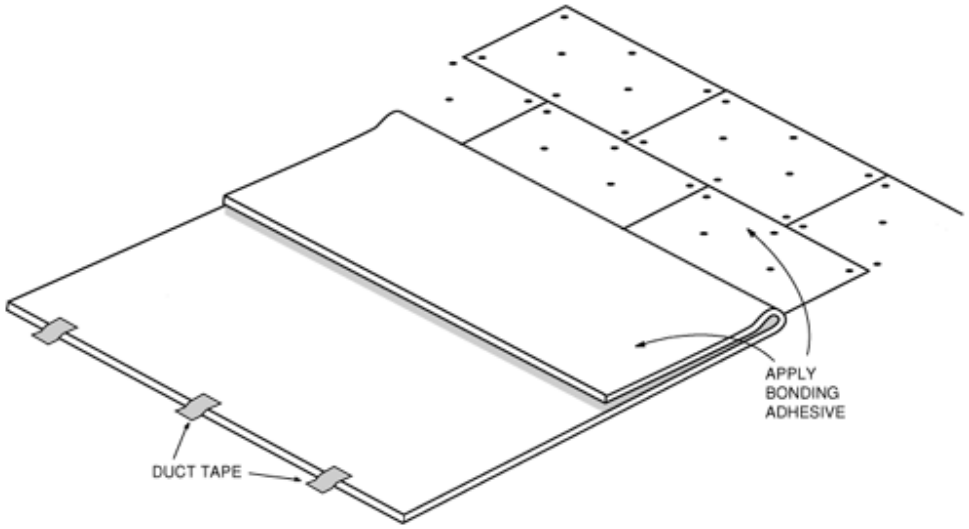


Adhering the Membrane (solvent based or *water based adhesive*(*recommended*))

(a) With Solvent Based Bonding Adhesive

Fold the sheet onto itself so that one-half (1/2) of the sheet is exposed. Take care to avoid wrinkles.

Figure 6

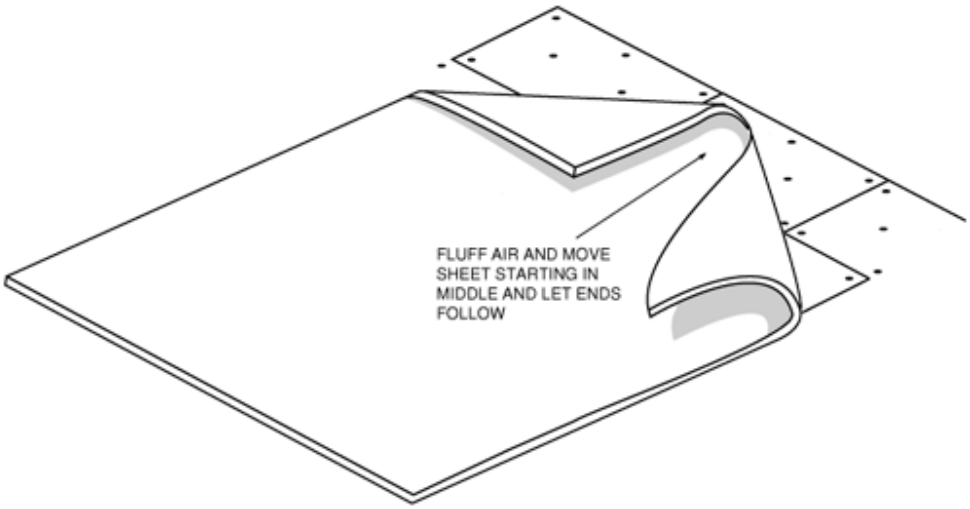


Open and thoroughly stir the *Solvent Based Bonding Adhesive* (available in either 1 or 5 gallon containers). Using a solvent accepting paint roller, apply the *Solvent Based Bonding Adhesive* to the substrate and the EPDM sheet at a rate of sixty (60) square feet per gallon. The adhesive must be applied to 100% of both surfaces in an even coat without blobs or puddles. Allow the adhesive to dry to the finger touch of tacky but not stringy. If membrane is adhered to the substrate before the adhesive has dried, blisters will form under the membrane. If smaller blisters appear, they will normally disappear after a few days without causing the membrane to loosen from the substrate over time.

Fluff air under the top half of the sheet and roll the sheet onto the glued substrate. **It is important to roll from the middle of the sheet first, followed by the ends (shown in Figure 3)**. DO NOT let the ends of the sheet roll ahead of the middle. This will cause wrinkles. With a stiff broom, broom the fully adhered portion of the sheet to the substrate to insure 100% adhesion. DO NOT apply enough pressure to cause the EPDM to wrinkle.

Remove the duct tape from the upper half of the membrane panel. Fold back the remaining unglued portion of the sheet and repeat the process.

Figure 7

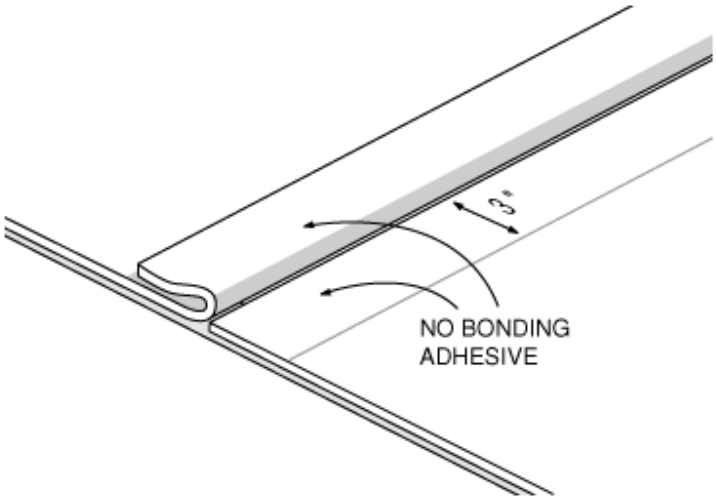


If installing more than one sheet, always work up the roof so that water flows over and not against the lapping edges. Allow the next sheet to over lap the one already installed by three inches (3”). Use duct tape to hold this sheet in place. Again lay the sheet back halfway and apply *Bonding Adhesive* to both surfaces and proceed as you did with the first sheet.

NOTE: DO NOT APPLY BONDING ADHESIVE TO SEAM AREAS (see Figure 8). THUS NO BONDING ADHESIVE SHOULD BE APPLIED TO THE RUBBER ALREADY INSTALLED AS WELL AS NO *BONDING ADHESIVE* SHOULD BE APPLIED TO THE THREE INCH (3”) OR (6”) OVER LAP ON THE SUBSEQUENT SHEET. **QUICKPRIME PLUS *WITH SEAM TAPE*** IS RECOMMENDED WHEN SEAMING MEMBRANE TO MEMBRANE.

Hint: if bonding adhesive strays into area to be seamed apply duct tape to adhesive. Roll with hand roller. Peel off duck tape. If any adhesive remains, repeat process.

Figure 8



(b) Adhering Membrane With Water Based Bonding Adhesive(recommended)

EPDM *Water Based Bonding Adhesive* is to be used only for bonding EPDM *Membrane and Flashing* to underlying roof surfaces, i.e. decking or insulation, walls, penetrations, etc. *Water Based Bonding Adhesive* is not to be used for field seaming of EPDM *Membrane* or *Flashing.* The application of this adhesive should be as follows:

- Apply adhesive at temperatures of 40 degrees F (4 degrees C) and rising with no chance of freezing in the next 48 hr.

Application to Non-Porous Surfaces Horizontal Surfaces (isocyanurate insulation) and Vertical Walls

Figure 9

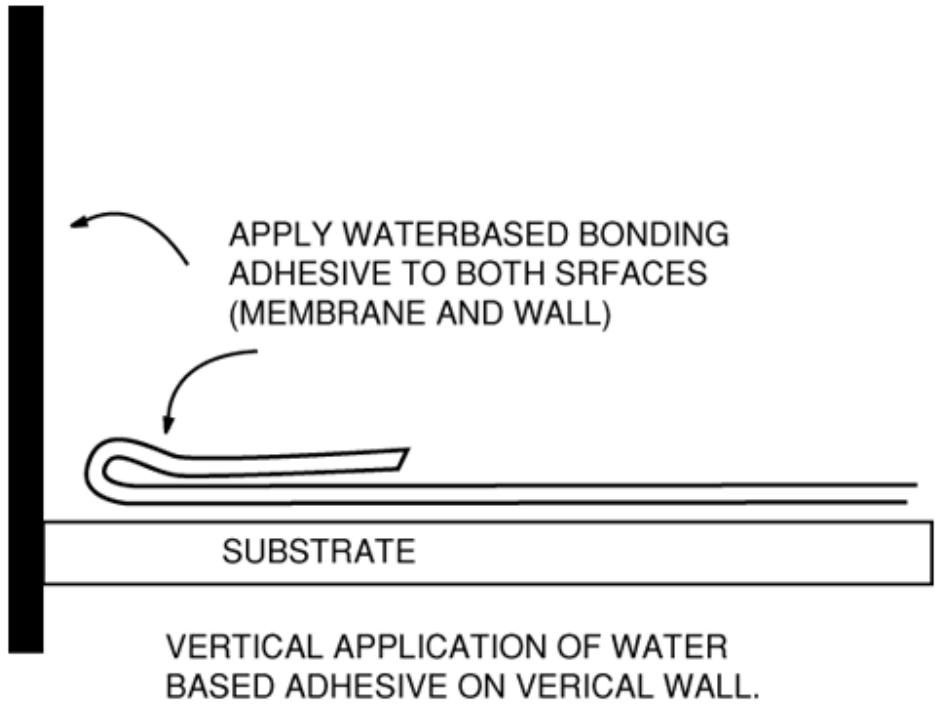
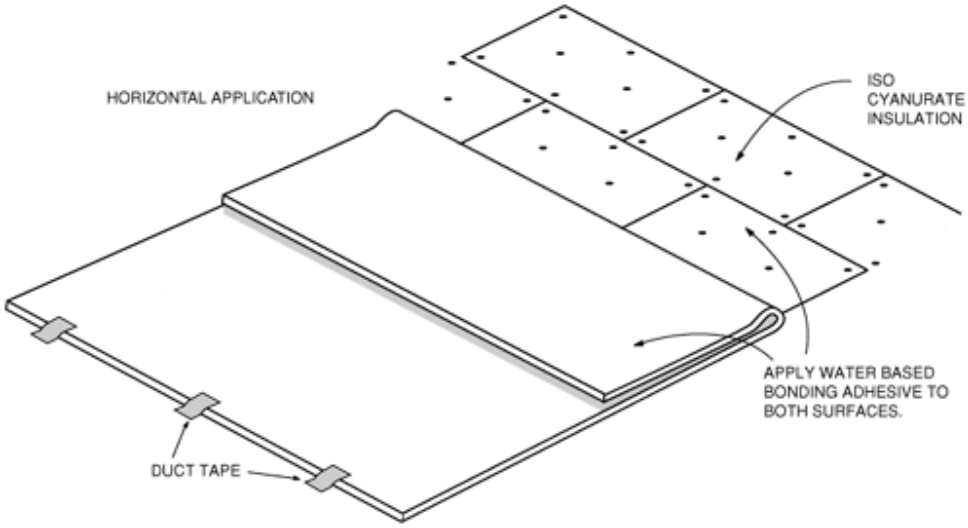


Figure 10



Fold the membrane back so that half of the sheet is exposed. Apply thin coat of adhesive to **both** surfaces and **allow it to turn transparent and it is finger dry to the touch**. The membrane can then be folded over the insulation or up the wall. Broom or squeegee the membrane surface to insure intimate contact of the membrane to the substrate. Coverage rate is approximately 100-120 sq. ft. / gallon but may very depending job site conditions. Remove Water Based Bonding Adhesive from seam area with damp cloth.

Application to One Porous Horizontal Surface (close-boarded timber, plywood ,OSB)

Fold the membrane back so that half of the sheet is exposed. Apply adhesive to the porous substrate only with a roller. Immediately lay the membrane into the adhesive while wet. If the adhesive has turned transparent, a thin coat of adhesive must be applied to the membrane. Laminating onto one surface while the adhesive is wet will allow for some repositioning of the membrane prior to the adhesive taking a set. Immediately broom or squeegee the membrane after it is laid into the adhesive to insure intimate contact. Coverage rate is approximately 120 sq. ft/gallon but may vary depending on job conditions.Remove Water Based Bonding Adhesive from seam area with damp cloth.

Figure 11

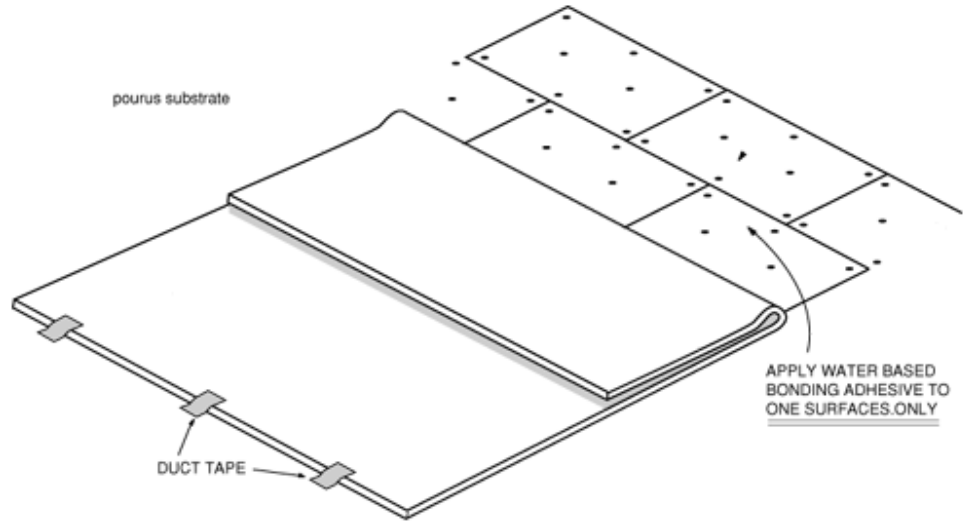


Figure 12

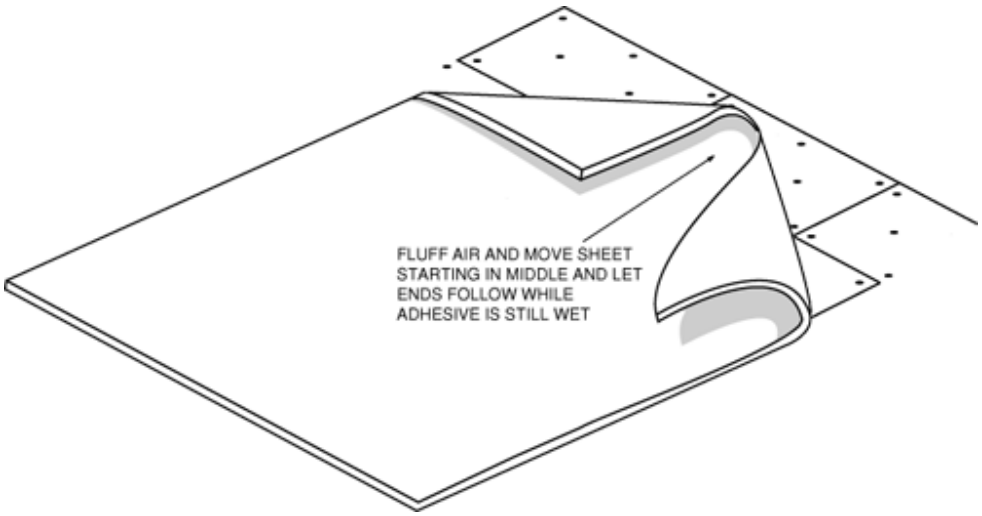
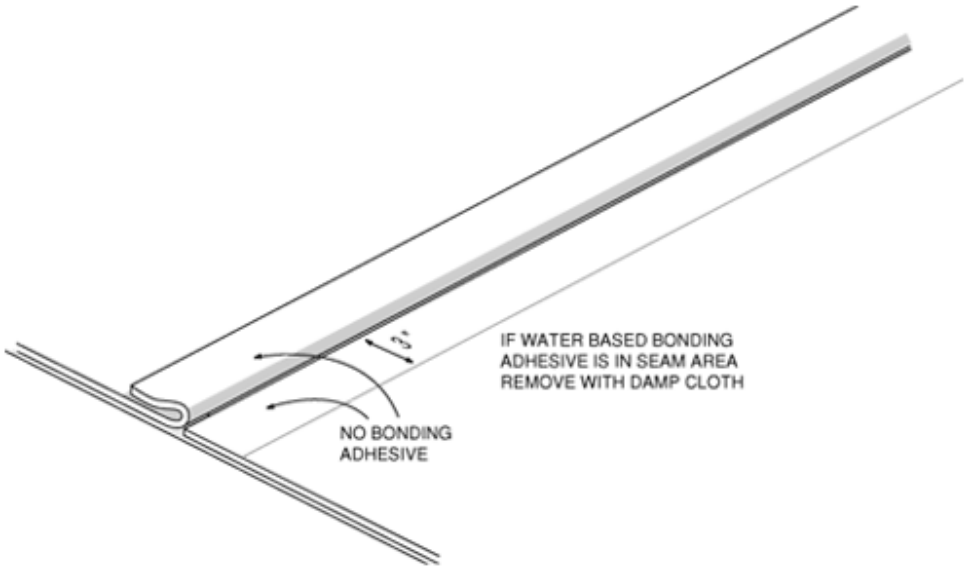


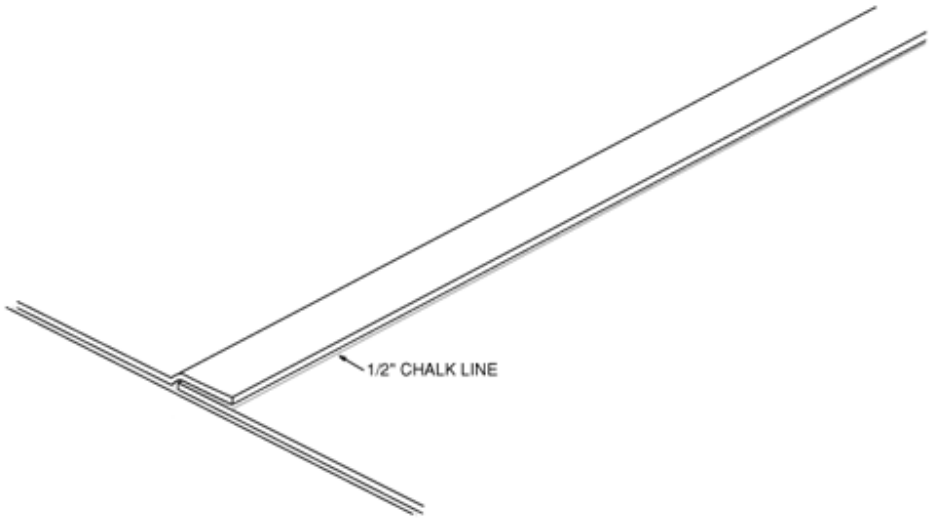
Figure 13



Seaming Membrane Panels With Seam Tape

After adhering the membrane sheets so that the width of the seam is the width of the seam tape used, remove excess chalk from a chalk line by snapping the line into the air and then chalk a line one-half inch (1/2”) from the leading seam edge. (shown in Figure 14a).

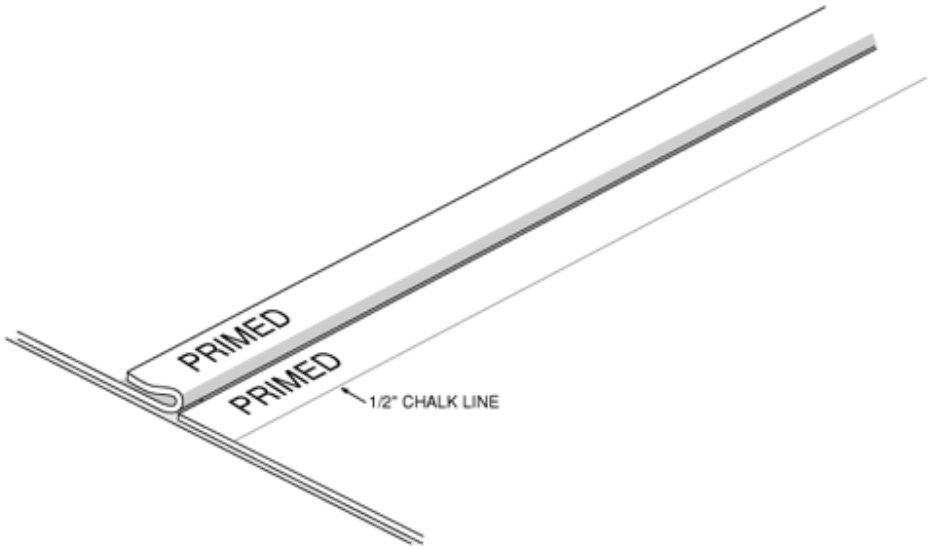
Figure 14a



Fold the top sheet back to expose the seam area. (HINT: A small piece of seam tape that is tacky on both sides is useful to tack the membrane back.) If the EPDM membrane is contaminated with dirt, dust or debris, clean the seam area with ***Membrane Cleaner*** on a cotton cloth before applying ***Quickprime Plus***. Using the ***Scrubber Pad***, apply the ***quickprime plus*** to the area using back and forth strokes with moderate pressure until the seam surface attains a

smooth black appearance. Apply the ***quickprime plus*** past the seam edge to the chalk line. Allow the primer to dry. (shown in Figure 14b).

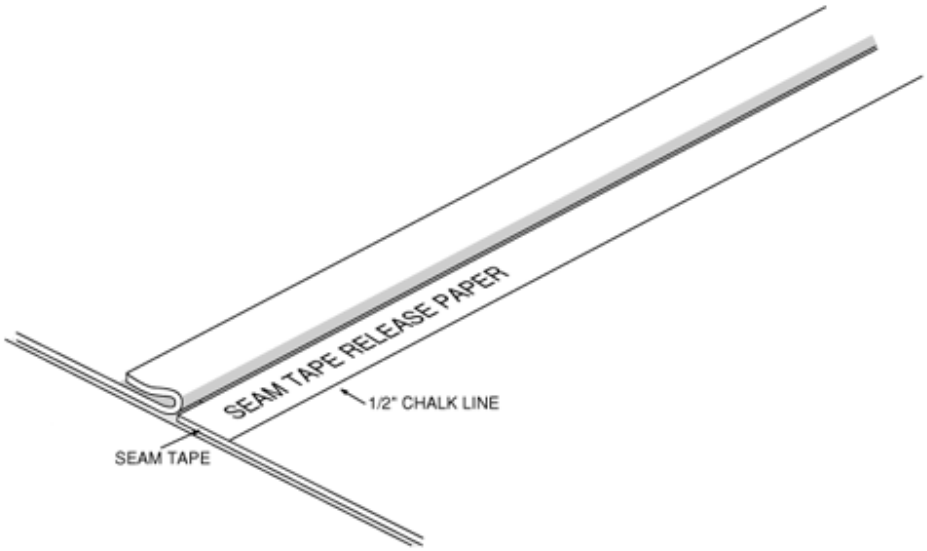
Figure 14b



If Adhesive strays into area to be seamed, apply duct tape to adhesive covered membrane area and roll with hand roller. Peel off duct tape. If adhesive remains repeat process. If is in area to be seamed, remove with damp cloth.

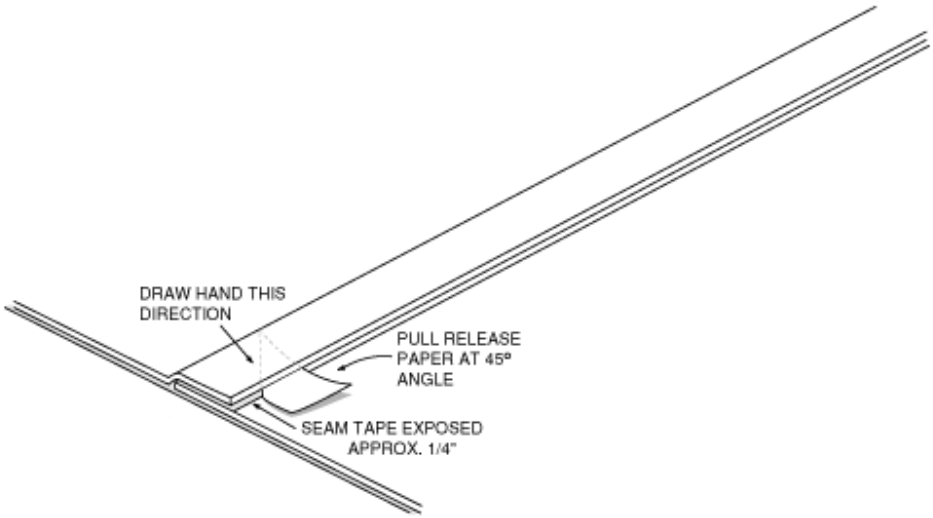
Unroll the *Seam Tape* along the length of the seam, tape side down, aligning the *Seam Tape* paper with the chalk line. Using moderate pressure, draw the *seam* roller along the *Seam Tape* release paper. This will set the *Seam Tape* into place and keep air from being trapped under the tape. Fold the top membrane onto the *Seam Tape* release paper (shown in Figure 14c).

Figure 14c



Reaching under the top ply of membrane, pull the release paper away from the *Seam Tape* at a 45-degree angle to the seam (figure 14d). While removing the paper, draw your hand across the seam, from the back to the leading edge. This will prevent wrinkles and fish mouths from forming in the seam. After the paper is removed, roll the entire length of the seam with a steel hand roller—first, across the seam, and then the length of the seam.

Figure 14d



IMPORTANT! If the *Seam Tape* does not visibly extend beyond the leading seam edge, the edge (figure 14d) should be cleaned with *Membrane Cleaner* and caulked with ***Lap sealant***.

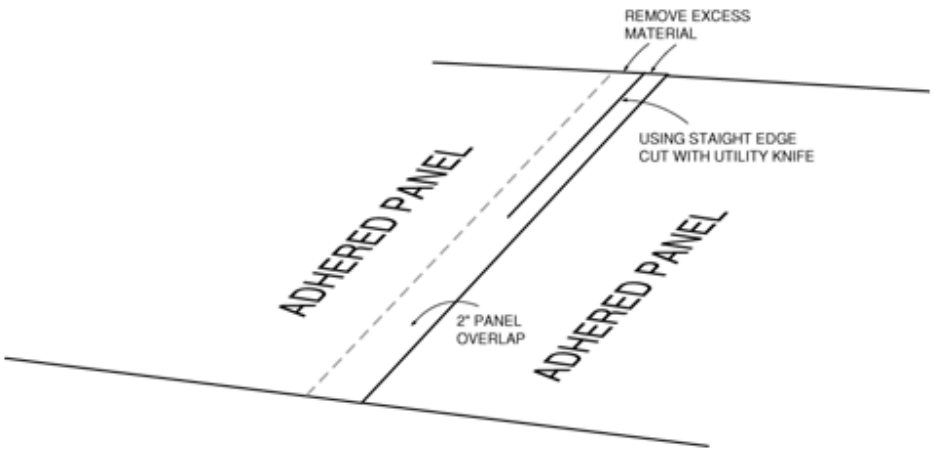
NOTE: When splicing *Seam Tape*, overlap each piece a minimum of one inch (1”) and firmly roll with a steel hand roller.

Alternative Panel layout and Seaming

The following seaming technique is acceptable for only fully <u>adhered roofs.</u>

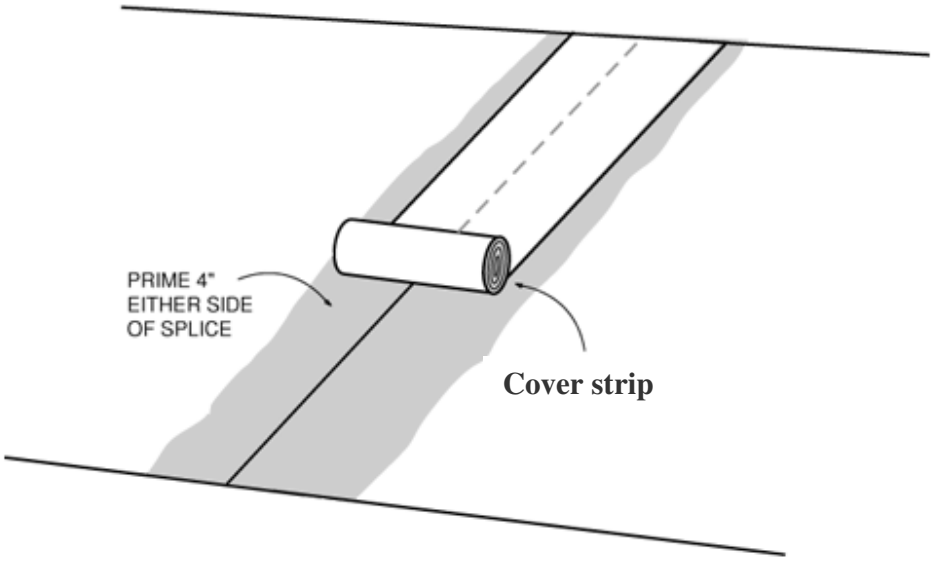
Lay roof panels out with at least a 2” overlap. Fully adhere roof as instructed earlier. After the roof is adhered, use a straight edge and utility knife to cut through both layers of membrane in the area where the panels are overlapped. (See Figure 15d) Remove the end cuts from both panels. This procedure creates a perfect **butt splice** in the same manner as a wall paper hanger would.

Figure 15d



Using a ***Scrubber Pad*** and ***quickprime plus*** prime and area 4” on either side of the **butt splice**. Centre 6” **Cover strip** over the butt splice and unroll while removing the backing paper. (See Figure 15e) Roll the cover strip with a hand roller, first rolling the length of the seam and then across the seam.

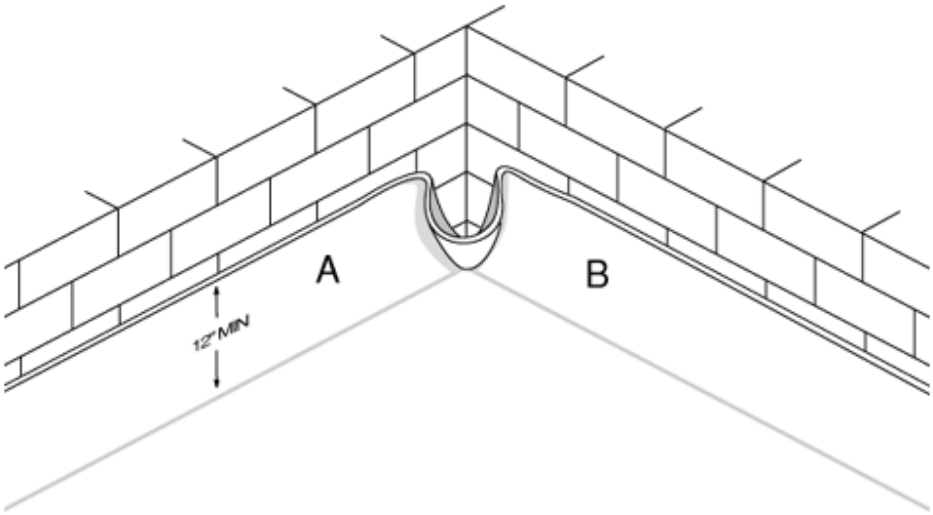
Figure 15e



Perimeter Walls & Inside Corners

Adhere the field sheet to the substrate until the membrane reaches the wall. *Apply Bonding Adhesive* to the folded membrane and the wall area. Starting at the base or angle change between the corner and opposite end of each wall, begin to roll the EPDM sheet up and along the wall to form a wall flashing. Roll the excess EPDM material towards the corner. Take care to thoroughly adhere the membrane into the angle change before rolling the membrane up the walls. Broom or hand rub the flashings to ensure 100% adhesion.

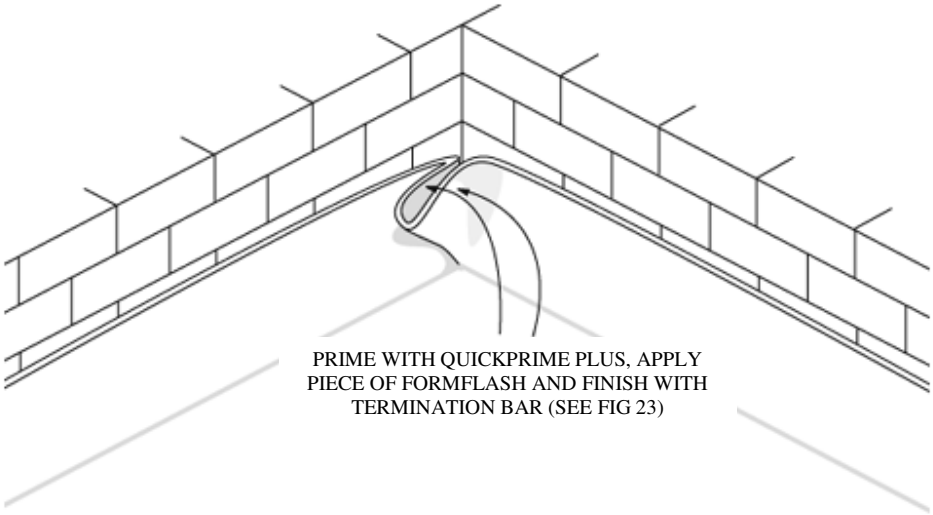
Figure 16



When one side is flashed in, (A), begin the other side, (B). When both walls are flashed in, all excess material should form a pocket in the corner.

Clean the inside and outside of the pocket with ***Membrane Cleaner*** and apply ***Rubber to Rubber Adhesive*** to both sides of the pocket. (shown in Figure 17). Allow the adhesive to dry to the finger touch as tacky, not stringy.

Figure 17



Note: It is important to adhere the wall flashing on each side of the corner as tightly into the corner as possible.

Starting at the base of the inside corner pocket, press the two glued surfaces together. Following standard seaming procedures adhere the pocket to either wall (shown in Figure 12). Install a 6" *Cover Strip* extending from the bottom of the pocket fold to the top, as shown in Figure 23.

Figure 18

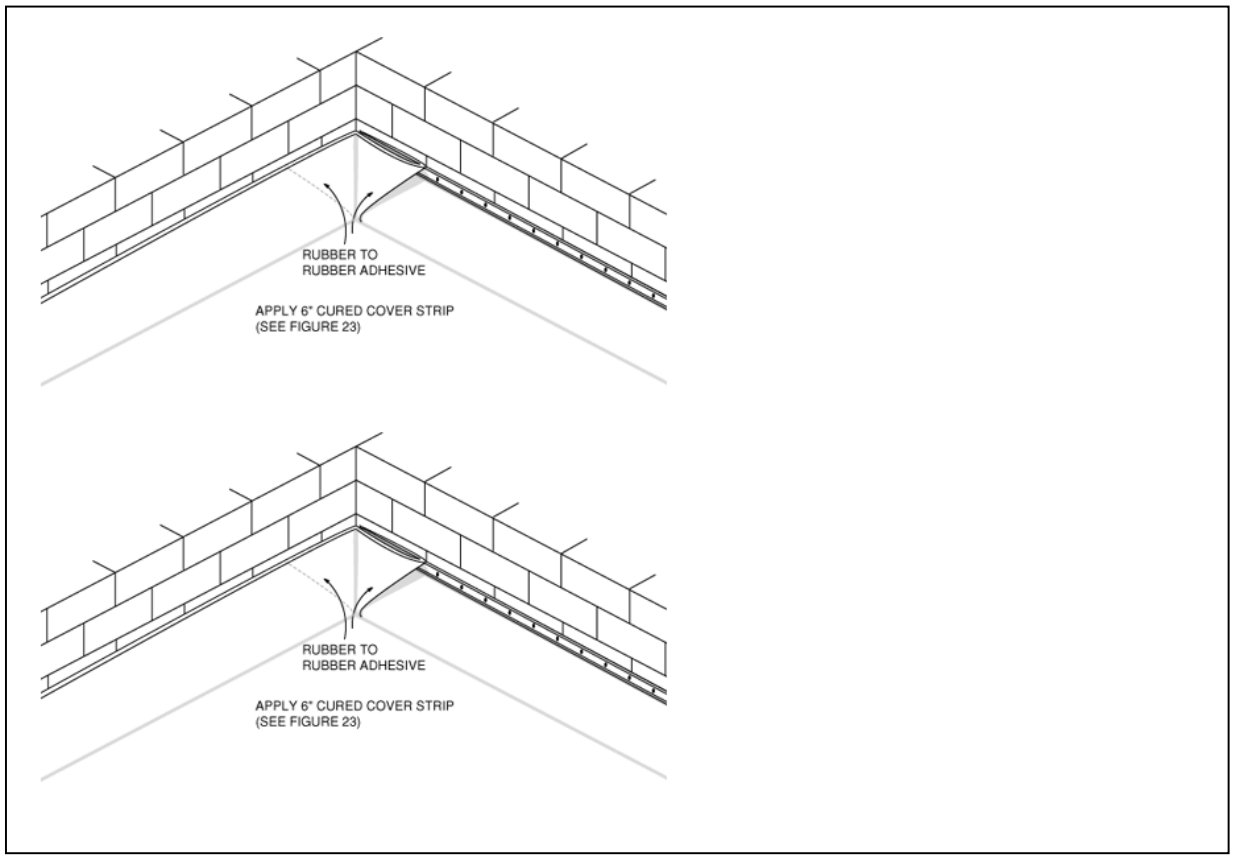
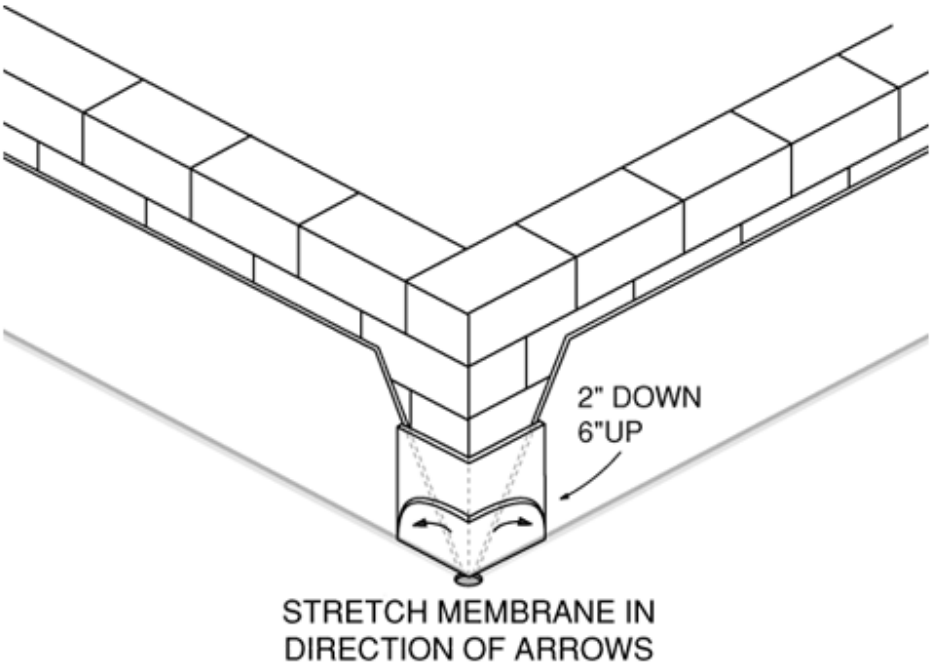

RUBBER TO
RUBBER ADHESIVE
APPLY 6" CURED COVER STRIP
(SEE FIGURE 23)
RUBBER TO
RUBBER ADHESIVE
APPLY 6" CURED COVER STRIP
(SEE FIGURE 23)

Figure 19 a



Outside Corner Finish Detail

1. Prior to installing any flashings, use the *Scrubber Pad* and apply *quickprime plus* to all areas to be flashed. Cut *Uncured Flashing (formflash)* six inches (6”) wide by eight inches (8”) long. Cut the corners round to prevent inadvertent peeling. After the quickprime plus has dried,fold one end of the flashing two inches (2”) from the end. Place the membrane against the vertical surface so that half the flashing is on either side of the corner. Fold the flashing around the corner and adhere to the vertical surface. The flashing should extend two inches (2”) onto the roof deck, and six inches (6”) up the vertical.

Figure 19 b

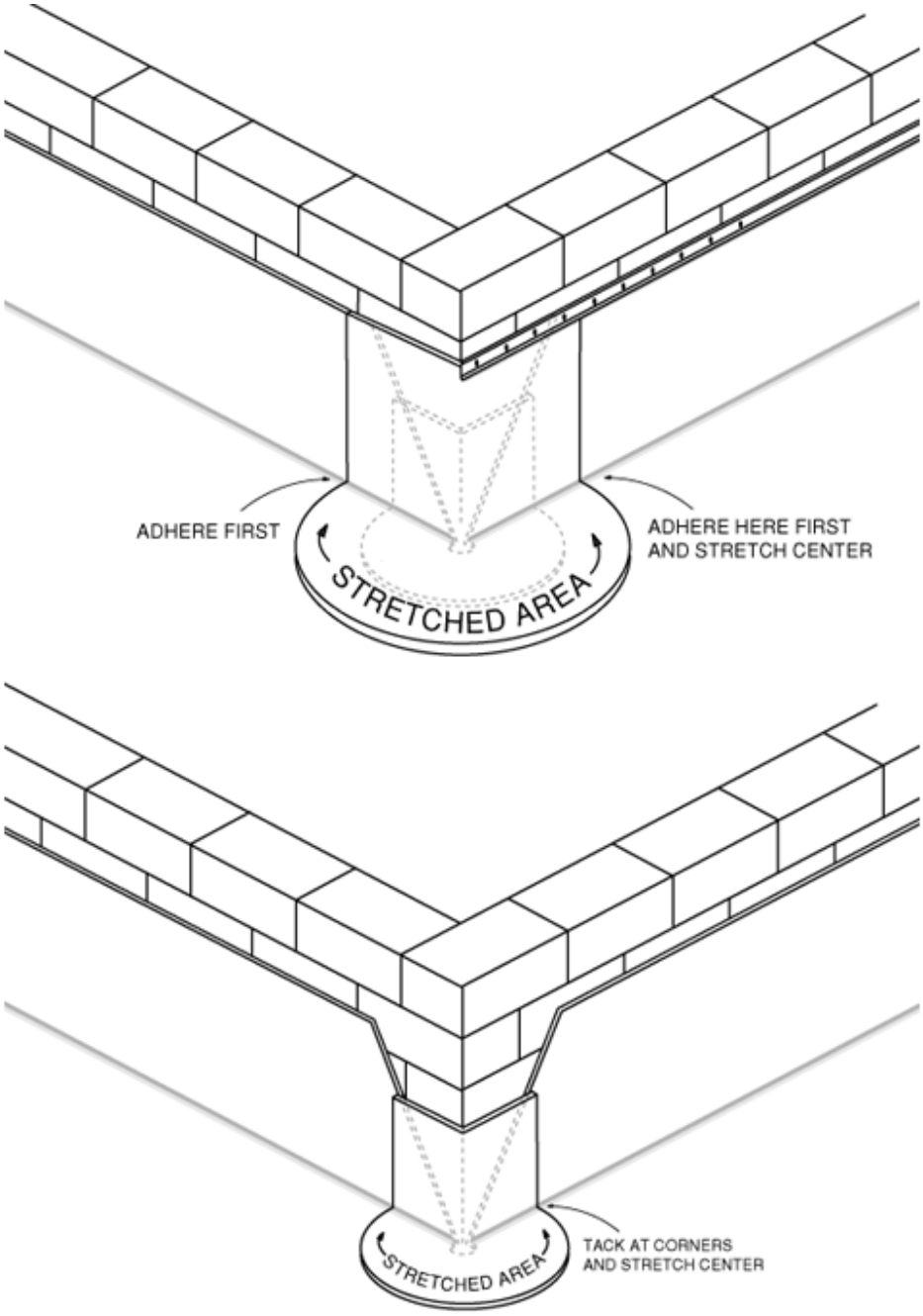
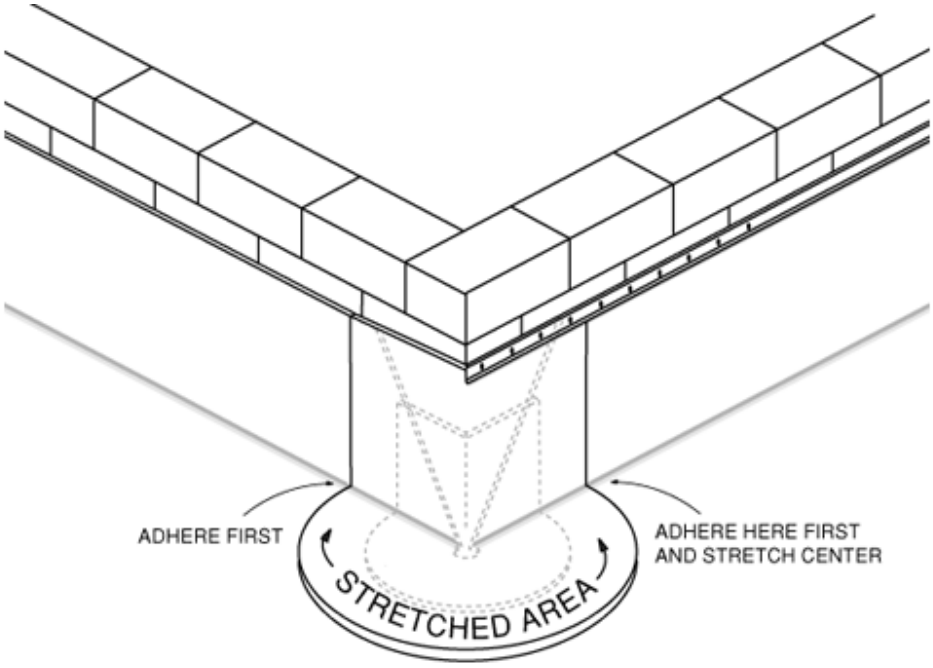

ADHERE FIRST
STRETCHED AREA
ADHERE HERE FIRST
AND STRETCH CENTER
STRETCHED AREA
TACK AT CORNERS
AND STRETCH CENTER

Figure 19 c



2. Adhere the flashing at each corner and stretch the middle of the flashing away from corner as the flashing is mated to the field membrane.

IMPORTANT: All stretching should be done in the middle of the flashing.

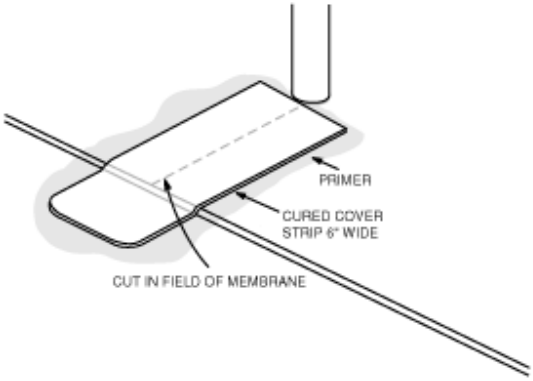
3. The second layer of ***formflash*** should be installed following the same flashing procedures as the first, but using larger piece of ***formflash*** (see Figure 19c). This flashing should extend onto the roof a minimum of four inches (4”) and up the vertical wall a minimum of eight inches (8”).

IMPORTANT: ALWAYS EXTEND THE NEW FLASHINGS ABOVE ANY EXISTING MEMBRANES OR FLASHING MATERIALS.

Cover Strip

Where a protrusion in the roof, such as a pipe or curb opening, was encountered while installing the EPDM membrane; the membrane was cut to the nearest edge to allow easy layout of the membrane. After the field sheet has been glued and broomed into place, apply a six inch (6”) wide ***Cover Strip*** over the entire cut in the field sheet from the pipe to the end of the sheet, prior to pipe boot installation.

Figure 20



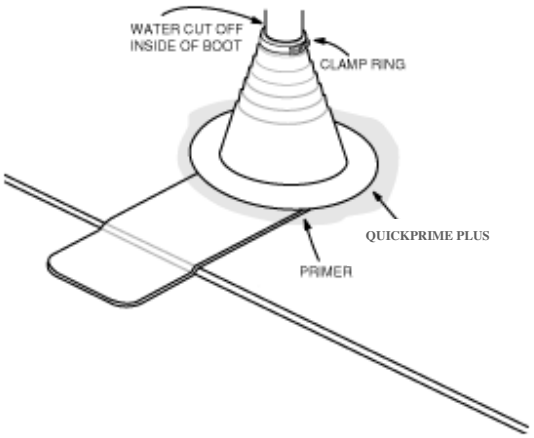
Quickseam Peel And Stick Pipe Boot

1. Select the proper size of *Multi-Diameter Peel and Stick Pipe Boot* and cut the pipe boot above the thick index ring. DO NOT CUT DIAGONALLY THRU THE INDEX RING. The pipe boot should fit snugly over the pipe.

2. Install the pipe boot over the pipe and turn the boot inside out exposing the bottom of the boot flange. Apply ***quickprime plus*** at least ten inches (10”) in all directions from the pipe. Remove seam tape release paper from the pipe boot. Pull the pipe boot down and adhere it to the field membrane (shown in Figure 15). Roll adhesive area with a steel roller.

3. Pull the top of the pipe boot back and apply ***Water block Mastic*** between the pipe and boot. Bring the boot back into position and remove any excess ***Water block Mastic***. Install a stainless steel adjustable clamp ring over the pipe boot. ***Apply Lap sealant*** around the top of the boot.

Figure 21



Pipe Or Conduit Flashings Using Formflash

When a pipe or conduit is encountered that cannot be flashed with a *Peel and Stick Pipe Boot*, the protrusion must be flashed using 2-plys of Formflash.

1. Make sure to clean the protrusion and remove and loose flashings. Using the ***Scrubber Pad***, apply ***quickprime plus*** around the protrusion.

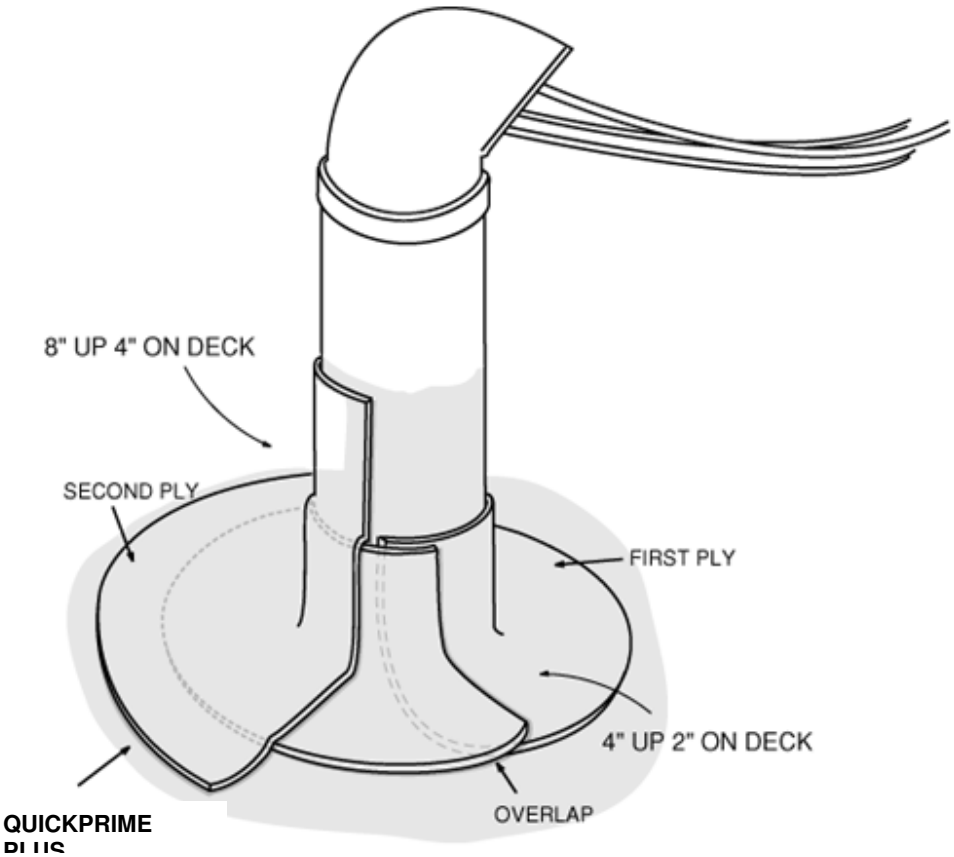
2. Cutting from ***Formflash,*** install a six inch (6") wide piece extending four inches (4") up the protrusion and two inches (2") onto the roof deck. Wrap the entire protrusion, allowing a two inch (2") overlap of each flashing. Use as many pieces as necessary to flash the pipe.

3. After the first ply is completed, install the second ply using twelve inches (12") of ***formflash.*** Wrap the protrusion with eight inches (8") of ***Formflash*** extending up the protrusion, and four inches (4") onto the roof deck. Make sure to stagger the end laps of the ***formflash*** so that one lap is not directly over another. Using as many pieces as necessary to complete the flashing detail.

NOTE: It is recommended to extend the flashings above the roof deck a minimum of eight inches (8"). Wrap the entire protrusion with another ply of ***formflash*** *to* attain the desired height. Make sure to overlap the top of the prior ply a minimum of two inches (2").

Always extend the new EPDM flashings above any old flashings that may remain on the protrusion. Clean and apply Lap Caulk to the flashings. DO NOT install a *Pipe Boot Clamp* over ***formflash.***

Figure 22

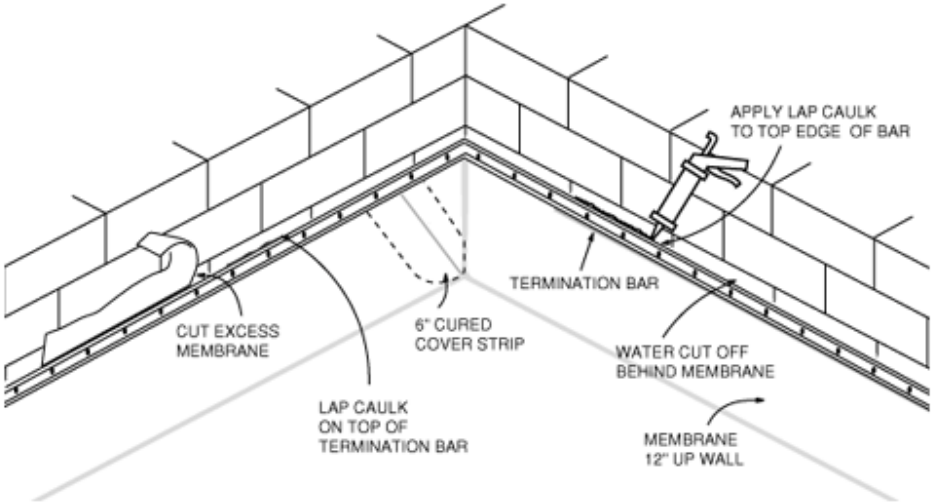


Wall Termination

Determine the height of the finished wall flashing (12” height or less if job conditions won’t allow for full 12”) and the placement of the aluminum *Termination Bar.* Chalk a line at this level. Peel the top of the wall flashing from the wall to chalk line and apply a heavy bead of *Water block Mastic* between the EPDM and wall. The mastic should be applied so that the final position of the *Termination Bar* will be directly over the *Water block Mastic.*

Fasten the *Termination Bar* with nylon/metal anchor pins, or aluminum sheet metal screws. Install a fastener in every pre-drilled hole. Remove excess membrane that extends above the Termination Bar and apply Lap sealant to the top of the Bar.

Figure 23

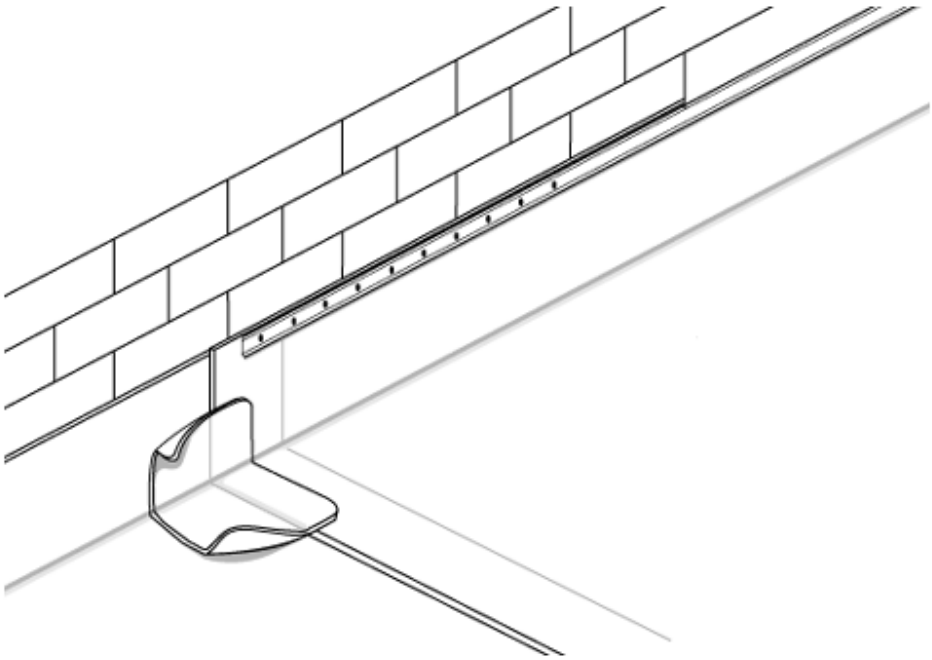


Termination bar comes in ten foot (10') lengths.

Field Seam Radical Bend

Where a field seam makes a radical bend (turns up a wall or down over a perimeter edge), a six-inch (6") wide by twelve inch (12") long piece of *FORMFLASH* is to be adhered over the seam. Round the corners of the FORMFLASH to prevent accidental peeling. Following standard flashing procedures, install the flashing so that half of the flashing is on either side of the radical bend.

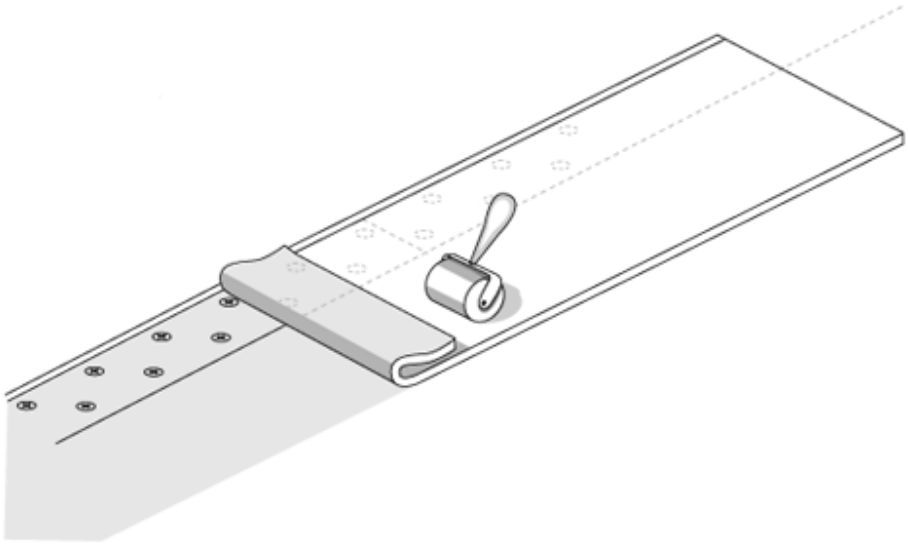
Figure 25



Roof Edge Termination With Metal Drip Edge

Fully adhere the membrane over the roof edge. Allow the membrane to extend past the previous roofline . Install the drip edge using galvanized deck screws or galvanized hex-tech screws every six inches (6”) on centre.

Figure 26



Using a *Scrubber Pad*, apply the primer to the metal and field membrane using back and forth motions the entire length of the metal edge. To ensure 100% adhesion, always apply the primer to an area that is WIDER than the *Cover Strip* . After the *quickprime plus* has flashed off, install the *Cover Strip* half inch (1/2”) in from the outside edge of the metal drip edge. Roll the entire cover strip with a small hand roller.

When splicing two pieces of *Cover Strip*, allow for a minimum lap of four inches (4”). After properly rolling the entire *Cover Strip*, install a six inch (6”) *formflash patch* over any T-Joints.

Membrane To tile Transition

When installing an EPDM membrane system to an existing tiled or slate roof, remove a minimum of three (3) courses of slates.

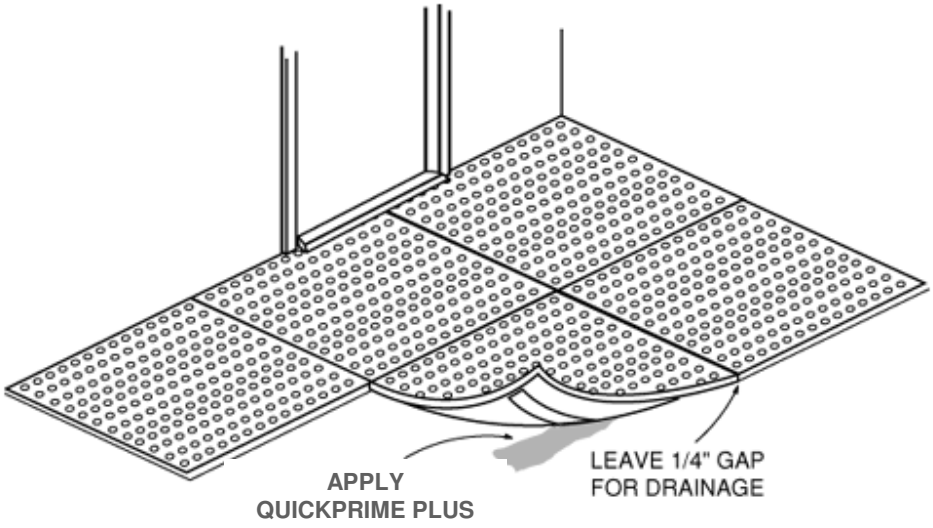
Adhere the membrane onto the sloped roof deck. Peel the top of the EPDM membrane back and apply a bead of *Water block Cut-Off Mastic* between the membrane and the deck install the tiles/slates over the EPDM membrane.

Protecting EPDM Membrane In High Foot Traffic Areas (Decks)

Covering With Walkway Pads

Walkway Pads (Peel & Stick) are 30” x 30” skid resistant, molded EPDM pads that can be adhered to the membrane in much the same manner as laying tile:

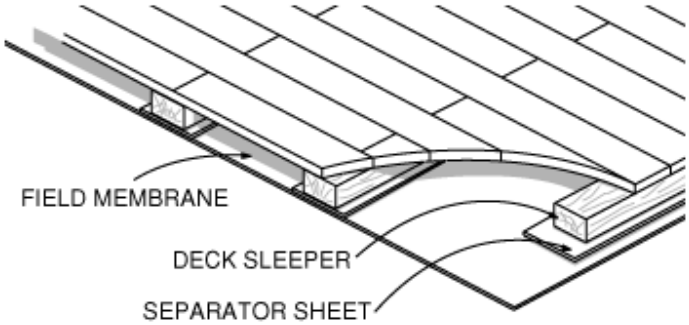
- Lay the pad in place and mark the area where the membrane will contact the tape. Leave ¼” gap between pads for drainage.
- Remove the walkway pad and apply QIUCKPRIME PLUS to the area where the tape will contact the membrane using a *Scrubber Pad.*.
- Peal the backing paper from the tape and place the pad into position. Apply heavy hand pressure or use a linoleum roller to insure the tape is secure to the membrane.



Covering With Wood Deck

When installing a wood deck over an EPDM membrane, the deck sleepers should be laid over an extra piece of membrane called a separator sheet. The separator sheet should extend a minimum of two inches (2”) past the sleeper on all sides and should be adhered with *Seam Tape.*

Figure 33



DO NOT attach the sleepers through the membrane. The deck should be secured at a sidewall, post, or perimeter area.

Repair Of EPDM Membrane

If your membrane is punctured, repairs can be made easily by:

1. Prime area with *quickprime plus* using *Scrubber Pad* at least four inches (4”) in all directions from puncture.

2. After the primer has flashed off, cut a piece of **FORMFLASH** 3” larger than the puncture and round corners. Remove backing and place over puncture.

3. Roll with hand roller.

Application Review

1. SUBSTRATE

a. Plywood, OSB or timber boarding

b. Concrete or brick.

c. Insulation boards - all but polystyrene insulation.

2. INSULATION

a. Insulation joints are butted together with no gaps.

b. Correct fastener pattern and quantity used.

c. 100% adhesion of the membrane to the substrate.

3. FIELD SEAMS

a. Quickprime plus should be visible past the leading edge of the field seams (over scrub).

b. There are no wrinkles, voids or fish mouths in any portion of the field seams.

c. All angle changes in the field seams are flashed over with one ply of six inch (6”) wide by twelve inch (12”) long *FORMFLASH*

d. *Seam Tape* should extend past leading edge of seam. If not was *Lap sealant* used.

4. FLASHING DETAILS

a. No bridging occurring in the ***formflash*** at any angle changes.

b. Two plies of ***formflash*** are applied on all outside corners, pipes (when not using a *Pipe Boot*) and stacks.

c One ply of ***formflash*** applied at all *T-Joints* field seam angle changes and over inside corner folds.

d. ***Quickprime plus*** is visible past leading edge of flashing (over scrub).

5. TERMINATION BAR

a. *Apply Water block Cut-Off Mastic* behind membrane prior to installing the *Termination Bar*.

b. Install fastener in every hole and maintain a one-fourth inch (1/4”) space between bars.

c. *Termination Bar* installed on parapet walls a minimum of twelve inches (12”) above the roof deck.

d. *Lap Caulk* applied over top of *Termination Bar*.

6. PENETRATIONS

a. *FORMFLASH* is applied in two layers a minimum of eight inches (8”) above the roof deck.

b. *Peel and Stick Pipe Boots* have *Water Cut-Off Mastic* applied between the pipe and boot, are terminated with a *Pipe Boot Clamp* and are caulked with *Lap sealant Caulk.*

7. OVERALL APPEARANCE

a. *Termination Bars* are level.

b. Seam widths are uniform and completely rolled in.

c. All debris is removed from job site.

OVERALL APPEARANCE IS VERY IMPORTANT.

Frequently Asked Questions

Q - Why do bubbles or wrinkles form after the membrane is adhered?

A - Solvents in the adhesives, which are not allowed to “flash off” or evaporate, cause distortions or bubbles. The wet adhesive distresses the membrane causing wrinkles. Depending on the substrate and the amount of wet adhesive, bubbles or distortions in the membrane will eventually be absorbed by the membrane and disappear.

Q - Can the adhesive dry too long?

A - Yes. After the adhesive is applied and has flashed off, the surfaces should be mated together. Allowing the prepared surfaces to remain open longer than necessary risks contamination from dust and debris. Also, high temperatures as well as falling cool temperatures and moisture can affect the performance of the adhesives if the prepared surfaces are left open too long.

Q - Can I put a deck over an EPDM roof?

A - Yes. See Figure 32 and 33 in this manual.

Q - Can I adhere EPDM to concrete or wood?

A - Yes. Both substrates should be free of splinters, burrs, loose fasteners, sharp edges, dust and debris.

Q - What temperature is too cold for a successful installation?

A - Adhesives perform best at temperatures over + 40 degrees Fahrenheit. Below +40 degrees it is best to install only on full sun days with low air moisture content. Application may only be possible during the middle part of the day when the temperature is stable and humidity is lowest. Rule of thumb. . . . If it is comfortable to work, you can adhere .It just takes longer for the adhesive to flash off.

Q - When I adhered the membrane, several wrinkles occurred. Will the wrinkles affect the roof?

A -Although wrinkles are unsightly, unless they traverse a seam, they will not leak. Large wrinkles can be cut out and patched. Small wrinkles might be absorbed into the membrane as it goes through several expansion/contraction cycles. Any wrinkles that migrate through a seam must be removed and repaired.

Glossary

BONDING ADHESIVE: *Bonding Adhesive* used to adhere the field sheet to substrate, walls and curbs. It should be thoroughly stirred before using. Adhesives can be either *Solvent Based* or *Water Based Bonding Adhesives.*

BRIDGING: Occurs when the membrane is unsupported at a juncture or angle change. Moisture condensing on the bottom of the membrane can cause further delamination. Areas where bridging occurs should be repaired and re-flashed.

COVER STRIP: Six inch (6") wide cured EPDM membrane with butyl tape laminated to one side. Used when stripping in metal drip edge, repairing cuts in the field membrane or flashing that requires cured membrane.

DECK PLATES AND SCREWS: Used to mechanically attach insulation board to the roof deck.

EPDM MEMBRANE: cured field sheet membrane applied to roof decks, walls and flashings. Available in variety of widths and lengths.

FISH MOUTH: A wrinkle is formed when an increasing amount of membrane is forced onto an area too small to accommodate the material. When the wrinkle ends at the edge of the material, a conical opening is formed called a Fish Mouth. Wrinkles and Fish Mouths in seams are not acceptable. They must be removed and flashed in.

FLASH OFF: Allowing the solvents in the adhesives or primer to evaporate, leaving the material in a tacky, not wet or stringy condition, before mating the two surfaces together. If the proper Flash Off time is no allowed, blisters will form in the membrane. Blisters will not harm the membrane and over time, will usually disappear.

LAP SEALANT CAULK: Applied at the top of all *Termination Bar* applications; at the top of *Pipe Boots* after the *Pipe Boot Clamp* has been installed and to adhere shingle tabs to *membrane.* Lap Caulk must be used when *Rubber to Rubber Adhesive* is used to bond two pieces of membrane.

MEMBRANE CLEANER: Used for cleaning metal drip edge after it has been sanded, prior to applying *Rubber to Rubber Adhesive;* cleaning seam edges prior to applying *Lap sealant Caulk;* cleaning excessively dirty membrane; splicing membrane or inside and outside corner details.

METAL DRIP EDGE: Used to create a finished appearance and prevent water from running down the surface of fascias and walls.

PIPE BOOT: Pre-molded EPDM boot with tape: The best and most cost effective way to flash pipes.

PIPE BOOT CLAMP: Stainless steel clamp used to secure the top of the pipe to the Pipe Boot.

SEAM TAPE: Butyl tape used to splice two layers of membrane into a watertight seam. Available in a three-inch (3") and seven-inch (7") widths.

SEAM TAPE PRIMER PLUS: Solvent based primer used to clean and prime EPDM membrane before applying *Seam Tape* or any cured or uncured tape backed membrane. It is applied using a *Scrub Pad.* DO NOT APPLY PRIMER DIRECTLY TO TAPE. Primer is only applied to surfaces being prepared to accept tape products. *Seam Tape Primer Plus* enhances the strength of membrane bonds using *Rubber to Rubber Adhesive*.

SUBSTRATE: The surface on which the membrane is applied (brick, concrete block, high-density wood fiberboard, plywood, OSB, isocyanurate insulation). NOTE: Membrane should not be adhered directly to asphalt roofing, shingles or polystyrene insulation.

T-JOINT: A T-Joint is formed when two sheets of cured EPDM form a seam that travels under, or over, a third ply. The center of the "T" is where the middle sheet ends and the top sheet bridges over the middle sheet.

TARGET PATCH: A piece of membrane used to flash over a roof jack or pipe. A Target Patch is always larger than the object it is flashing in, and is a cured membrane. **NOTE:** Do not apply membrane directly to gas furnace stacks.

TERMINATION BAR: Extruded aluminum bar used to terminate the membrane at parapet walls, chimneys, skylights and AC curbs. It is also used to terminate membrane fascia when no metal drip edge is used. The proper fastener should be installed in every hole and a one-quarter inch (1/4") space maintained between bars.

UNCURED FLASHING WITH TAPE: EPDM membrane that is not cured (meaning it was not put in oven and baked in the manner of cured membrane) and is used whenever the field sheet has to be cut to accommodate outside corners, pipes, T-Joint patch and field seams making angle changes. After *Uncured Flashing with Tape* is applied, it will cure in the position in which it was applied. It should be applied using *Seam Tape Primer Plus.*

WATER CUT-OFF MASTIC: Used to create a waterproof compression gasket whenever the membrane is mechanically fastened using a *Termination Bar* or *Pipe Boot Clamp. Water Cut-Off Mastic* is applied between the membrane and the pipe or wall. The mechanical termination is installed over the membrane, compressing the mastic and creating the gasket.