



# WATERPROOFING

## MiraPLY™-V with SeamLOCK™ Technology

### Description

MiraPLY-V with **SeamLOCK™** Technology is a nominal 70 mil vertical grade, self-adhering, blindside waterproofing membrane. This membrane is a fully adhered composite comprised of a tough, durable and flexible 45-mil reinforced TPO backing with a 25-mil butyl alloy membrane/adhesive.

### Typical Uses

MiraPLY-V with **SeamLOCK™** Technology self-adhering blindside waterproofing membrane is designed for waterproofing zero property line applications against soil retention systems.

### Features and Benefits

- Seals around fasteners
- Tremendous impermeability and excellent resistance to most chemicals (i.e., acids and bases)
- Effective Radon barrier
- Bridges cracks in concrete
- Flexible for ease of installation

### Warnings and Hazards

- Protect membrane from torch welding or cutting slag
- Do not leave exposed for more than 60 days
- Installation below 25°F require special tools and techniques. Consult Technical Services for details.
- Concrete forms must remain in place a minimum of 3 days after concrete is poured

### Storage

Store in the original packaging until use. Protect from UV exposure and weather. Store between 40°F and 100°F.

### Packaging

4' x 50' (1.22 m x 15.24 m) rolls. Weight: 83 lbs (37.65 kg)

### Standards

- City of L.A. Approval: RR 25934

### Typical Properties

Property	Method	Unit	Typical Value
TPO	—	mils (mm)	45 (1.14)
Butyl Alloy	—	mils (mm)	25 (.64)
Thickness per ASTM D 5147 across sheet	ASTM D1970	mils (mm)	70 (1.78)
Water Vapor Transmission	ASTM E96 (Water Method)	perms	.090
Tensile Strength <sup>1</sup>	ASTM D882	psi	1,500
300% Modulus <sup>1</sup>	ASTM D412	psi	1,000
Lap Seam 90° T-Peel	ASTM D1876	pli.	15.0
Elongation @ Break @ 23°C (Die C) <sup>1</sup>	ASTM D412	%	325
Flexibility Temperature @ -29°C (-20°F) <sup>1</sup>	ASTM D1970	pass/fail	No Cracking @ -29°C (-20°F)
Hydrostatic Pressure Resistance	ASTM D5385	ft.	>231 ft. (100 psi)
Peel Strength Over Poured Concrete	ASTM D903	pli.	5.6
Puncture Resistance Load at Puncture	ASTM E154	lb.	375
Tear Strength of Vulcanized Rubber and Thermoplastics Die C <sup>1</sup>	ASTM D624	psi	1,000
Soil Decay Testing-E 96 Permeance	ASTM E154		Pass
Soil Decay Testing-Weight Loss	ASTM E154		Pass
Lateral Water Migration Resistance <sup>2</sup>	ASTM D5385 modified		Pass at 100 psi (231 ft) of hydrostatic pressure

<sup>1</sup>Data Listed according to Machine Direction criteria where applicable

<sup>2</sup>Lateral water migration resistance test is performed by casting concrete against butyl side of membrane with a hole and applying a hydrostatic head pressure with water. This test measures the resistance of lateral water migration between membrane and concrete.

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## MiraPLY-V with SeamLOCK™ Technology

### MiraPLY-V with SeamLOCK™ Technology Installation

Start the installation at one corner of the building. Unroll the first sheet of MiraPLY-V with **SeamLOCK™** Technology and install it square/parallel to building wall centered in the corner with the TPO side facing the MiraDRAIN attached to the soil retention system (lagging, sheet pile, shotcrete, etc.) and the adhesive/release liner facing out. Mechanically fasten the membrane vertically, use fasteners with washer heads that are compatible with the substrate. Ensure MiraPLY-V with **SeamLOCK™** Technology is not bridging or wrinkled and tight to the corner with no seams in the corner. Install an adequate number of fasteners across the top of the MiraPLY-V with **SeamLOCK™** Technology to support and keep the membrane tight against the substrate without wrinkles and blousing until concrete is poured. Walls higher than 8'-0" require fasteners in the field of the MiraPLY-V with **SeamLOCK™** Technology membrane as necessary to keep membrane tight to wall without wrinkles and blousing (not including fasteners at the perimeter). Fasten perimeter edges of MiraPLY approximately 12" on center and a minimum of 6" from the edge. Caution – over driven fasteners can cause stress in the membrane and seams. Unroll the next sheet of MiraPLY-V with **SeamLOCK™** Technology and align parallel to and overlap the preceding roll of MiraPLY-V with **SeamLOCK™** Technology 3" and a minimum 3" end overlap. Stagger end laps. Ensure that the membrane lays flat and no openings are visible. At side laps, simultaneously remove the release liner on the factory applied tape and pre-primed strip mating the two sheets together. At end laps, remove release liner at seam area and apply MiraPLY Seam Tape positioned in the lap area. Lap area shall be rolled with a hard rubber roller using firm hand pressure. Leave plastic release liner on MiraPLY-V with **SeamLOCK™** Technology until ready for concrete pour or placement of rebar. Cover fasteners with a 3" x 3" piece of MiraPLY Seam Tape or MiraPLY Detail Tape.

### MiraPLY Repair

Inspect the MiraPLY-V with **SeamLOCK™** Technology membranes for damaged areas before placement of rebar or concrete. The membrane should be cleaned with a cloth dampened with Weathered Membrane Cleaner and then allowed to dry. Repair slices, cuts and small punctures (½" or less) with MiraPLY Detail Tape.

Repair larger areas with a piece of MiraPLY extending beyond damaged areas by approximately 6" in all directions. Remove release liner of MiraPLY extending beyond the perimeter of the repair patch, then position patch on damaged area. Roll patch with a hard rubber roller using firm hand pressure.

### Concrete Placement

CCW recommends that the concrete should be installed within 60 days of membrane installation.

### Limited Warranty

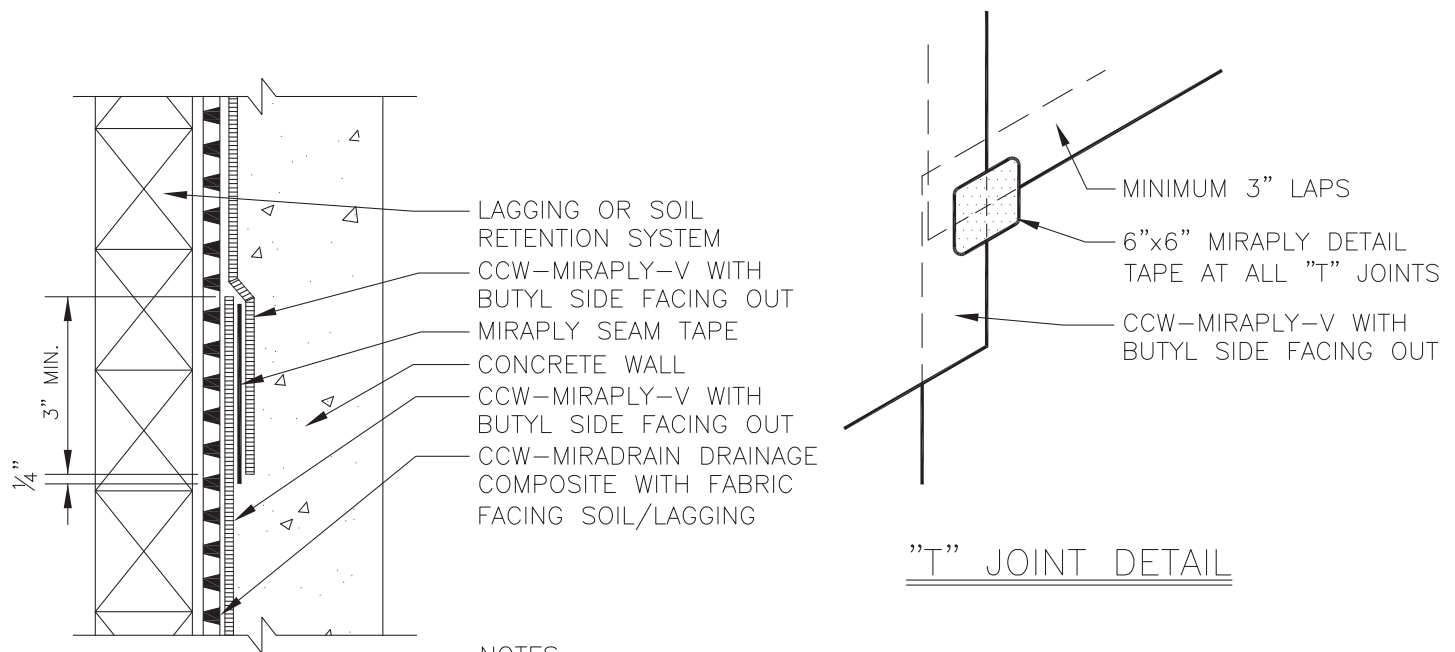
Carlisle Coatings & Waterproofing Incorporated (Carlisle) warrants this product to be free of defects in workmanship and materials only at the time of shipment from our factory. If any Carlisle materials prove to contain manufacturing defects that substantially affect their performance, Carlisle will, at its option, replace the materials or refund its purchase price. This limited warranty is the only warranty extended by Carlisle with respect to its materials. There are no other warranties, including the implied warranties of merchantability and fitness for a particular purpose. Carlisle specifically disclaims liability for any incidental, consequential, or other damages, including but not limited to, loss of profits or damages to a structure or its contents, arising under any theory of law whatsoever. The dollar value of Carlisle's liability and buyer's remedy under this limited warranty shall not exceed the purchase price of the Carlisle material in question.

## End Laps

Install sheets of MiraPLY-V with **SeamLOCK™** Technology with a minimum 3" overlap. Ensure the membrane lays flat and no openings are visible. Stagger end laps. Make sure that the TPO side of the lap is clean, dry and free of contaminants. Remove MiraPLY-V with **SeamLOCK™** Technology release liner at seam area. Position the 6" MiraPLY Seam Tape in the lap area. Roll MiraPLY Seam Tape using a hard rubber roller and firm hand pressure. Remove release liner on the MiraPLY Seam Tape and join the sheets together. After the seam is fully constructed, roll the seam with a hard rubber roller using firm hand pressure.

### Please Note:

- Clean seam area by using a clean rag to remove debris.
- If debris cannot be removed with a clean rag then Weathered Membrane Cleaner must be used.
- Weathered Membrane Cleaner coverage rate is approximately 1 gallon per 1,000 lineal feet of seam.
- Caution should be taken because solvent-based cleaners are extremely flammable and installers should read material safety data sheets and observe recommended safety procedures.



### NOTES:

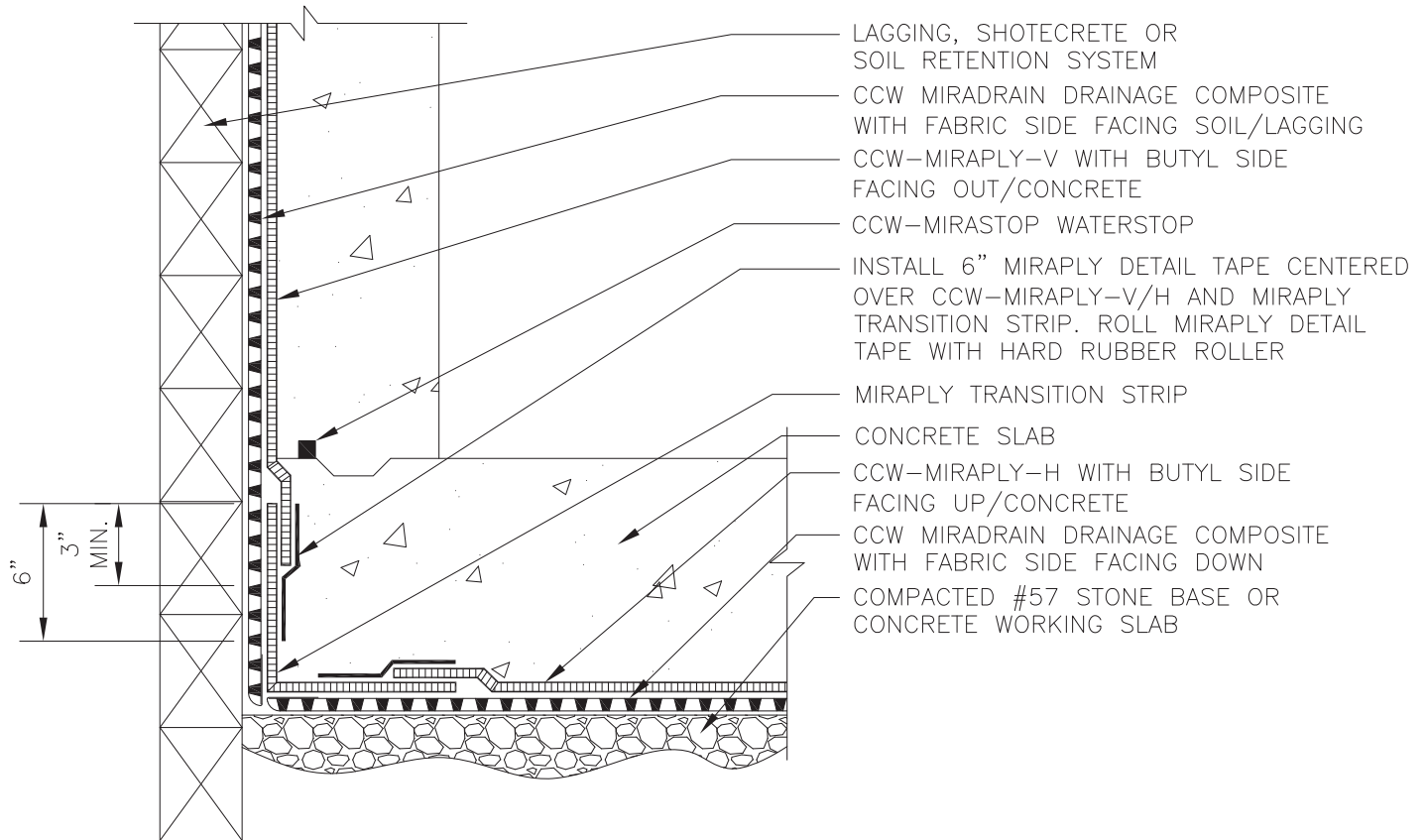
1. Install sheets of MiraPLY-V with a minimum 3" overlap. Ensure the membrane lays flat and no openings are visible. Stagger end laps. Remove the release liner at seam area. Position the 6" MiraPLY Seam Tape in the lap area. Roll MiraPLY Seam Tape using a hard rubber roller and firm hand pressure. Remove release liner on the MiraPLY Seam Tape and join the sheets together while simultaneously applying firm hand pressure. After the seam is fully constructed, roll the seam with a hard rubber roller.

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## MiraPLY-V with SeamLOCK™ Technology

### Horizontal/Vertical Transition Installation

Start the installation at an inside corner of the vertical to horizontal slab to wall transition. Unroll MiraPLY Transition Strip parallel to the wall. Fold and roll the transition strip to create a sharp transition at vertical to horizontal angle change to prevent bridging. Fasten transition strip along vertical surface, extending 12" up the wall and 12" out onto the horizontal base. Make sure membrane is tight into angle without voids. Unroll MiraPLY-H parallel with wall lapping onto the MiraPLY Transition Strip a minimum of 3". Position the F.A.T. away from the wall to allow for lapping of adjacent rolls. Unroll and install the next sheet of MiraPLY-H with SeamLOCK™ Technology and align parallel to and overlapping onto preceding sheet of MiraPLY-H with SeamLOCK™ Technology a minimum of 3". Construct laps by removing seam liners simultaneously while applying hand pressure. Roll seams with firm hand pressure using a hard rubber hand roller. Install MiraPLY-V with TPO side facing the soil retention system (lagging, sheet pile, shotcrete, etc.) lapping onto the MiraPLY Transition Strip a minimum of 3". Remove release liner from MiraPLY Transition Strip while simultaneously applying pressure at the MiraPLY-V & H overlaps. Overlay seams with an application of MiraPLY Detail tape centered over the laps on both vertical and horizontal laps. Roll seam and overlayment strips by applying firm hand pressure with hard rubber hand roller.

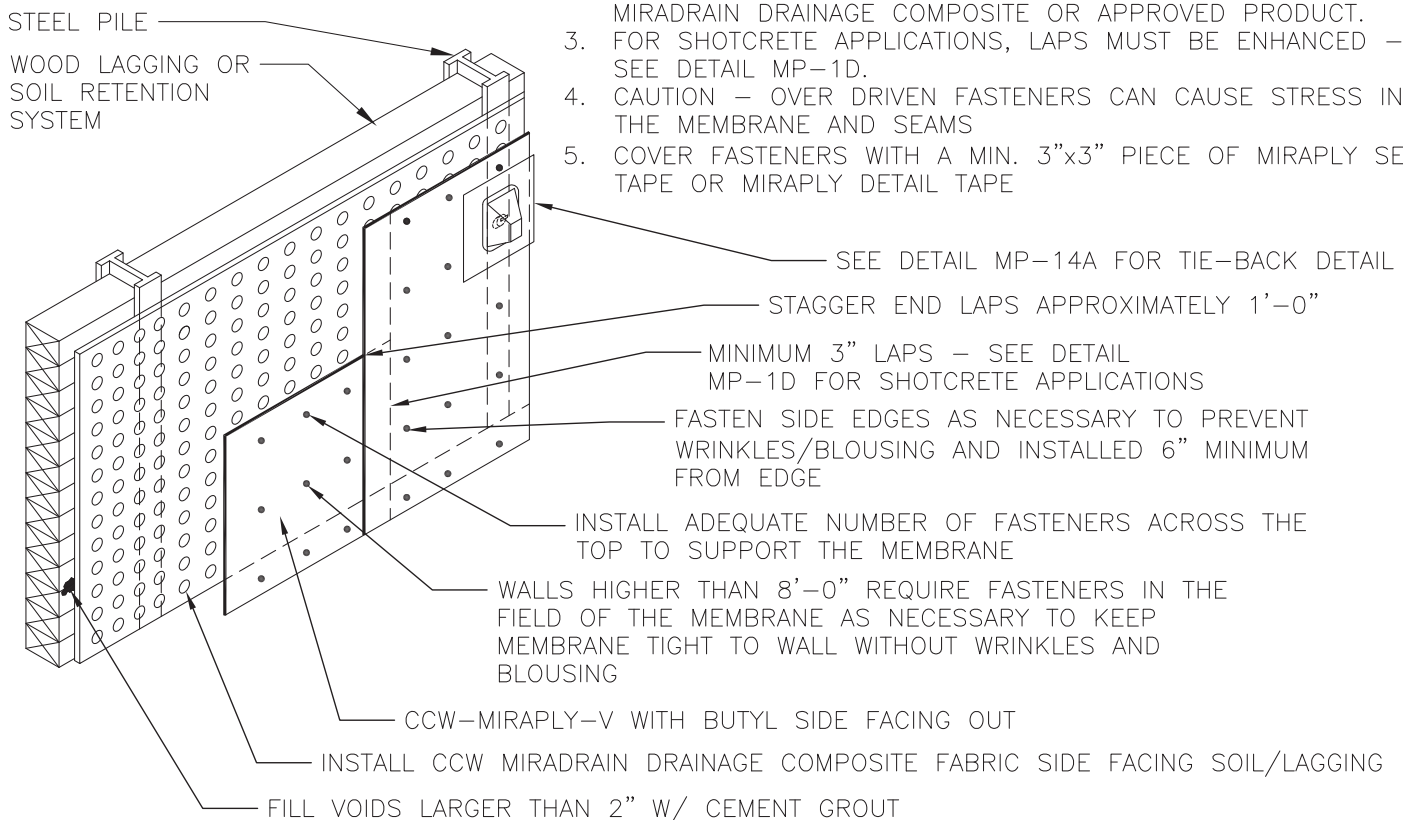


## Vertical Installation

Start the installation at one corner of the building. Unroll the first sheet of MiraPLY-V with **SeamLOCK™** Technology and install it square/parallel to building wall centered in the corner of two walls with the TPO side facing the MiraDRAIN attached to the soil retention system (lagging, sheet pile, shotcrete, etc.) and the adhesive/release liner facing out towards the installer. Ensure MiraPLY is not bridged or wrinkled and tight into the corner with no seams located in the corner. Mechanically fasten the membrane vertically, using fasteners with washer heads that are compatible with the substrate. Fasten perimeter edges of MiraPLY approximately 12" on center and a minimum of 6" from the edge. **Warning** – over driven fasteners can cause stress in the membrane and seams. Fasten the MiraPLY in the field of the membrane as required to support and keep membrane from blousing. Install the MiraPLY-V with **SeamLOCK™** Technology in suitable lengths for ease of installation. Install the next row of MiraPLY-V with **SeamLOCK™** Technology and align parallel to and overlapping the preceding roll of MiraPLY-V with **SeamLOCK™** Technology by 3". Remove the release liner on the lap (perforated edge of the sheet) and mate the two sheets of MiraPLY-V with **SeamLOCK™** Technology together, making sure the lap is tight and secure without wrinkles. To ensure a watertight bond, roll seam area with a hard rubber roller and firm hand pressure. Stagger end laps by approximately 12". Leave plastic release liner on MiraPLY-V with **SeamLOCK™** Technology until ready for concrete pour or placement of rebar. Cover fasteners with a 3" x 3" piece of MiraPLY Seam Tape or MiraPLY Detail Tape.

### NOTES:

1. FILL GAPS GREATER THAN 2" WITH CEMENT GROUT. TROWEL SMOOTH.
2. COMPLETELY COVER ALL LAGGING SURFACES WITH CCW MIRADRAIN DRAINAGE COMPOSITE OR APPROVED PRODUCT.
3. FOR SHOTCRETE APPLICATIONS, LAPS MUST BE ENHANCED – SEE DETAIL MP-1D.
4. CAUTION – OVER DRIVEN FASTENERS CAN CAUSE STRESS IN THE MEMBRANE AND SEAMS
5. COVER FASTENERS WITH A MIN. 3"x3" PIECE OF MIRAPLY SEAM TAPE OR MIRAPLY DETAIL TAPE



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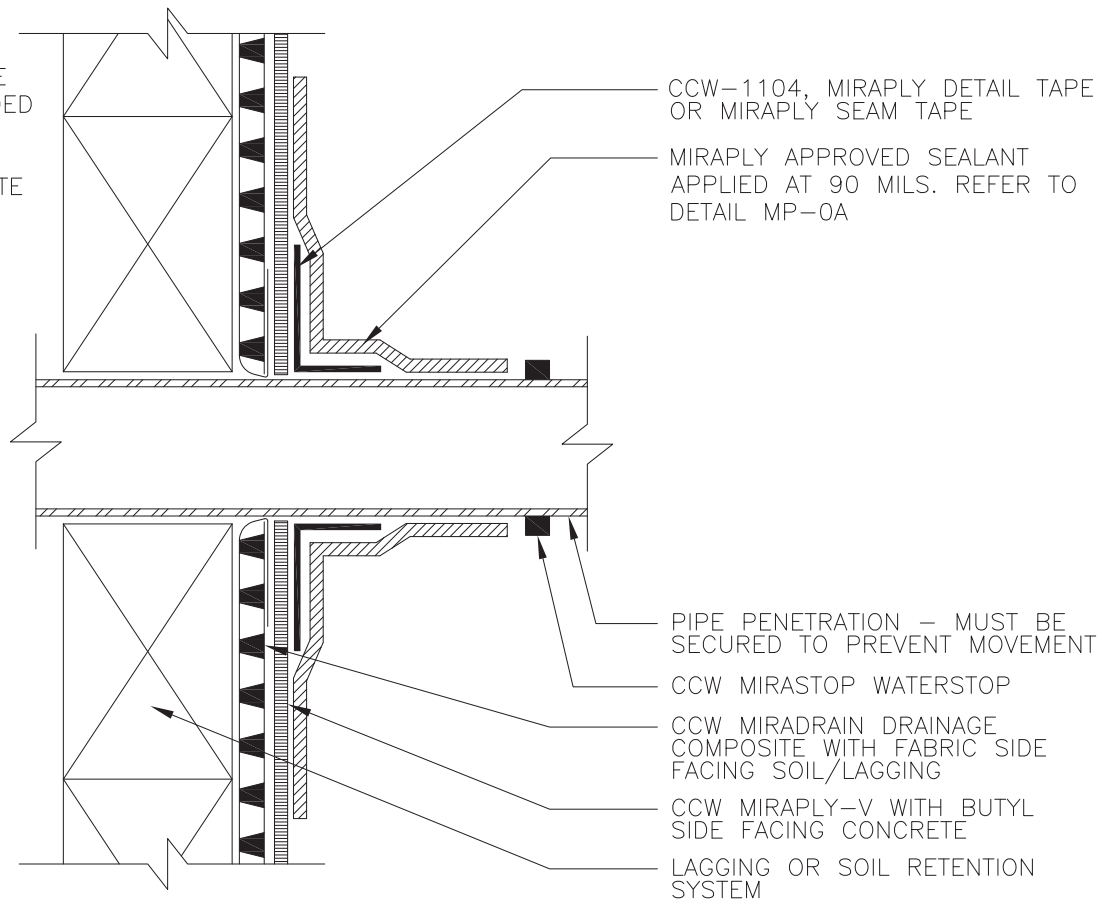
## MiraPLY-V with SeamLOCK™ Technology

### Wall Penetrations (Option 1)

All penetrations must be secured to prevent any movement. Penetrations must be clean, dry and free from rust. Make sure that the butyl side of the lap is clean, dry and free of contaminants. Cut a 4' x 4' piece of MiraPLY-V with SeamLOCK™ Technology and cut a hole in the center the size and shape of penetration. Slide the 4' x 4' sheet over the penetration. Use CCW-1104 or MiraPLY Detail Tape to detail inside angle change to eliminate gaps and keep MiraPLY approved sealant in place. Apply a 90-mil layer of MiraPLY approved sealant 3" up penetration and 6" onto MiraPLY-V with SeamLOCK™ Technology. Above completed flashing, wrap penetration with CCW MiraSTOP Waterstop with a minimum 3" concrete coverage.

NOTES:

1. STEEL PIPE MUST BE CLEANED AND ABRADED TO BRIGHT FINISH.
2. PVC PIPE MUST BE ABRADED TO PROMOTE ADHESION.

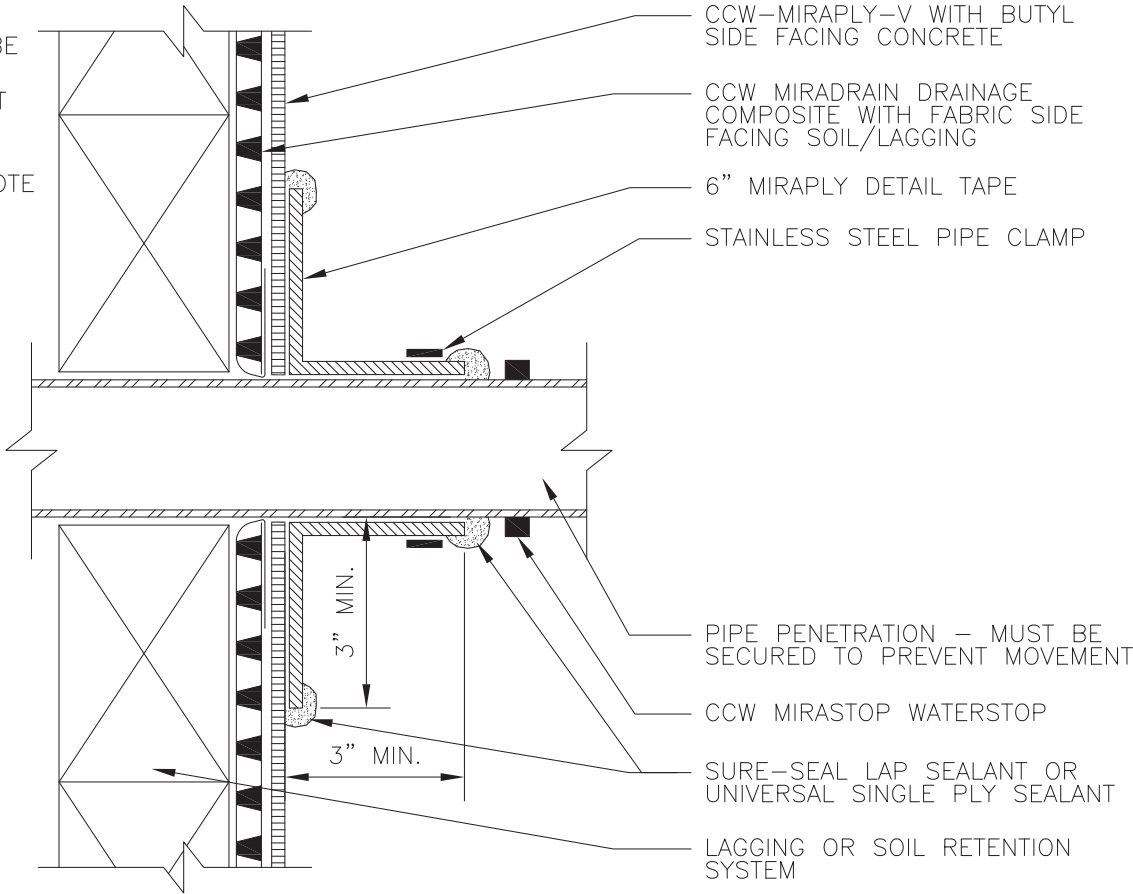


### Wall Penetrations (Option 2)

All penetrations must be secured to prevent any movement. Penetrations must be clean, dry and free from rust. Make sure that the butyl side of the lap is clean, dry and free of contaminants. Cut a 4' x 4' piece of MiraPLY-V with SeamLOCK™ Technology and cut a hole in the center the size and shape of the penetration. Slide the 4' x 4' sheet over the penetration. Apply 6" MiraPLY Detail Tape, 3" minimum onto the penetration, and then 3" minimum onto the MiraPLY-V with SeamLOCK™ Technology. Install a stainless steel pipe clamp to secure MiraPLY Detail Tape to the pipe. To ensure a watertight bond, roll MiraPLY Detail Tape with a hard rubber roller and firm hand pressure. Apply Sure-Seal Lap Sealant or Universal Single-Ply Sealant to all edges of MiraPLY Detail Tape.

**NOTES:**

1. STEEL PIPE MUST BE CLEANED AND ABRADED TO BRIGHT FINISH.
2. PVC PIPE MUST BE ABRADED TO PROMOTE ADHESION.

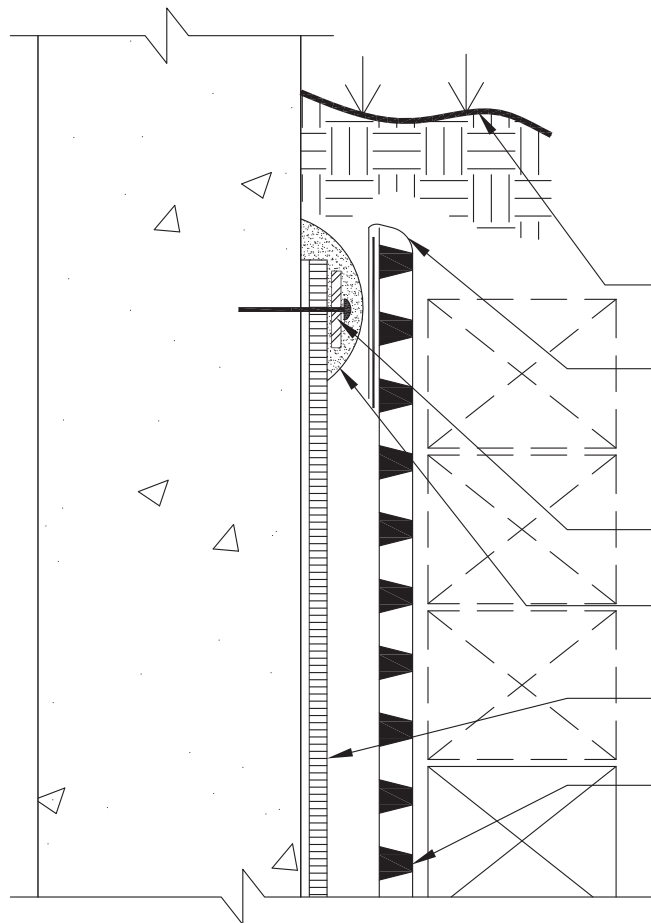


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## MiraPLY-V with SeamLOCK™ Technology

### Wall Terminations

Terminate the MiraPLY-V with SeamLOCK™ Technology with the Sure-Seal Termination Bar, Sure-Seal Lap Sealant or Universal Single-Ply Sealant. Make sure termination is below grade approximately 6". Install Sure-Seal Termination Bar by fastening the termination bar, compressing the MiraPLY-V with SeamLOCK™ Technology to the concrete at 6" minimum on center with fasteners compatible with the termination bar and substrate. Cover top edge of MiraPLY-V with SeamLOCK™ Technology and termination bar with Sure-Seal Lap Sealant or Universal Single-Ply Sealant.



GRADE

TERMINATE CCW MIRADRAIN DRAINAGE COMPOSITE BY WRAPPING THE FILTER OVER THE TOP OF THE CCW MIRADRAIN POLYSTYRENE CORE AND SECURE WITH ADHESIVE, MASTIC OR TAPE

SURE-SEAL TERMINATION BAR AND FASTENER

SURE-SEAL LAP SEALANT OR UNIVERSAL SINGLE PLY SEALANT

CCW-MIRAPLY-V BUTYL SIDE FACING CONCRETE

CCW MIRADRAIN DRAINAGE COMPOSITE FABRIC SIDE FACING SOIL/LAGGING

#### NOTES:

1. TERMINATE CCW-MIRAPLY-V USING SURE-SEAL TERMINATION BAR FASTENED AT 6" O.C. WITHIN 1/4" OF EDGE OF MATERIAL.
2. APPLY 3/4" LAYER OF SURE-SEAL LAP SEALANT, UNIVERSAL SINGLE PLY SEALANT OR BARRIBOND COVERING TOP EDGE OF CCW-MIRAPLY-V AND ENTIRE TERMINATION BAR.

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