



# WATERPROOFING

## MiraWELD™-V

### Description

MiraWELD-V is a nominal, 70-mil vertical grade, self-adhering, blindside waterproofing membrane. The dual laminate membrane fuses a 45-mil thick, reinforced TPO sheet to a 25-mil butyl adhesive coating, combining two of the most time-tested waterproofing technologies used worldwide. MiraWELD-V is not only tough, durable and flexible, it also has an uncoated TPO selvage for superior seam integrity using conventional hot-air welding equipment.

MiraWELD-V waterproofing membrane is designed for below-grade, preapplied waterproofing against zero property lines, existing buildings and shoring or soil retention systems.

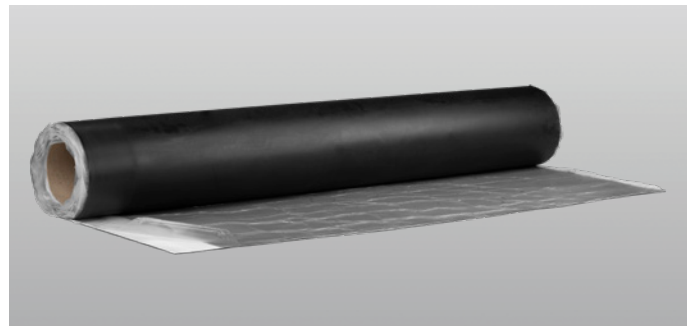
### Features and Benefits

- **Durable** – Resistance to most groundwater and soil contaminants, serves as an effective Radon and Methane barrier and can bridge shrinkage cracks in concrete
- **Tenacious Bond** – Butyl Alloy adhesive creates a permanent, chemical bond with placed concrete to eliminate water migration between membrane and concrete
- **Superior Seams** – Easy to weld TPO using an automatic or hand-held welder provides “Best in Class” seam integrity
- **Efficient Application** – Prefabricated detailing accessories reduce labor while increasing workmanship quality

### Installation

#### Substrate Preparation

The substrate must be relatively even without noticeable high spots or depressions, relatively smooth, free of protrusions, debris, sharp edges or foreign materials. MiraWELD-V may be installed directly against most shoring or soil retention systems. However, shoring systems such as secant piles, diaphragm walls or sheet piles may require additional surface preparation of a leveling material or facing material. MiraWELD-V should not be installed directly against an “earth form.” When installing MiraWELD System without MiraDRAIN® or rigid insulation, the vertical substrate shall not have gaps/voids larger than 1". MiraDRAIN may be installed directly onto shoring systems with gaps/voids up to 2".



### Application

Apply the product with the TPO surface against the prepared substrate and the adhesive side with release liner and the TPO selvage facing out towards the installer. At side laps, carefully position successive sheets to overlap the previous sheet by 3 in. (75mm) minimum along the TPO selvage (i.e. side lap). Be sure the product lays flat with no openings. Remove the release liner along the perforation to expose the TPO selvage while leaving the release liner intact for the field of the membrane. Use an Automatic Hot-Wedge Welder or a Hot-Air Hand Welder to form welded seams. Probe all seams prior to applying MiraPLY™ Detail Tape. Center Detail Tape over edge of welded seams, remove release liner and roll the tape with a hard rubber roller using firm hand pressure. Side laps shall be held back a minimum of 12" from any inside or outside corner. At end laps, carefully position a 12" minimum inverted strip of MiraWELD-V or Carlisle TPO Flashing centered under end laps to provide a TPO target strip. Be sure the product lays flat with no openings. End laps must be staggered. Use an Automatic Hot-Wedge Welder and a Hot-Air Hand Welder to form welded seams. Probe all seams prior to applying MiraPLY Detail Tape. Center Detail Tape over edge of welded seams, remove release liner and roll the tape with a hard rubber roller using firm hand pressure. Install fasteners as required along the outside edge in the TPO selvage prior to overlapping the subsequent sheet to assist with installation. Fastener type and means to install the fastener is substrate-dependent. The fastener should be flush and tight with the surface of the MiraWELD-V. Care should be taken not to over drive the fastener through the membrane. Leave plastic release liner on MiraWELD-V until ready for steel reinforcement placement and concrete placement.

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### Typical Properties

Property	Method	Unit	Typical Value
TPO Thickness	—	mils (mm)	45 (1.14)
Butyl Alloy Thickness	—	mils (mm)	25 (0.64)
Total Membrane Thickness	ASTM D5147	mils (mm)	70 (1.78)
Water Vapor Transmission (Water Method)	ASTM E96	perms	0.020
Tensile Strength <sup>1</sup>	ASTM D882	psi	1,500
Tensile Strength <sup>1</sup>	ASTM D412	psi	2,100
300% Modulus <sup>1</sup>	ASTM D412	psi	1,000 ± 10%
Elongation @ Break @ 23°C (Die C) <sup>1</sup>	ASTM D412	%	500
Factory Seam Strength	ASTM D751 grab method	pli	66.0
Field Seam Strength	ASTM D1876	pli	25.0
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	lb.	>5.0
Resistance to Puncture	ASTM E154	lb.	300
Tear Strength of Vulcanized Rubber and Thermoplastics Die C <sup>1</sup>	ASTM D624	psi	250
Soil Decay E 96 Testing Water Vapor Transmission	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.

### 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.