
MANUFACTURER'S GUIDE SPECIFICATIONS

SECTION 07 13 26 MIRAWELD™ BLINDSIDE SELF-ADHERING SHEET WATERPROOFING



MiraWELD™ Blindside Waterproofing System

PART I - GENERAL

1.1 DESCRIPTION

Carlisle Coatings & Waterproofing utilizes the MiraWELD Blindside Waterproofing System for waterproofing cast in place concrete in a blindside (i.e. pre-applied) application. This fully adhered, dual membrane is comprised of reinforced TPO and Butyl Alloy adhesive with a total thickness of 70 mils and has a TPO selvage to allow welded seams.

1.2 RELATED SECTIONS - Include, but not limited to the following

- A. Section 03 10 00 – Concrete Forming and Accessories
- B. Section 03 20 00 – Concrete Reinforcing
- C. Section 03 30 00 – Cast-In-Place Concrete
- D. Section 31 20 00 – Earth Moving
- E. Section 31 40 00 – Shoring and Underpinning
- F. Section 31 50 00 – Excavation Support and Protection
- G. Section 31 60 00 – Special Foundations and Load-Bearing Elements

1.3 REFERENCE STANDARDS

- A. ASTM D 412 Standard Test Methods for Rubber Properties in Tension
- B. ASTM D 624 Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers
- C. ASTM D 882 Standard Test Method for Tensile Properties of Thin Plastic Sheeting
- D. ASTM D 903 Standard Test Method for Peel or Stripping Strength of Adhesive Bonds
- E. ASTM D 751 Standard Test Methods for Coated Fabrics
- F. ASTM D 1876 Standard Test Method for Peel Release of Adhesives (T-Peel)
- G. ASTM D 1970 Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection
- H. ASTM D 5385 Standard Test Method for Hydrostatic Pressure Resistance of Waterproofing Membranes
- I. ASTM E 96 Standard Test Methods for Water Vapor Transmission of Materials
- J. ASTM E 154 Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover

1.4 QUALITY ASSURANCE

- A. MiraWELD Blindside Waterproofing System must be installed by a Carlisle Coatings & Waterproofing Inc. Approved Applicator in compliance with shop drawings approved by Carlisle Coatings & Waterproofing Inc. There must be no deviations made from Carlisle's specifications or the approved drawings without the prior approval from Carlisle Coatings & Waterproofing Inc.
- B. The project Geotechnical Report and Environmental Study shall be provided to Carlisle Coatings & Waterproofing Inc. for review and approval at time of Approved Applicator's bid.
- C. A pre-installation meeting should be coordinated by the General Contractor and attended by an Owner's Representative, the Waterproofing Consultant, the waterproofing applicator and membrane manufacturer's representative. Any trade having relevant or adjacent work to the Blindside System before, during and after installation should also be present and properly represented by a Project Manager and Job Foreman. These trades include but are not limited

to the Foundation Contractor, the Concrete Contractor, the Steel Reinforcement Contractor, the Mechanical Contractor, the Electrical Contractor and the Plumbing Contractor. The purpose of this meeting is to discuss the necessity of ensuring proper waterproofing membrane protection during all phases of installation and to review other applicable requirements or unusual field conditions.

- D. Approved Applicator shall have at least one field personnel who has received training from the Manufacturer. The Field Superintendent or Foreman shall have direct involvement from the beginning to the end of the waterproofing installation.
- E. The Carlisle T-01-17 “Heat Welding Equipment” Guide should be referred to for Automatic and/or Hand-Held Heat Welder Equipment and includes recommended temperature settings, equipment set-up and additional information.
- F. Perform a test weld, at the start of work each morning and afternoon. Test welds should be made if any changes in weather conditions occur.
- G. Upon request by the Approved Applicator, an inspection will be conducted by a Carlisle Coatings & Waterproofing Inc. representative to ensure that the waterproofing membrane has been installed according to Carlisle Coatings & Waterproofing Inc. specifications and details. This inspection shall be coordinated prior to installing the Blindside components so that access to the membrane is not impaired.
- H. An in-progress inspection may be scheduled after the initial inspection (after the membrane installation is completed) to ensure proper protection procedures are being followed to prevent possible damage to the membrane during the installation of above membrane components.

1.5 SUBMITTALS

- A. General: Submit in accordance with Section 01 33 00.
- B. Product Data: Submit manufacturer's product literature and installation instructions.
- C. Subcontractor's approval by manufacturer: Submit document stating manufacturer's acceptance of subcontractor as an Approved Applicator for the specified materials.
- D. Warranties: Submit sample warranties identifying the terms and conditions stated in Section 1.6.

1.6 WARRANTY

- A. Installer's Warranty - Provide a written workmanship warranty separate from manufacturer and agree to promptly make repairs to any water infiltration through the waterproofing system for a period of 2 years from the date of final installation of the waterproofing system.
- B. Manufacturer's Waterproofing Warranty - Provide a written warranty for all system components agreeing to promptly make repairs or replace defective waterproofing system materials
 - i. A 5, 10, 15 or 20-year Material Warranty is available on commercial buildings with prior review and approval by manufacturer and applies only to products manufactured or marketed by Carlisle Coatings & Waterproofing Inc.
- C. Manufacturer's Gas Vapor Barrier Warranty - Provide a written, single-source warranty for all system components agreeing to replace defective Carlisle Construction Materials, LLC materials
 - i. A 5, 10, 15 or 20-year warranty is available on commercial buildings with prior review and approval by manufacturer and applies only to products manufactured or marketed by Carlisle Coatings & Waterproofing Inc.

1.7 PROJECT CONDITIONS

- A. Coordination between various trades is essential to avoid unnecessary traffic to prevent damage to the membrane. Heavily traveled areas must be protected by placing temporary protection courses to prevent damage to the membrane.
- B. Coordinate waterproofing work with other trades. The applicator shall have sole right of access to the specified areas for the time needed to complete the application.
- C. Protect adjoining surfaces not to be waterproofed against damage or soiling. Protect plants, vegetation and animals which might be affected by waterproofing operations.
- D. Wear applicable protective clothing and respiratory protection gear.

- E. Maintain work area in a neat and orderly condition, removing empty containers, rags, and rubbish daily from the site.

1.8 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to project site in original, factory-sealed, unopened containers bearing manufacturer's name and label intact and legible with the following information.
 - 1. Name of material
 - 2. Manufacturer's stock number and date of manufacture
 - 3. Material's Safety Data Sheet
- B. Store membrane and accessory products in a protected area out of direct sunlight and between 40°F and 100°F. Protect from rain, physical damage and construction traffic.

PART II PRODUCTS

2.1 GENERAL

- A. Provide products manufactured and supplied by Carlisle Coatings & Waterproofing Inc., 900 Hensley Lane, Wylie Texas 75098, phone (800) 527-7098, fax (972) 442-0076.
- B. The components of this Blindside System are to be products of Carlisle Coatings & Waterproofing Inc. The installation, performance or integrity of products by others is not the responsibility of Carlisle Coatings & Waterproofing Inc. and is expressly disclaimed by the warranty.

2.2 MEMBRANE

- A. Sheet membrane for horizontal substrate: Shall be CCW MiraWELD-H self-adhering adhesive coated preapplied membrane, and shall meet or exceed the requirements listed in section 2.4.
- B. Sheet membrane for vertical substrate: Shall be CCW MiraWELD-V self-adhering adhesive coated preapplied membrane, and shall meet or exceed the requirements listed in section 2.4.

2.3 RELATED ACCESSORY PRODUCTS

- A. Self-adhering detail tape: Shall be CCW MiraPLY Detail Tape with pre-applied adhesive coating for detailing
- B. Self-curing liquid detailing membrane: Shall be CCW 703V Liqueisal for penetrations and various detailing
- C. Prefabricated inside corner: Shall be CCW MiraWELD Inside Corner
- D. Prefabricated outside corner: Shall be CCW MiraWELD Outside Corner
- E. Prefabricated detail strip: Shall be CCW MiraWELD Detail Strip for transitions and various detailing
- F. 45-mil reinforced TPO 10" strip: Shall be CCW TPO Flashing Strip for end laps/splices and various detailing
- G. Pre-formed tie-back cover: Shall be CCW Tie-Back Cover for protecting the MiraWELD integrity at soil retention tie-back systems
- H. Swellable Sealant: Shall be MiraSTOP SS used for use in non-moving joints to create watertight concrete joints and as an adhesive for CCW MiraSTOP waterstop strips
- I. Pre-formed Bentonite hydrophilic waterstop strip: Shall be CCW MiraSTOP BW for use in non-moving joints to create watertight concrete joints
- J. Pre-formed Non-Bentonite hydrophilic waterstop strip: Shall be CCW MiraSTOP NBW for use in non-moving joints to create watertight concrete joints
- K. Injectable waterstop (grout tube): Shall be MiraSTOP IW for use as an injectable waterstop for use in non-moving joints to create watertight concrete joints
- L. Chemical grout: Shall be MiraSTOP CG-F and for use with the MiraSTOP IW
- M. Miscellaneous products: accessory products approved by Carlisle Coatings & Waterproofing Inc.

2.4 CARLISLE BLINDSIDE PHYSICAL PROPERTIES MiraWELD-H & MiraWELD-V

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 ¹	ASTM D882	psi	1,500
Tensile Strength ¹	ASTM D412	psi	2,100
300% Modulus ¹	ASTM D412	psi	1,000 ± 10%
Elongation @ Break @ 23°C (Die C) ¹	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) ¹	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 ¹	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 ²	ASTM D5385 modified		Pass at 100 psi (231 ft) of hydrostatic pressure

1. Data listed according to Machine Direction criteria where applicable

2. 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.

PART III EXECUTION

3.1 GENERAL

- A. Before any waterproofing work is started the waterproofing applicator shall thoroughly examine all substrates to receive the waterproofing for any deficiencies and acceptable dewatering. Should any deficiencies exist, the architect, owner, or general contractor shall be notified in writing and corrections made.

3.2 SUBSTRATE REQUIREMENTS

- A. The substrate must be relatively even without noticeable high spots or depressions, relatively smooth, free of protrusions, debris, sharp edges or foreign materials and must be free of accumulated water, ice and snow. Earth, crushed stone, or soil shall be compacted such that the soil is not displaced from traffic or concrete placement.
- B. Before any waterproofing work is started the waterproofing applicator shall thoroughly examine all surfaces for any deficiencies. Should any deficiencies exist, the architect, owner, or general contractor shall be notified in writing and corrections made.
- C. All work shall be performed in accordance with Carlisle-CCW application instructions.

3.3 INSTALLATION: HORIZONTAL

- A. Refer to the applicable manufacturer's literature for cautions and warnings.
- B. All substrates shall be smooth and even. Concrete working slab or "mud slab" should likewise be smooth and monolithic. Gaps or voids greater than 0.5 in. (12mm) shall be filled. Gravel subbase aggregate must be 3/4" or smaller, level and compacted. There is to be no standing water.
- C. CCW MiraDRAIN Composites by Carlisle Coatings and Waterproofing is an acceptable substrate and is installed before MiraWELD-H. Install CCW MiraDRAIN with the fabric side facing down.
- D. Always comply with the instructions found in manufacturer's literature, which includes:
 - i. Apply the product with the TPO surface against the prepared surface and the adhesive side facing up with the TPO selvedge on the side for the succeeding sheet to lap onto.
 - ii. At side laps, carefully position successive sheets to overlap the previous sheet by 3 in. (75mm) minimum along the TPO selvedge (i.e. side lap). Be sure the product lays flat with no openings.
 - a) Use an Automatic Hot-Air Welder or a Hot-Air Hand Welder to form welded seams.
 - b) Probe all seams prior to applying MiraPLY Detail Tape.
 - c) Center Detail Tape over edge of welded seams, remove release liner and roll the tape with a hard rubber roller using firm hand pressure.
 - iii. At end laps, carefully position a 12" minimum inverted strip of MiraWELD-H 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.
 - a) Use an Automatic Hot-Air Welder and a Hot-Air Hand Welder to form welded seams.
 - b) Probe all seams prior to applying MiraPLY Detail Tape.
 - c) Center Detail Tape over edge of welded seams, remove release liner and roll the tape with a hard rubber roller using firm hand pressure.

3.4 INSTALLATION: VERTICAL

- A. Refer to the applicable manufacturer's literature for cautions and warnings.
- B. All soil retention substrates shall be relatively smooth and even. Gaps or voids greater than 1.0 in. (25mm) shall be filled or covered with CCW approved material.
- C. CCW MiraDRAIN Composites by Carlisle Coatings and Waterproofing is an acceptable

substrate and is installed before MiraWELD-V. Install CCW MiraDRAIN with the fabric side facing the soil retention system.

- D. Always comply with the instructions found in manufacturer's literature, which includes:
- i. Apply the product with the TPO surface against the prepared soil retention surface and the adhesive side with release liner and the TPO selvedge facing out towards the installer
 - ii. At side laps, carefully position successive sheets to overlap the previous sheet by 3 in. (75mm) minimum along the TPO selvedge (i.e. side lap). Be sure the product lays flat with no openings.
 - a) Use an Automatic Hot-Wedge Welder or a Hot-Air Hand Welder to form welded seams.
 - b) Probe all seams prior to applying MiraPLY Detail Tape.
 - c) Center Detail Tape over edge of welded seams, remove release liner and roll the tape with a hard rubber roller using firm hand pressure.
 - d) Side laps shall be held back a minimum of 12" from any inside or outside corner.
 - iv. At end laps, carefully position a 12" minimum inverted strip of MiraWELD-H centered under end laps to provide a TPO target strip. Be sure the product lays flat with no openings. End laps must be staggered.
 - a) Use an Automatic Hot-Wedge Welder and a Hot-Air Hand Welder to form welded seams.
 - b) Probe all seams prior to applying MiraPLY Detail Tape.
 - c) Center Detail Tape over edge of welded seams, remove release liner and roll the tape with a hard rubber roller using firm hand pressure.
 - v. Install fasteners as required along the outside edge in the TPO selvedge prior to overlapping the subsequent sheet to assist with installation:
 - a) Fastener type and means to install the fastener is substrate-dependent. The goal for a given shoring system is to identify a fastener that will provide a tight, flush head to the surface of the MiraWELD-V
 - b) Care should be taken not to over drive the fastener through the membrane.
 - vi. Leave plastic release liner on MiraWELD-V until ready for steel reinforcement placement and concrete placement.

3.5 PROTECTION

- A. Protect waterproofing as per manufacturer's recommendations until concrete placement.
- B. Inspect waterproofing for damage after steel reinforcement placement and just prior to concrete placement. Repair waterproofing as per manufacturer's recommendations.

Liquiseal, MiraDRAIN, MiraPLY and MiraWELD are registered trademarks of Carlisle.

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