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CARLISLE COATINGS & WATERPROOFING

# WATERPROOFING

## MiraDRAIN® 9900

### Description

CCW MiraDRAIN 9900 is a high-strength drainage composite made up of a woven filter fabric that is bonded to the individual dimples of a molded polypropylene core to minimize fabric intrusion into the flow channels caused by overburden pressure. The fabric serves as a filter medium, preventing the passage of particles into the core while allowing surface moisture to pass freely.

MiraDRAIN 9900's woven monofilament fabric withstands high abrasion from applied overburden and prevents intrusion into the drainage core due to its low elongation characteristics. The woven fabric is better-suited to receive a directly poured concrete topping than non-woven geotextile fabrics.

Designed for use in horizontal plaza, roof deck, and between-slab drainage applications where single-sided subsurface drainage is needed, MiraDRAIN 9900 can also be used in vehicular traffic areas due to its high compressive strength, and can serve as a protection course when used in conjunction with CCW waterproofing membranes.

### Features and Benefits

- Relieves hydrostatic pressure buildup against subterranean surfaces
- Consistent, multi-directional core configuration provides a uniform flow path for water to escape
- High-flow drainage capacity ensures effective drainage for virtually any horizontal application
- No-clogging drainage performance
- High compressive strength capable of withstanding vehicular traffic
- Enhances waterproofing system by channeling water away and providing a secondary water retention layer
- Cost-saving, lightweight, easy-to-install panels eliminate the need for bringing aggregate to the construction site

### Installation

MiraDRAIN prefabricated drainage panels may be installed in a variety of construction applications. They may be installed in split slabs, plaza decks and planter applications. MiraDRAIN can be cut with a utility knife or scissors. Concrete may be placed directly onto either side of the panels. MiraDRAIN eliminates the need for a protection course over waterproofing systems. Native soils can be used over MiraDRAIN. (Contact your local CCW representative for specific guidelines).

For standard installation details, follow the MiraDRAIN detail drawings. For non-standard installation instructions contact your local Carlisle Coatings & Waterproofing representative.

**Attachment Method – CCW Waterproofing Membranes**

The MiraDRAIN should be attached with CCW CAV-GRIP, CCW Contact Adhesive, or CCW SecurTAPE™. Apply CCW CAV-GRIP or CCW Contact Adhesive over the entire surface of waterproofing membrane and mate the two surfaces together. The MiraDRAIN will be permanently secured upon completion of backfill. Backfill should be placed as soon as possible. Backfill to at least 6" (15 cm) above the top edge of the MiraDRAIN.

**Underslab / Horizontal Applications**

**Floor Slabs and Concrete-Lined Channels:** Proper preparation of the subgrade will require grading to a 2% minimum slope. The area of installation should be clear of rubble, rock, large soil clods, etc. Place MiraDRAIN with the fabric side toward the soil. The flange of the second and subsequent panels should be placed over the back side of the preceding dimpled core and butted as close as possible to the preceding panel. The panel joints, longitudinal and transverse on the MiraDRAIN core, should be sealed with a strip of CCW-705, CCW-701 or duct tape. This will aid in preventing concrete or soil from intruding into the MiraDRAIN core during subsequent construction phases. Construction traffic should be minimized over the installed MiraDRAIN. Sand and/or concrete may be poured directly over the MiraDRAIN core.

**Planters:** Place the MiraDRAIN in the planter so that the fabric on the vertical and horizontal surfaces faces the soil. Utilize the installation procedures and attachment method appropriate for the type of substrate. Overlap the fabric of the vertical panel onto the horizontal panel at the transition point. If cutting of the panels is required, exposed cuts must be covered with supplemental pieces of filter fabric to prevent soil intrusion. A minimum overlap of 6" (15 cm) will be required to cover cut sections.

**Plaza Decks:** Place fabric side up over a properly waterproofed substrate. The panels should be placed so that water runs with the overlap not against it. Secure MiraDRAIN to the substrate with ballast or CCW CAV-GRIP, CCW Contact Adhesive, or SecurTAPE to hold it in place. The first panels should be placed with the flanged edge uphill. Cut the fabric along the flange edge and strip off this fabric exposing the edge of the core and the flange. Place the dimpled edge over the preceding

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flanged edge to join the next panel. Secure the remaining fabric flap with CCW CAV-GRIP, CCW Contact Adhesive, CCW-704 Mastic, CCW LM-800XL, Aluma-Grip 701 or duct tape. Terminal edges that have been cut will require a supplemental piece of filter fabric or if there is insufficient fabric, the core shall be cut out from the fabric by a depth of 3 dimples to provide excess fabric for wrapping behind the core to seal the panel from soil intrusion.

**Drainage Collector/Discharge System**

**Collector Pipe:** Place collector pipe as required in design details. For installations where a collector pipe is specified, encapsulate the collector pipe in a gravel bed with a supplemental section of filter fabric as a separator/filter.

## Limitations

Limit ultraviolet exposure by backfilling within 30 days of installation. Any panels damaged during installation should be replaced by the installer.

MiraDRAIN is resistant to chemicals in normal soil environments. However, some reagents may affect its performance. CCW representatives should be consulted concerning the suitability of MiraDRAIN in unusual soil environments.

## Packaging

4' x 50' (1.22 m x 15.24 m) rolls

MiraDRAIN 9900 is made in the USA and is sold through a highly qualified sales representative network.

## Typical Properties

| Property | Method | Unit | Typical Value |
|---|---|---|---|
| **CORE** | | | |
| Thickness | ASTM D1777 | in (mm) | 0.40 (10.16) |
| Compressive Strength | ASTM D1621 (mod) | psf (kPa) | 33,000 (1,650) |
| Maximum Flow Rate | ASTM D4716 | gpm/ft (l/min/m) | 24 gpm/ft |
| **FABRIC** | | | |
| Apparent Opening Size | ASTM D4751 | US Std Sieve (mm) | 40 (0.43) |
| Water Flow Rate | ASTM D4491 | gal/min/ft² (l/min/m²) | 145 (5907) |
| Grab Tensile Strength | ASTM D4632 | lbs (N) | 365 (1624) |
| Grab Elongation | ASTM D4632 | % | 24 |
| CBR Puncture Strength | ASTM D6241 | lbs (N) | 675 (3004) |

## 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.

**Carlisle Coatings & Waterproofing**
900 Hensley Lane | Wylie, TX 75098 | 800.527.7092 | **www.carlisleccw.com**


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