



# WATERPROOFING

## MiraDRAIN 9000

### Description

CCW MiraDRAIN 9000 is a high-performance, high-strength drainage composite consisting of a three-dimensional, high-impact polystyrene core and a woven filter fabric. The filter fabric is bonded to the individual dimples of the molded polystyrene core to minimize fabric intrusion into the flow channels caused by overburden pressure. The fabric serves as a filter medium to prevent the passage of particles into the core, while allowing surface moisture to pass freely. CCW MiraDRAIN 9000'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 nonwoven geotextile fabrics.

CCW MiraDRAIN 9000 is designed for use in horizontal plaza, roof deck and between-slab drainage applications where single-sided subsurface drainage is required. CCW MiraDRAIN 9000 also serves as a protection course when used in conjunction with CCW Waterproofing Membranes.

### Features and Benefits

- Relieves hydrostatic pressure buildup
- Consistent and proven long-term performance due to a multi-directional core configuration providing a uniform flow path for water to escape
- High-flow drainage capacity ensuring effective drainage for virtually any horizontal application
- No-clogging drainage performance
- High-compressive-strength system withstands overburden stresses
- 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

CCW 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. CCW MiraDRAIN can be cut with a utility knife or scissors. Concrete may be placed directly

onto either side of the panels. The panels can terminate at the top of the footing and are flexible enough to form right angles to cover the top of the footing. CCW MiraDRAIN eliminates the need for a protection course over waterproofing systems. Native soils can be used over CCW MiraDRAIN. (Contact your local CCW representative for specific guidelines). The CCW MiraDRAIN should be attached with CCW CAV-GRIP, CCW Contact Adhesive or SecurTAPE™. Apply CCW CAV-GRIP or CCW Contact Adhesive over entire surface of waterproofing membrane and back side of MiraDRAIN and mate the two surfaces together.

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

### 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 CCW 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 CCW 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 CCW MiraDRAIN core during subsequent construction phases. Construction traffic should be minimized over the installed CCW MiraDRAIN. Sand and/or concrete may be poured directly over the CCW MiraDRAIN core.

#### Planters

Place the CCW 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.

# WATERPROOFING

## MiraDRAIN 9000

### 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 CCW 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 flanged edge to join the next panel. Secure the remaining fabric flap with CCW CAV-GRIP, CCW Contact Adhesive, CCW-704 Mastic, CCW LM800-XL, Aluma-Grip 701 or duct tape. Terminal edges that have been cut will require a supplemental piece of filter fabric to seal the panel from soil intrusion and 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.

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

### Packaging

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

CCW MiraDRAIN 9000 is made in the USA and is sold through a highly qualified sales representative network.

### Typical Properties

Property	Method	Unit	Typical Value
<b>CORE</b>			
Thickness	ASTM D1777	in (mm)	0.40 (10.16)
Compressive Strength	ASTM D1621 (mod)	psf (kPa)	18,000 (862)
Maximum Flow Rate <sup>1</sup>	ASTM D4716	gpm/ft (l/min/m)	21 (264)
Installed Horizontally <sup>2</sup>	ASTM D4716	gpm/ft (l/min/m)	3.8 (48)
<b>FABRIC (FW402)</b>			
Apparent Opening Size	ASTM D4751	US Std Sieve (mm)	40 (0.43)
Water Flow Rate	ASTM D4491	gpm/ft <sup>2</sup> (l/min/m)	145 (5,907)
Grab Tensile Strength	ASTM D4632	lbs (N)	365 (1624)
Grab Longation	ASTM D4632	%	24
CBR Puncture Strength	ASTM D6241	lbs (N)	675 (3004)
<b>SYSTEM</b>			
Performance Index	*		27,198

\*All flow rates were tested at 3600 psf. \*Drainage Performance Index is a function of ASTM D4833, D4632 and D1621

<sup>1</sup>In plane flow rate @ gradient of 1.0

<sup>2</sup>Installed flow rate with concrete overburden at horizontal gradient of 0.05

### 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.