



# CCW MiraDRAIN® 9000 DRAINAGE COMPOSITE

## 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. 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.

## TYPICAL USES

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

- Relief of 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 assuring effective drainage for virtually any horizontal application.
- No-clogging drainage performance.
- High compressive strength system withstands overburden stresses.
- Enhancement of waterproofing system by channeling water away and providing a secondary water retention layer.
- Cost-saving, light weight, easy-to-install panels eliminate the need for bringing aggregate to the construction site.

## INSTALLATION

### GENERAL INFORMATION

CCW MiraDRAIN prefabricated drainage panels may be installed in a variety of construction applications. They may be installed against split slabs, plaza decks and planters. CCW MiraDRAIN can be cut with a utility knife or scissors. Concrete may be placed directly onto ei-

ther 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 Carlisle Coatings & Waterproofing representative for specific guidelines).

### 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 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" (15cm) 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 CCW MiraDRAIN to the substrate with ballast or CCW DRAIN GRIP 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 DRAIN GRIP or duct tape. Terminal edges that have been cut will require a supplemental piece of filter fabric to seal the panel from soil intrusion.

## DRAINAGE COLLECTOR/DISCHARGE SYSTEM

### Collector Pipe

Place CCW QuickDRAIN or collector pipe as required in design details. The CCW QuickDRAIN should be installed adjacent to the CCW MiraDRAIN. Care must be taken to ensure a continuous drainage path between the CCW QuickDRAIN and the CCW MiraDRAIN panels. 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.

### DETAIL REQUIREMENTS

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

### PACKAGING INFORMATION

**Packaging:** CCW MiraDRAIN 9000 is available in rolls of 4' by 50' (1.22m by 15.24m).

## CAUTIONS / LIMITATIONS

Limit ultraviolet exposure by backfilling within 7 days of installation. Any panels damaged during installation should be replaced by the installer. *Limitations:* CCW MiraDRAIN is resistant to chemicals in normal soil environments. However, some reagents may affect its performance. Carlisle Coatings & Waterproofing representatives should be consulted concerning the suitability of CCW MiraDRAIN in unusual soil environments.

### 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 effect 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.

## TECHNICAL DATA

Property	Test Method	Unit	Typical Value
<b>Core</b>			
Thickness	ASTM D 1777	in (mm)	0.40 (10.16)
Compressive Strength	ASTM D 1621	psf (kN/m <sup>2</sup> )	18,000 (862)
Maximum Flow Rate <sup>1</sup>	ASTM D 4716	gpm/ft <sup>2</sup> (l/min/m <sup>2</sup> )	21 (260)
Installed Horizontally <sup>2</sup>	ASTM D 4716	gpm/ft <sup>2</sup> (l/min/m <sup>2</sup> )	3.8 (47)
<b>Fabric (FW402)</b>			
Apparent Opening Size	ASTM D 4751	US Std Sieve (mm)	40 (0.42)
Water Flow Rate	ASTM D 4491	gpm/ft <sup>2</sup> (l/min/m <sup>2</sup> )	145 (5,907)
Grab Tensile Strength	ASTM D 4632	lbs (kN)	365 (1.62)
Grab Elongation	ASTM D 4632	%	24
Puncture Resistance	ASTM D 4833	lbs (kN)	100 (0.44)
<b>System</b>			
Performance Index	*		27,198

All flow rates were tested at 3600 psf. \* Drainage Performance Index is a function of ASTM D 4833, D 4632 and D 1621 <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