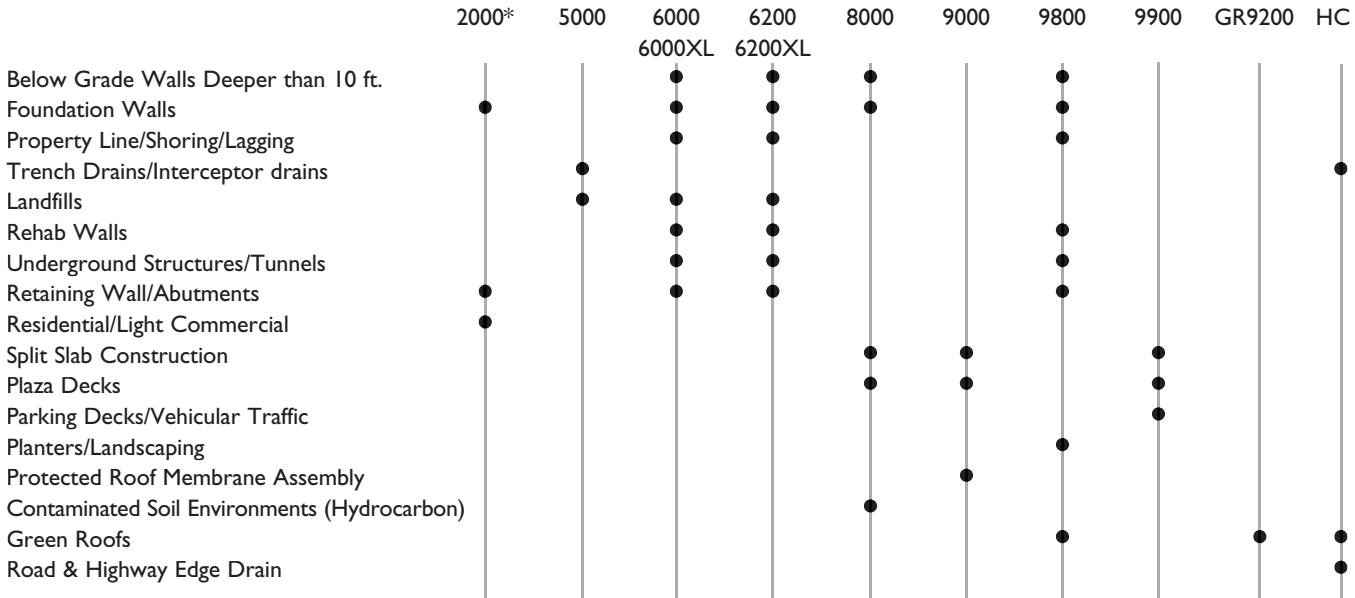


DRAINAGE SOLUTIONS...FOR EVERY APPLICATION



*Restricted to maximum depth of 10 ft.

CCW  WEB

Visit Our Web Site at
www.carlisle-ccw.com

- Updates
- Data Sheets
- Contacts
- Guide Specifications
- Architectural Details
- Technical Bulletins

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.

High Performance Drainage Composite Utilizing

FLAT PIPE
TECHNOLOGY

900 Hensley Lane • Wylie TX 75098
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CCW MiraDRAIN®
Installation Guide

C A R L I S L E C O A T I N G S & W A T E R P R O O F I N G



CCW MiraDRAIN™ prefabricated drainage panels may be installed in a variety of construction applications including: retaining walls, foundation walls (both waterproofed and non-waterproofed), lagging systems, split slabs, plaza decks, planters, buttress/landfills, interceptor/edge drains and greenroofs. CCW MiraDRAIN can be cut with a utility knife or scissors. Slurries, shotcrete or concrete may be placed directly to either side of the panels. The panels should terminate at the top of the footing and are flexible enough to form a right angle to cover the top of the footing. CCW MiraDRAIN eliminates the need for a protection course over most waterproofing systems. Native soils can be used over CCW MiraDRAIN. Contact your local CCW MiraDRAIN representative for specific guidelines.

Foundation Walls - Vertical Applications

CCW MiraDRAIN panels can be installed in rows or columns with the fabric side toward the soil. Each method has its advantages depending on the criteria of the project.

When installing CCW MiraDRAIN in columns:

- Start at the low point of the wall and attach the panel to the wall with approved CCW adhesive.
- Attach adjacent panels together by:



(A) Overlapping the core flanges.



(B) Mate fabric flaps together and fold over adjacent panel. Adhere fabric with approved CCW adhesive.

When installing CCW MiraDRAIN in rows (horizontally):

- Place the longitudinal edge of the core against the wall, flush with the wall footing, or place the longitudinal edge of the core on the footing and turn up the wall (as shown on cover).
- Attach subsequent panels in shingle fashion as follows:



(A) Attach the longitudinal edge of CCW MiraDRAIN to longitudinal edge of either CCW MiraDRAIN or CCW QuickDRAIN™.



(B) Overlap the geotextile fabric flaps from both panels folded in a shingle fashion over the adjacent panel. Adhere fabric with approved CCW adhesive.

When installing end-of-roll seams:



(A) Cut approximately 3" (75 mm) of core leaving the geotextile fabric to overlap the adjacent panel. The fabric can be adhered with approved CCW adhesive. (Optional: Cover butted core with additional geotextile fabric.)

Termination Drainage Panel:



(B) The top or terminal edge of CCW MiraDRAIN should be sealed by applying a piece of filter fabric sufficient to prevent soil or other foreign construction materials from intruding into or behind CCW MiraDRAIN panels, an alternative would be to cut the core from the fabric by a depth of 3 dimples to provide excess fabric for wrapping behind the core.



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 4" CCW-705 if concrete is to be placed directly on the core. 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 or concrete may be poured directly over CCW MiraDRAIN.



CCW MiraDRAIN joined top-to-bottom with 4" CCW-705



CCW MiraDRAIN joined in a "T" intersection with 4" CCW-705

Planters:

- Place the CCW MiraDRAIN in the planter so that the fabric on the vertical and horizontal surfaces face 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 the panels require cutting, exposed cuts must be covered with supplemental pieces of filter fabric to prevent soil intrusion. A minimum 6" (150 mm) piece of filter fabric will be required to cover cut sections.



Plaza Decks:

- Place fabric side up over a properly waterproofed substrate.
- The panels should be placed in shingle fashion so that water runs with the overlap. Secure CCW MiraDRAIN to the waterproofing membrane with ballast or approved CCW adhesive to hold it in place. The first panels should be placed with the flanged edge uphill.
- Termination edges that have been cut will require a supplemental piece of filter fabric to seal the panel from soil intrusion.



Attachment Methods:

No Waterproofing Membrane

CCW MiraDRAIN should be attached to non-waterproofed walls with approved CCW adhesive, concrete nails with 1" diameter washers. CCW MiraDRAIN will be permanently secured upon completion of backfill. Backfill within two weeks. Backfill to at least 6" (150 mm) above the top edge of CCW MiraDRAIN.

Using CCW MiraDRI 860/861, CCW 500R, CCW 525, Barricoat™, Sure-Seal® Butyl, Sure-Seal® EPDM & CCW 703 Waterproofing Membranes

- CCW MiraDRAIN should be attached with approved CCW adhesive.
- Surfaces must be clean and dry.
- Apply CCW DRAIN GRIP or approved CCW adhesive as instructed in the Technical Data Sheets (available at www.carlisle-ccw.com).
- After application of adhesive, mate the two surfaces together.
- CCW MiraDRAIN will be permanently secured upon completion of backfill. Backfill within two weeks.
- Backfill to at least 6" (150 mm) above the top edge of CCW MiraDRAIN.

Using CCW MiraCLAY® Waterproofing Membranes

- CCW MiraDRAIN should be attached over the CCW MiraCLAY membrane using power actuated fasteners or concrete nails and 1" diameter washers.



CCW CAV-GRIP Spray
(also available in roller grade)

Soldier Pile Supported Excavations

- CCW MiraDRAIN should be secured with power actuated fasteners or concrete nails with 1" diameter washers for the substrate, i.e. concrete, masonry, wood or soil. Prevent concrete from flowing behind CCW MiraDRAIN core by sealing the backside of the panel with duct tape or wood furring strip. Sealing the backside of the panel is not necessary if CCW MiraCLAY waterproofing membrane is applied over CCW MiraDRAIN prior to pouring concrete or shotcreting. Voids in the soil or lagging that exceed 6" (150 mm) across and 5" (12.5 cm) deep must be filled to provide support for CCW MiraDRAIN.



Soldier Pile Support with CCW MiraDRAIN and CCW MiraCLAY



CCW MiraDRAIN and CCW MiraCLAY using 1" diameter washer

CCW QuickDRAIN Inside/Outside Corners & Splice:

Highlighted areas indicate dimples that overlap. For more information, see CCW QuickDRAIN details.



CCW QuickDRAIN
Inside Corner



CCW QuickDRAIN
Outside Corner



CCW QuickDRAIN
Splice



Buttress Drainage and Landslide Repair:

- To prepare the substrate for CCW MiraDRAIN, remove all debris protruding more than $\frac{3}{4}$ ".
- Roll out CCW MiraDRAIN, fabric side down, onto a properly prepared subgrade.
- A chimney-drain pattern should be formed as specified. Space CCW MiraDRAIN as specified.
- Connect the bottom of the chimney drains to a continuous horizontal collector panel.
- Secure panels to the subgrade with ballast or soil nails.
- Fold fabric flaps onto the back of the core and adhere with approved CCW adhesive.

Drainage Collector - Discharge System

Collector Pipe:

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



Drainage collector pipe



CCW MiraDRAIN QuickDRAIN



High Performance Drainage Composite Utilizing
FLAT PIPE
TECHNOLOGY



CCW MiraDRAIN Products



CCW MiraDRAIN
2000



CCW MiraDRAIN
5000



CCW MiraDRAIN
6000



CCW MiraDRAIN
6000XL



CCW MiraDRAIN
6200



CCW MiraDRAIN
6200XL



CCW MiraDRAIN
8000



CCW MiraDRAIN
9000



CCW MiraDRAIN
9800



CCW MiraDRAIN
9900



CCW MiraDRAIN
GR9200



CCW MiraDRAIN
HC



CCW MiraDRAIN
QuickDRAIN



6" & 12" HC Endout Connectors



(A) 6" Endout Connector attached to CCW QuickDRAIN



(B) 6" Endout Connector covered with fabric

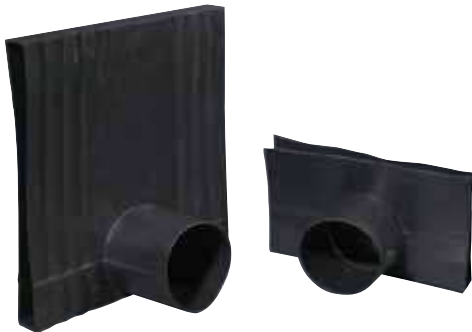


(A) 12" Endout Connector attached to CCW QuickDRAIN



(B) 12" Endout Connector covered with fabric

6" & 12" HC Sideout Connectors



(A) 6" Sideout Connector attached to CCW QuickDRAIN



(B) 6" Sideout Connector covered with fabric

CCW QuickDRAIN Connector



(A) CCW QuickDRAIN Connector attached to end of CCW QuickDRAIN
Note: Cut off bottom edge of connector before attaching (see dotted line in above photo).



(B) CCW QuickDRAIN Connector attached to end of CCW QuickDRAIN & covered with extra filter fabric on cut edge and adhered with tape.



(A) CCW QuickDRAIN Connector attached to side of CCW QuickDRAIN.



(B) CCW QuickDRAIN Connector attached to side of CCW QuickDRAIN & covered with fabric.

Approved CCW Adhesives & Accessories



CCW-702



CCW AWP



CAV-GRIP



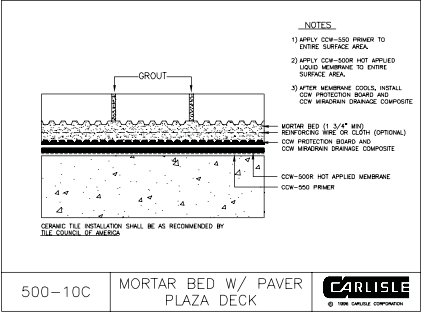
CCW DRAIN GRIP-S



CCW-705



Sure-Seal® SecurTAPE™

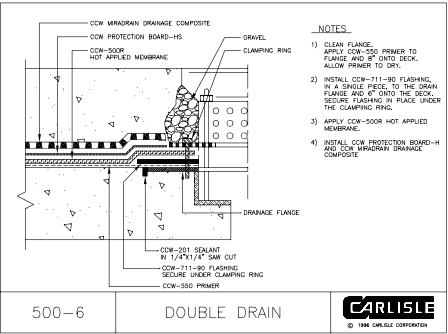


PLAZA DECKS

Problem: Water seeping into intermediate levels of the building, damaging the structure and contents below.

Solution: CCW MiraDRAIN 9900

Options: CCW MiraDRAIN 8000, 9800

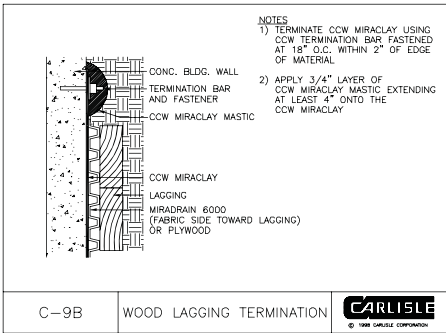


SPLIT SLABS/VEHICULAR TRAFFIC

Problem: Water encroaching into low-level mechanical rooms and basements from below-the-floor slab; buildup of hydrostatic pressure leading to structural damage.

Solution: CCW MiraDRAIN 9900

Options: CCW MiraDRAIN 8000, 9000

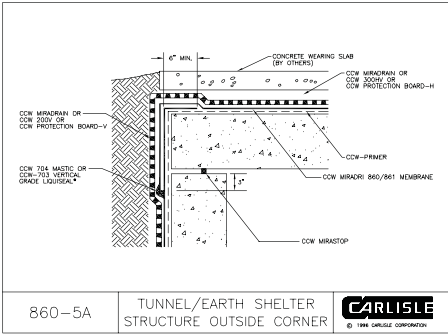


SHORING/LAGGING

Problem: Site water removal; consistent drainage path at property line walls.

Solution: CCW MiraDRAIN 6000XL, 6200XL

Options: CCW MiraDRAIN 6000, 6200, 9800

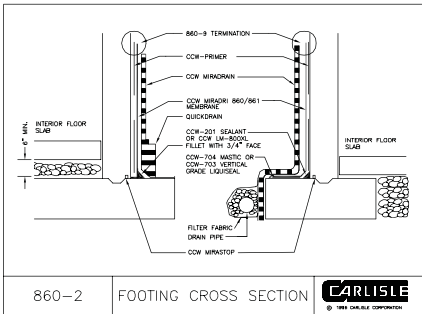


UNDERGROUND STRUCTURES

Problem: Water seepage that could lead to structural and interior tunnel damage.

Solution: CCW MiraDRAIN 6000XL, 6200XL

Options: CCW MiraDRAIN 6000, 6200, 9800

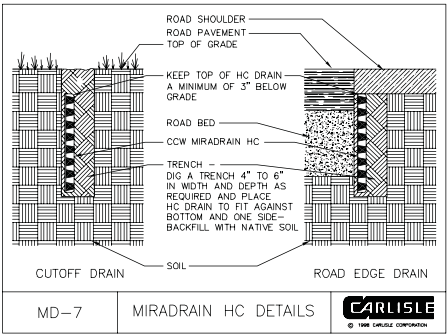


FOUNDATION WALLS

Problem: Excessive pressure buildup from saturated backfill may cause structural damage; constant hydrostatic head pressure may cause premature failure of waterproofing membrane.

Solution: CCW MiraDRAIN 6000XL, 6200XL

Options: CCW MiraDRAIN 2000, 6000, 6200, 8000, 9800

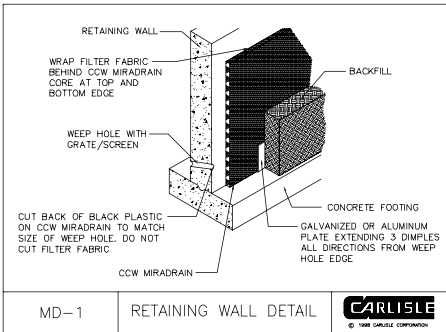


TRENCH DRAINS

Problem: Removing excessive stormwater in natural and artificial depressions; seeping water that can cause erosion along slopes.

Solution: CCW MiraDRAIN 5000

Options: CCW MiraDRAIN HC

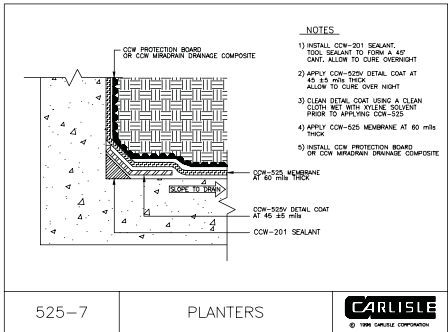
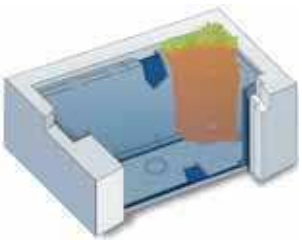


RETAINING WALLS

Problem: Increased earth stresses created by undrained backfill, resulting in unacceptable movement of retaining walls.

Solution: CCW MiraDRAIN 6000XL, 6200XL

Options: CCW MiraDRAIN 2000, 6000, 6200, 9800



PLANTERS

Problem: Specifying and designing an efficient drainage system for a planter in which constant irrigation requires a reliable drainage medium.

Solution: CCW MiraDRAIN 9800

Options: CCW MiraDRAIN 9000