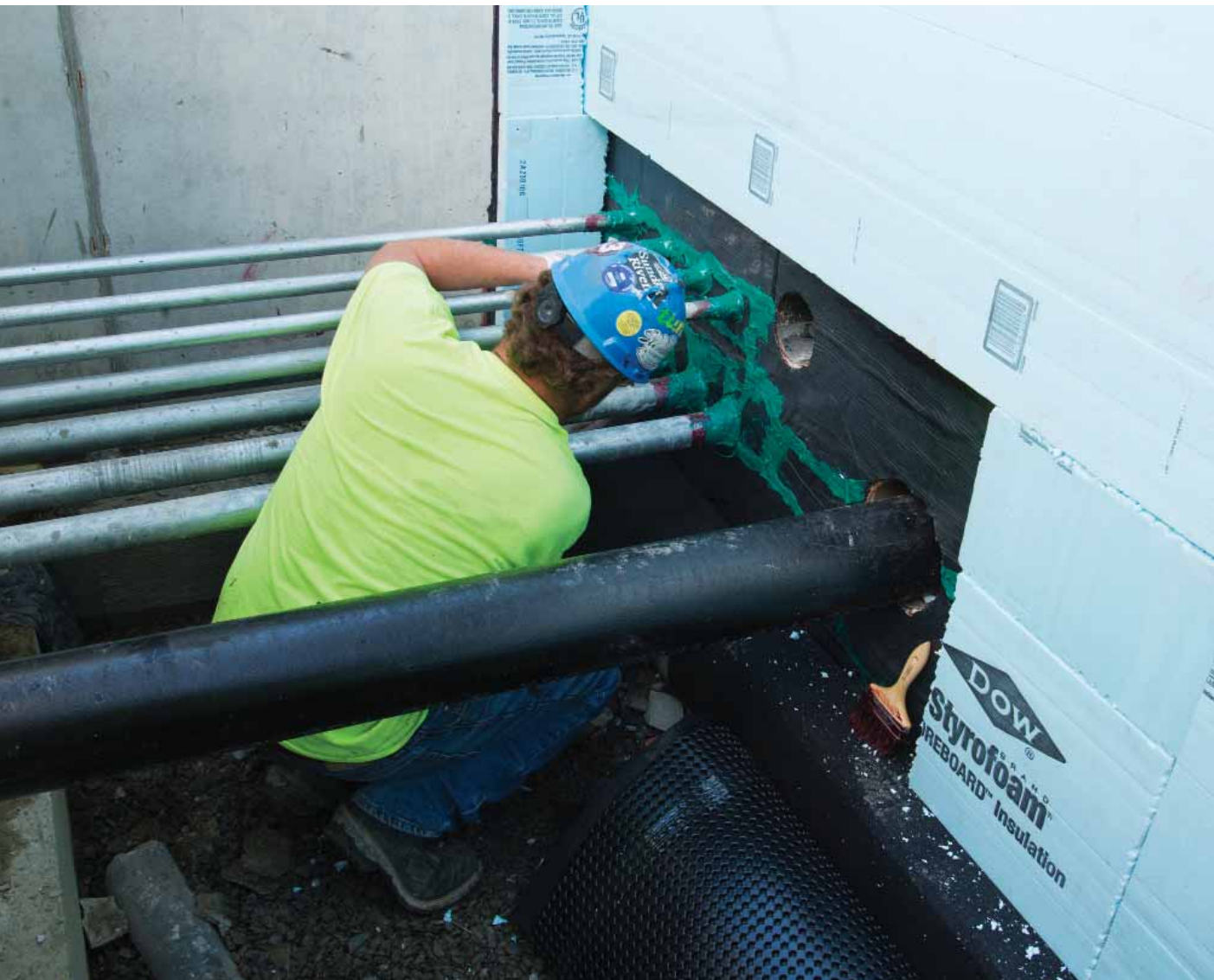


SCIENCE. SERVICE. SOLUTIONS.



WATERPROOFING

MiraDRAIN® Installation Guide



WATERPROOFING

MiraDRAIN Installation Guide

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. 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. MiraDRAIN eliminates the need for a protection course over most waterproofing systems. Native soils can be used over MiraDRAIN. Contact your local MiraDRAIN representative for specific guidelines.



Foundation Walls - Vertical Applications

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.

Installing MiraDRAIN in Columns

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



Overlapping the core flanges.



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

Installing MiraDRAIN in Rows (Horizontally)

1. 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).
2. Attach subsequent panels in shingle fashion as follows:

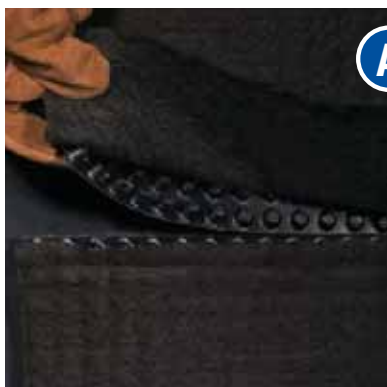


Attach the longitudinal edge of MiraDRAIN to longitudinal edge of either MiraDRAIN or CCW MiraDRAIN HC™.



Overlap the geotextile fabric flaps from both panels folded in a shingle fashion over the adjacent panel. Adhere fabric with approved CCW adhesive or Carlisle SecurTAPE.

When installing end-of-roll seams:



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:



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.

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Underslab - Horizontal Applications

Floor Slabs and Concrete-Lined Channels

1. 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.
2. Place MiraDRAIN with the fabric side toward the soil.
3. 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 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 MiraDRAIN core during subsequent construction phases.
4. Construction traffic should be minimized over the installed MiraDRAIN. Sand or concrete may be poured directly over MiraDRAIN.



MiraDRAIN joined top-to-bottom with 4" CCW-705 or Aluma-Grip 701.



CCW MiraDRAIN joined in a "T" intersection with 4" CCW-705 or Aluma-Grip 701.



Planter

1. Place the MiraDRAIN in the planter so that the fabric on the vertical and horizontal surfaces face the soil.
2. Utilize the installation procedures and attachment method appropriate for the type of substrate.
3. Overlap the fabric of the vertical panel onto the horizontal panel at the transition point.
4. 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

5. Place fabric side up over a properly waterproofed substrate.
6. The panels should be placed in shingle fashion so that water runs with the overlap. Secure 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.
7. 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

MiraDRAIN should be attached to non-waterproofed walls with approved CCW adhesive, CCW mastic, concrete nails with 1" diameter washers. 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 MiraDRAIN.

Using CCW MiraDRI 860/861, CCW 500R, CCW 525, Barricoat, MiraSEAL, MiraPLY, Sure-Seal EPDM & CCW 703 Waterproofing Membranes

1. Place the MiraDRAIN in the planter so that the fabric on the vertical and horizontal surfaces face the soil.
2. Utilize the installation procedures and attachment method appropriate for the type of substrate.
3. Overlap the fabric of the vertical panel onto the horizontal panel at the transition point.
4. 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.

Using CCW MiraCLAY Waterproofing Membranes

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)



MiraDRAIN and CCW MiraCLAY using 1" diameter washer



Soldier Pile Support with CCW MiraDRAIN and CCW MiraCLAY

Soldier Pile Supported Excavations

MiraDRAIN should be secured with power actuated fasteners or concrete nails with 1" diameter washers to the substrate, i.e. concrete, masonry, wood or soil. Prevent concrete from flowing behind 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 or MiraPLY waterproofing membrane is applied over 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 MiraDRAIN.

WATERPROOFING

MiraDRAIN Installation Guide

MiraDRAIN HC Inside/Outside Corners & Splice

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



CCW MiraDRAIN HC Inside Corner



CCW MiraDRAIN HC Outside Corner



CCW MiraDRAIN HC Splice

Buttress Drainage and Landslide Repair

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



Drainage Collector - Discharge System

Collector Pipe

1. Place CCW MiraDRAIN HC or collector pipe as required in project design details. CCW MiraDRAIN HC should be installed adjacent to MiraDRAIN. Care must be taken to ensure a continuous drainage path between CCW MiraDRAIN HC and MiraDRAIN panels.
2. 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



CCW MiraDRAIN Products

MiraDRAIN 2000

MiraDRAIN 6000

MiraDRAIN 6000XL

MiraDRAIN 6200

MiraDRAIN 6200XL

MiraDRAIN 8000

MiraDRAIN 9000

MiraDRAIN 9800

MiraDRAIN 9900

MiraDRAIN HC

MiraDRAIN GR 9400



WATERPROOFING

MiraDRAIN Installation Guide

Drain Connectors, Approved CCW Adhesives & Accessories



6" & 12" HC Endout Connectors



6" Endout Connector attached to CCW
MiraDRAIN HC



6" Endout Connector covered with fabric



12" Endout Connector attached to CCW
MiraDRAIN HC



12" Endout Connector covered with fabric



6" & 12" HC Sideout Connectors

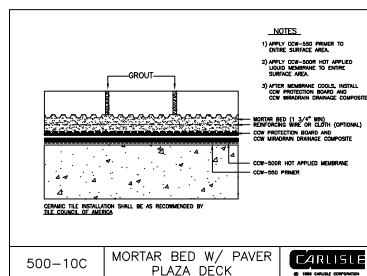


6" Sideout Connector attached to CCW
MiraDRAIN HC

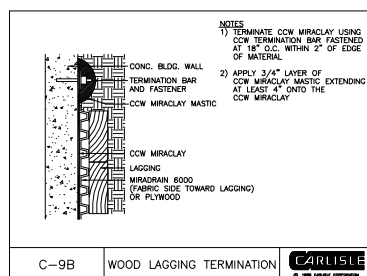


6" Sideout Connector covered with fabric

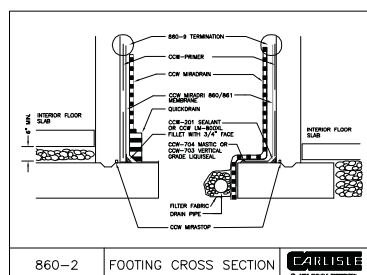
Drainage Solutions



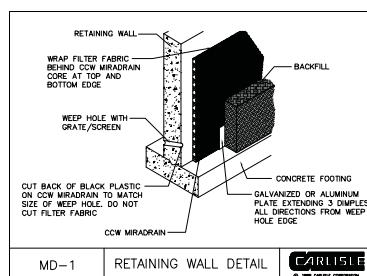
Options: CCW MiraDRAIN 8000, 9800, 9900



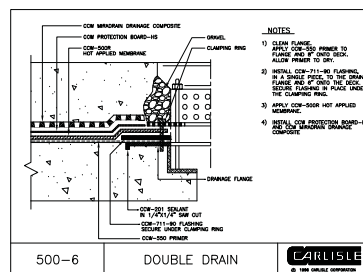
Options: CCW MiraDRAIN 6000, 6200, 9800



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



Options: CCW MiraDRAIN 2000,
6000, 6200, 9800

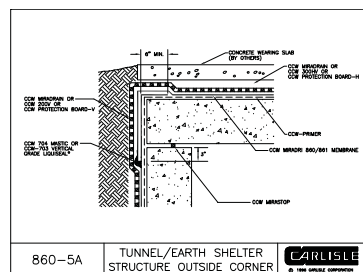


Split Slabs / Vehicular Traffic

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

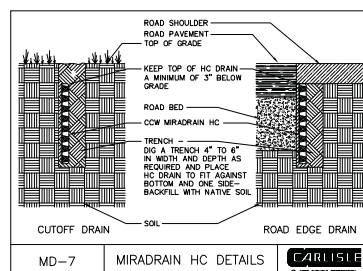


Underground Structures

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

Solution: CCW MiraDRAIN 6000XL, 6200XL

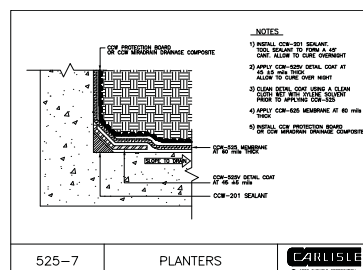
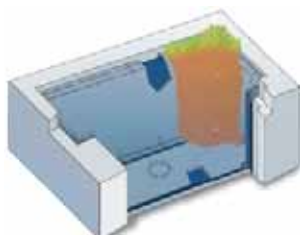
Options: CCW MiraDRAIN 6000, 6200, 9800



Trench Drains

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

Solution: CCW MiraDRAIN HC



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, 6000, 6200, 6000XL, 6200XL

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

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