



CCW MiraCLAY® GM

Bentonite Clay

Waterproofing Membrane with a GeoMembrane Liner

DESCRIPTION

CCW MiraCLAY GM is a needle-punched, thermally reinforced composite comprised of a uniform layer of sodium bentonite clay that is sandwiched between a durable puncture-resistant non-woven geotextile and the slit film woven geotextile. The needle punched fibers are thermally fused to the woven geotextile to enhance the reinforcing bond and an HDPE film is applied to the woven surface to lower the hydraulic conductivity.

TYPICAL USES

CCW MiraCLAY GM is designed for waterproofing below-grade structural slabs as well as construction methods incorporating lagging, concrete caisson or shotcrete retention walls. CCW MiraCLAY GM is also very effective in rehab waterproofing and zero clearance property line construction.

ADVANTAGES

- The CCW MiraCLAY GM waterproofing membrane has the ability to heal itself if ripped or punctured.
- In a hydrated state, the bentonite clay has tremendous impermeability and excellent resistance to chemicals (i.e. acids, bases and hydrocarbons).
- The CCW MiraCLAY GM has the ability to expand and seal minor cracks in concrete.
- The CCW MiraCLAY GM has a polyethylene membrane attached for added waterproofing protection.
- CCW MiraCLAY GM has been tested and certified by NSF*.

INSTALLATION

UNDERSLAB APPLICATIONS

CCW MiraCLAY GM is designed for use under reinforced concrete slabs 4" (100 mm) thick or greater on a compacted earth/gravel substrate. If installed over a mud slab, CCW MiraCLAY GM requires a minimum 5" (150 mm) thick reinforced concrete slab.

When hydrostatic conditions exist, CCW MiraCLAY GM should be installed under footings and grade beams as shown in CCW MiraCLAY details.

SUBSTRATE PREPARATION

NOTE: Do not begin construction in work areas where there is standing water or in situations which may cause the CCW MiraCLAY GM to prematurely hydrate.

Before installing CCW MiraCLAY GM, the substrate must be properly prepared. Substrate may be concrete, earth, sand, pea gravel or crushed stone. Earth and sand substrates should be compacted to a minimum 85% Modified Proctor density. Crushed stone should not be larger than 3/4" (18 mm) in size. Substrate should be smooth and uniform without sharp projections or pockets.

*Certified to a maximum of 1% of a 1,000 gallon tank

TECHNICAL DATA

PROPERTY	METHOD	UNIT	TYPICAL VALUE
Bentonite Content ¹	@12% moisture content	lb/ft ² (kg/m ²)	1.0 (4.88)
Permeability ⁴	ASTM D5084	cm/sec, max	5 x 10 ⁻⁹
Grab Tensile Strength ²	ASTM D4632	lbs (N)	95 (422)
Grab Elongation ²	ASTM D4632	%	150
Internal Shear Strength ⁵	ASTM D5321	psf (kPa)	500 (24)
Swell Index	ASTM D5890	—	2g (24ml) min
Fluid Loss	ASTM D5891	ml	18 ml max
Low Temperature Flexibility	ASTM D1970	@ -25°F (-32°C)	unaffected
Peel Strength ³	ASTM D4632	lbs (N)	15 (66)
Hydrostatic Head Pressure	ASTM D751	ft (meter)	228 (69.49)
Adhesion to Concrete	ASTM D903	lb/in (kg/cm)	17.7 (8)

¹At 12% moisture content. Equates to 0.893 lbs at 0%. When indexed to a 12% moisture content. ²Measure at maximum peak, in the weakest principle direction. ³Modified to use a 4-inch wide grip. The maximum peak of five specimens averaged. ⁴DeAired Tap water@ 5 psi maximum effective confining stress and 2 psi head. ⁵Typical peak value or specimen hydrated for 25hr. and sheared under a 200 psf normal stress.

Complete all required elevator pit, sump pit and grade beam and piling work before installing CCW MiraCLAY GM under main slab area.

INSTALLATION

Install MiraCLAY GM on conventional concrete wall with the non-woven geotextile fabric facing the structural concrete substrate. On lagging walls and mudslab applications, install MiraCLAY GM with the non-woven geotextile fabric facing the structural concrete placement. Overlap adjoining edges a minimum of 4" (100 mm); stagger sheet ends a minimum of 24" (600 mm); and nail or staple edges together as required to prevent any displacement during concrete placement. CCW MiraCLAY Granules may also be placed in the seam for additional waterproofing performance.

When the slab is poured in sections, CCW MiraCLAY GM should extend a minimum 12" (300 mm) beyond the slab edge. When the installation reaches the outer edge of the slab, continue CCW MiraCLAY GM up and out of the form a minimum of 12" (300 mm). At the corner, CCW MiraCLAY GM should remain in contact with the substrate and inside the surface of the concrete form. When the form is removed, the CCW MiraCLAY GM outside the form should be positioned

and fastened onto the footing or vertical wall. Overlay the CCW MiraCLAY GM a minimum of 6" (150 mm) with the succeeding vertical waterproofing membrane.

At property line retaining walls, such as soldier pile or lagging, continue the underslab CCW MiraCLAY GM application up the retaining wall a minimum 12" (300 mm) above the top edge of the slab or footing and secure. Overlap the vertical CCW MiraCLAY GM waterproofing membrane by a minimum of 6" (150 mm) or a minimum of 12" (300 mm) under hydrostatic head conditions.

PROPERTY LINE OR LAGGING APPLICATION SUBSTRATE PREPARATION

Gaps between the wood lagging greater than 1" (25 mm) must be filled with cementitious grout. In areas with large gaps (1" to 5" / 25 mm to 125 mm) between lagging, install plywood to provide a uniform substrate. Where drainage issues may arise, install CCW MiraDRAIN to provide a uniform substrate as well as to facilitate drainage.

INSTALLATION

Install CCW MiraCLAY GM with the non-woven side facing the installer. Secure the CCW MiraCLAY GM into position with fasteners and 1" (25 mm) washers. Use the appropriate fasteners for the type of substrate used to receive the CCW MiraCLAY GM. Install succeeding courses of CCW MiraCLAY GM by overlapping the previous course a minimum of 4" (100 mm). Stagger the seams a minimum of 24" (600 mm). Install in shingle fashion so that the upper roll of CCW MiraCLAY GM overlaps the lower roll. Fasten membrane once every 18" (45 cm) on seams or as required to prevent blousing.

At grade line, after the wall has been poured, terminate CCW MiraCLAY GM with a rigid termination bar or fasten 12" (300 mm) on center. Embed the top edge of CCW MiraCLAY GM and termination bar with a thick bead of CCW MiraCLAY Mastic 2" (50 mm) wide by ½" (12 mm) thick.

STANDARD FOUNDATION WALLS SUBSTRATE PREPARATION

The substrate must be properly prepared to receive the CCW MiraCLAY GM waterproofing membrane. All honeycombs, form-tie cavities and indentations should be filled with CCW MiraCLAY Mastic or filled with latex Portland Cement. Substrate must be smooth and uniform, removing any protrusions over ½" (12 mm) from the surface. Footings must be free of soil, rocks or debris to provide a suitable substrate to receive the CCW MiraCLAY GM waterproofing membrane.

INSTALLATION

The CCW MiraCLAY GM waterproofing membrane should be installed with the non-woven side facing the applicator. Create a cant at any vertical to horizontal transition by applying a 1½" (39 mm) to 2" (50 mm) of CCW MiraCLAY Granules along that junction. At the base of the foundation wall where the vertical wall meets the horizontal footing, install CCW MiraCLAY GM in a horizontal manner extending out onto the footing a minimum of 12" (300 mm). Fasten the CCW MiraCLAY GM in place with concrete fasteners and 1" (25 mm) washers. Install succeeding courses of CCW MiraCLAY GM by overlapping the previous course a

minimum of 4" (100 mm). Stagger the seams a minimum of 12" (300 mm). Install in shingle fashion so that the upper roll of CCW MiraCLAY GM overlaps the lower roll. Fasten membrane once every 18" (45 cm) on seams or as required to prevent blousing. At grade line, terminate CCW MiraCLAY GM with a rigid termination bar or fasten 12" (300 mm) on center. Embed the top edge of CCW MiraCLAY GM and termination bar with a thick bead of CCW MiraCLAY mastic 2" (50 mm) wide by ½" (12 mm) thick.

PACKAGING

Square Footage: 70 ft (21.34 m²)

Dimensions: 5 ft x 14 ft (1.52 m x 4.27 m)

DETAIL REQUIREMENTS

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

RECOMMENDATIONS

Carlisle Coatings & Waterproofing recommends the use of CCW MiraDRAIN, a geocomposite sheet drain, to facilitate the removal of water away from the structure. The CCW MiraCLAY EF and CCW MiraDRAIN waterproofing and drainage system provides maximum protection against water penetration.

CAUTIONS & LIMITATIONS

- CCW MiraCLAY membranes should remain dry before and during installation.
- Improper storage could lead to product deterioration.
- Not for use on CMU foundations.

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.

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