

TECHNICAL DATA

VOLCLAY® PANELS

BENTONITE WATERPROOFING SYSTEM

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DESCRIPTION

Volclay Panels are a highly effective waterproofing system composed of a biodegradable kraft board filled with high-swelling, sodium bentonite. Volclay Panels contain a controlled rate of one pound per square foot (4.8 kg/m²) of Volclay sodium bentonite inside the flutes of the 4' x 4' x 3/16" thick (1.2 m x 1.2 m x 4.7 mm) corrugated kraft board. Once backfilled, Volclay Panels hydrate and form a monolithic waterproofing membrane.

Volclay Panels contain zero VOC, can be installed in almost any weather condition to green concrete, and most importantly, have proven effective for more than 40 years. Volclay Panels work by forming a low permeability membrane upon contact with water. When wetted, unconfined bentonite can swell up to 15 times its dry volume. When confined under pressure the swell is controlled, forming a dense, impervious waterproofing membrane. The swelling action of Volclay can self-heal small concrete cracks caused by ground settlement, concrete shrinkage, or seismic action; problems over which there is normally no control.

APPLICATIONS

Volclay Panels are designed for below-grade structural concrete foundation walls. Typical applications include backfilled concrete foundation and retaining walls. Applications may include structures under continuous or intermittent hydrostatic pressure. Volclay Panels are not designed for below-grade masonry block walls. Where contaminated ground-water or saltwater conditions exist, consult CETCO regarding recommended Volclay waterproofing products and installation guidelines.

INSTALLATION

General: Install Volclay Panels in strict accordance with the manufacturer's installation guidelines. Use accessory

products as recommended. Install Type 1 Panels with the print side facing the installer. Install Waterstop-RX in all applicable horizontal and vertical concrete construction joints. Schedule waterproofing material installation to permit prompt placement of compactible backfill material. For applications not covered herein, contact CETCO for specific installation guidelines.

Preparatory Work: Concrete surfaces should be free of voids and sharp projections. Surface irregularities should be removed before installation. Apply Bentoseal® to form-tie pockets, construction joints and honeycombs in concrete. Tapered form-tie holes extending through the wall should be completely filled with non-shrink grout.

Panel Installation: Starting at a bottom outside corner of the wall, bend Panel around the corner along the "Starter Line" (printed on Panel) with the kraft board corrugations vertically oriented. Cut the Panel at the bottom along the "Starter Line" so that the Panel can be extended onto the footing a minimum of 6" (150 mm). Secure Panels with washerhead concrete fasteners along each edge and one or two fasteners in the center. Cut and apply a Panel section at the footing corner base where the Panel does not cover. Then apply Bentoseal over the Panel section at the corner. After securing the corner Panel, install adjacent Panels with corrugations (and print) horizontally oriented. Overlap all adjoining Panel edges a minimum of 1-1/2" (38 mm) and extend onto footing a minimum of 6" (150 mm). Continue horizontal placement until the next corner. At the next corner install the Panel with print vertical. At the inside corners, apply a continuous 3/4" (18 mm) fillet of Bentoseal directly in the corner prior to installing the Panels. Place Hydrobar Tubes tight against the Panel along the wall/footing intersection at the bottom of the wall. "Butt" Hydrobar Tube ends together and tamp a shovel of backfill over them immediately to prevent

displacement. Replace any damaged or prehydrated materials prior to backfilling.

Begin the next course at the original outside corner by positioning the Panel at the corner along the "Alternate Line" (printed on Panel) overlapping the previous course a minimum 1-1/2" (38 mm). After securing the corner Panel, install adjacent Panels with kraft board corrugations and print horizontally oriented. Overlap all adjoining Panel edges a minimum of 1-1/2" (38 mm). Repeat Panel installation procedure to finished grade detail.

To closely fit around penetrations, cut Panels parallel with the corrugations. Immediately seal open Panel corrugation edge by applying a small amount of water with a wet cloth or sponge prior to Panel installation. Trowel a minimum 1/2" (12 mm) thick layer of Bentoseal around penetrations. Extend Bentoseal onto penetration and completely fill area between Panel edge and penetration.

Terminate Volclay Panels approximately 12" (300 mm) below finished grade elevation. Per manufacturer guidelines, install GF-40SA grade flashing fully adhered to primed concrete wall above top edge of Volclay Panels; with bottom edge of flashing strip overlapping Volclay Panels a minimum 4" (100 mm). Terminate top of grade flashing strip with ridge termination bar fastened maximum 12" (300 mm) on center. Complete grade termination detail with tooled bead of CETSEAL along the top edge, at all penetrations through the flashing, and all exposed overlap seams.

Backfill material should be compacted to 85% of Modified Proctor density promptly following the application of each Panel course. Backfill to within 3" (75 mm) of the top edge of the Panel. If backfill cannot be applied immediately, protect Type 1 Panels from precipitation with polyethylene sheeting.

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Remove sheeting prior to backfilling. If backfill contains sharp or irregular material, cover Panels with CETCO protection course material or Aquadrain® drainage composite to avoid damage during backfilling and compaction.

Tie into underslab waterproofing as required by overlapping the underslab waterproofing a minimum of 6" (150 mm). When a drain tile is required, install it below the top of the footing — not in direct contact with the waterproofing.

SIZE AND PACKAGING

Volclay Type 1 Panels are 48" x 48" x 3/16" thick (1.2 m x 1.2 m x 4.7 mm). Each Panel weighs approximately 18 lbs. (8 kg). Volclay Panels are packaged 125 panels per pallet; 2000 sq. ft. (185 sq.m.) per pallet.

Storage: Keep all Volclay materials dry, with adequate polyethylene or canvas cover for sides and top. Block up or pallet materials to prevent contact with ground surface water.

TECHNICAL DATA

Volclay sodium bentonite is composed of a minimum of 50% high-swelling montmorillonite.

Permeability Rating: Volclay Panels have been tested by independent testing laboratories in accordance with ASTM D 5084, and have a measured permeability of 1×10^{-9} cm/sec.

Hydrostatic Resistance: A single course of Volclay Panels is rated to withstand 33' (10 m) of hydrostatic head. For hydrostatic conditions greater than 33' (10 m), a double course of Volclay Panels is required.

Crack Bridging Ability: Laboratory testing has shown that Volclay Panels are capable of bridging cracks in concrete up to 1/16" (1.5 mm).

Bentonite Mass per Unit Area: ASTM D 3776 (mod), 1.0 pound per square foot (4.8 kg/m²).

ACCESSORY PRODUCTS

Volclay Panel System accessories include:

Bentoseal®: patented trowel grade sodium bentonite compound used as a detailing mastic around penetrations and corner transitions.

Hydrobar Tubes®: 2" (50 mm) diameter x 24" (610 mm) long, water soluble casing tube filled with Volclay Bentonite. It is used as a convenient method of adding extra bentonite at the footing/wall intersection. Hydrobar Tube is packaged 32' (9.7 m) per carton.

Waterstoppage®: pure granular Volclay Bentonite used to detail critical areas that may require extra Volclay protection. Waterstoppage is packaged in 50 lb. (22.70 Kg) bags.

Aquadrain®: prefabricated drainage composite consisting of a heavy filter fabric adhered to a high-strength polystyrene drainage core. Aquadrain is available in 4' x 52' rolls.

CETSEAL: multi-purpose, single component polyether moisture cure sealant/adhesive.

Waterstop-RX®: expanding bentonite-based concrete joint strip waterstop. Waterstop-RX is manufactured in flexible strips that are adhered into place with CETSEAL. Also place Waterstop-RX around applicable penetrations.

GF-40SA: flashing membrane used for grade and thru-wall detailing.

LIMITATIONS

Do not install Volclay Panels in standing water or during precipitation. If ground water contains strong acids, alkalis, or is of a conductivity of 2,500 µmhos or greater, submit water samples to the manufacturer for compatibility testing. If contaminated ground-water or saltwater conditions exist, consult CETCO regarding recommended Volclay waterproofing products and installation guidelines.

Volclay Panels are not designed for unconfined above-grade waterproofing applications or below-grade masonry block foundation walls. Do not install Volclay Panels in horizontal split-slab plaza deck applications that will receive a poured concrete wear surface or other solid topping.

Volclay Panels are not designed for below-grade masonry block foundation walls, with or without a cementitious parge. Consult CETCO regarding recommended waterproofing products and installation guidelines.

Volclay Panels are not designed to waterproof expansion joints. Expansion joints require a properly engineered expansion joint sealant product manufactured by other companies.

Backfill should consist of clean soils compacted to a minimum 85% Modified Proctor density promptly after waterproofing installation. Stone backfill requires the use of Aquadrain drainage composite or other CETCO protection material; consult CETCO for specific guidelines. Avoid backfill with aggregate larger than 1-1/2" (38 mm).

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IMPORTANT: The information contained herein supersedes all previous printed versions, and is believed to be accurate and reliable. For the most up-to-date information, please visit www.CETCO.com. CETCO accepts no responsibility for the results obtained throughout application of this product. CETCO reserves the right to update information without notice.



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