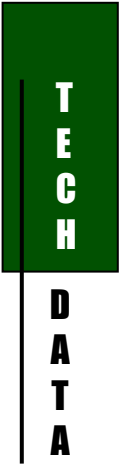




COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY



SWELLTITE®

COMPOSITE BENTONITE WATERPROOFING SYSTEM

DESCRIPTION

Swelltite® is a highly effective waterproofing composite of sodium bentonite compound integrally bonded to a HDPE geomembrane liner. This composition combines the active waterproofing benefits of sodium bentonite with the strength and puncture resistance of a thick geomembrane liner.

Swelltite is a true advancement in waterproofing membrane technology. Unlike other membrane systems which require near-perfect installation. Swelltite's active bentonite compound can expand to seal installation imperfections or small punctures in the membrane. Swelltite is manufactured at a factory controlled thickness of 2.3 mm assuring the specifier, contractor and owner of consistent material application. This engineered composite consists of a white (heat reflective) 0.3mm HDPE geomembrane liner and 2mm of bentonite compound with a clear release film attached. Swelltite contains virtually zero VOC, can be installed in almost any weather condition to green concrete, and most importantly, has proven effective for more than 15 years.

Swelltite works by forming a monolithic membrane upon hydration 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 the bentonite compound can seal small concrete cracks caused by ground settlement, concrete shrinkage, or seismic action; problems over which there is normally no control.

APPLICATIONS

Swelltite is designed for below-ground vertical and horizontal structural foundation surfaces, as well as, above ground split-slab construction.

Typical below-ground applications include backfilled concrete walls, masonry block walls, earth-covered roofs and tunnels.

Typical above-ground split-slab construction applications include plaza decks, parking decks and balconies. Additionally, Swelltite can be used for interior split-slab applications for mechanical rooms, kitchens and laboratory facilities. Application may include structures under continuous or intermittent hydrostatic pressure.

INSTALLATION

GENERAL

Install Swelltite in strict accordance with the manufacturer's installation guidelines. Use accessory products as recommended. Install Swelltite with the bentonite compound directly against the surface to be waterproofed. For ease of handling, the sticky bentonite compound is covered with a siliconised release film that must be removed during installation. Install Waterstop RX101 in all applicable horizontal and vertical concrete construction joints. Schedule waterproofing material installation to permit prompt placement of backfill material or concrete. For applications not covered herein, contact CETCO for specific installation guidelines.

STORAGE

Store Swelltite and accessory products in a dry location protected from construction operations and weather. Protect materials from moisture, excessive temperatures and prolonged exposure to direct sunlight during storage. When storing materials outside at a jobsite, provide weather-proof covering, top and all sides (allow for adequate ventilation). Do not double stack pallets in storage or during shipment.

PREPARATORY WORK

Structural concrete surfaces should be smooth and free of dirt, rock, debris, oil, grease, laitance or other foreign materials. Remove form fins and other protrusions to match substrate surface.

Honeycombing and other surface voids must be filled with mortar or Bentoseal, and tie-bolt holes must be filled with proprietary non-shrink mortar/grout. Concrete surfaces to receive M-2000 Liquid Flashing should be water cured a minimum of 7 days prior to application. Where possible, design horizontal concrete surfaces with proper slope to drain.

SUBSTRATE PRIMING

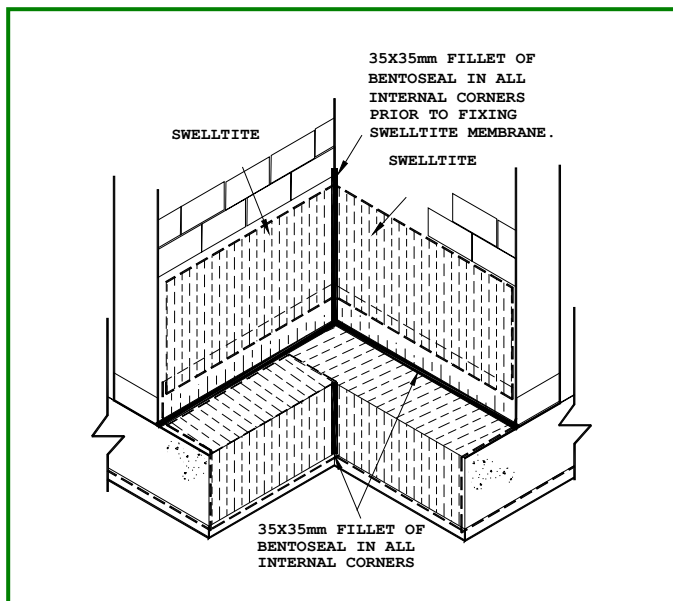
All surfaces to receive Swelltite should be primed with A-3000WB Adhesive applied by roller or sprayer at a rate of 6.5m²/litre Allow A-3000WB Adhesive to dry black before installing Swelltite. Primed surfaces not covered by membrane during same working day must be re-primed.

FOUNDATION WALL INSTALLATION

Before installing Swelltite membrane to foundation walls, prepare substrate, apply adhesive and detail all vertical inside corners, penetrations and the footing/wall joint as follows:

VERTICAL INSIDE CORNERS

Install 35mm thick continuous fillet of Bentoseal at all vertical inside corners.



PENETRATIONS

Apply a 35mm thick fillet of Bentoseal around base of penetrations. Extend Bentoseal a minimum of 150 mm outward from penetration 3mm thick. After Swelltite membrane is installed, apply a counter flashing of Bentoseal at membrane edge around penetration.

FOOTING/WALL JOINT

Install at footing/wall joint a continuous 35mm thick, 45° angle fillet of Bentoseal.

MEMBRANE INSTALLATION

Apply A-3000WB Adhesive and allow to cure (turn black) before applying membrane. REMOVE CLEAR RELEASE FILM from back of membrane before installation. Starting at the base of the wall, install the membrane over the Bentoseal cant and onto the footing a minimum of 150mm with bentonite compound against the primed surface (white HDPE liner side toward installer). Swelltite membrane may be installed either horizontally or vertically oriented. Overlap all membrane edges a minimum of 50 mm. Stagger membrane roll ends a minimum of 300mm. Continue membrane installation to ground level or as specified.

Cut membrane to closely fit around penetrations. Trowel a minimum 18mm thick layer of Bentoseal around penetrations. Extend Bentoseal onto penetration and completely fill area between membrane edge and penetration. When specified, or for any anticipated inclement weather, seal all overlap seams with Volclay Seamtape.

Terminate membrane at finished grade line with rigid termination bar fastened 300mm centres. Trowel M-2000 2mm thick by 75mm wide centred on the top edge of the membrane.

Backfill material should be compacted to 85% Modified Proctor density immediately following the application of the membrane. If backfill cannot be applied immediately, protect membrane edges from precipitation with Volclay Seamtape. If backfill contains sharp or irregular material, cover membrane with protection Mat 10V 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 150mm. When a perforated land drain is required, install it below the top of the footing.

MECHANICAL FASTENING OPTION

REMOVE CLEAR RELEASE FILM, then secure all membrane edges with CETCO 'soft-washer' fasteners. Overlap all membrane edges a minimum of 50mm. Stagger membrane roll ends a minimum of 300mm.

MASONRY BLACK WALLS

CETCO recommends that the masonry black cells be filled with cementitious grout or concrete. All mortar joints should be completely filled and struck flush before membrane is installed to masonry walls.

HORIZONTAL DECK INSTALLATION

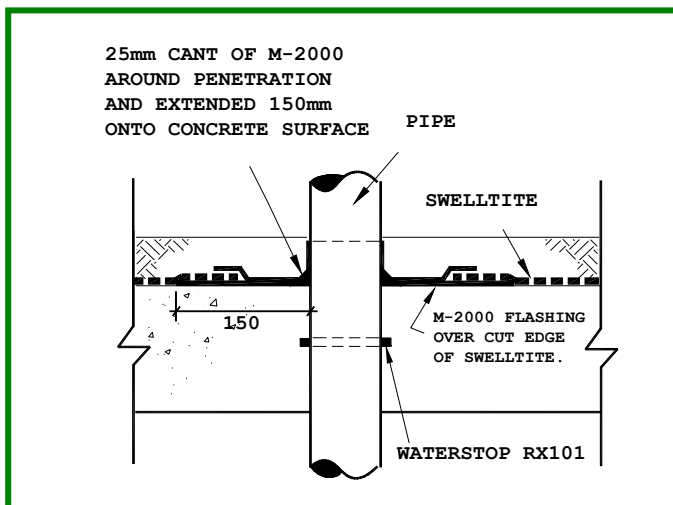
Before installing Swelltite membrane, prepare substrate, apply adhesive and detail all drains, transition corners and penetrations. Consult manufacturer if deck is pre-cast concrete planks or for other conditions not stated herein.

DRAINS

Trowel a minimum 2mm thick layer of Volclay M-2000 on the drain ring and continuing into the drains inward throat slope. Extend M-2000 a minimum of 150mm around the drain. Allow M-2000 to cure a minimum of 12 hours prior to installing membrane. After Swelltite membrane is installed around drain, apply a 1.5mm thick counter flashing of M-2000 covering the membrane edge.

PENETRATIONS

Trowel a minimum 25mm cant of Volclay M-2000 around the penetration. Extend M-2000 around the penetration a minimum of 150mm at 2mm thick. After membrane has been installed overlapping M-2000x 50mm, apply a 1.5mm thick counter flashing of m-2000 at the membrane edge.



TRANSITION CORNERS

Apply a 25mm thick Volclay M-2000 fillet to inside transition corners. Then extend M-2000 at 2mm minimum thickness for 150mm in both directions from the corner. Allow m-2000 to cure a minimum of 12 hours prior to installing membrane. After membrane has been installed to the corner, apply a 1.5mm thick counter flashing of M-2000 covering the membrane edge.

MEMBRANE INSTALLATION

Apply A-3000 Adhesive and allow to cure (turn black) before applying membrane. **REMOVE CLEAR RELEASE FILM** back of membrane before installation.

Install membrane with bentonite compound against the structure (white HDPE liner side up) from the low point to the high point across the fall line to create a shingle-type installation. Overlap all membrane edges a minimum of 50 mm. Stagger membrane roll ends a minimum of 300mm.

Cut membrane to closely fit around penetrations overlapping previously installed M-2000. Trowel 2 mm thick counter flashing of M-2000 over membrane edge. When specified, or for any anticipated inclement weather, seal all membrane overlap seams with Volclay Seamtape.

LIMITATIONS

Do not install Swelltite in standing water or during precipitation. If ground water contains strong acids, alkalis or is of a conductivity of 2,500 umhos or greater, submit water samples to the manufacturer for compatibility testing.

Swelltite is not designed for unconfined above-ground waterproofing applications or subsurface applications that do not provide full confinement coverage. Do not install Swelltite on horizontal plaza deck applications that utilise pavers placed on pedestals.

Swelltite is not designed to waterproof expansion joints. **Expansion joints require a properly engineered expansion joint sealant product manufactured by other companies.**

LIMITATIONS cont.

For foundation walls, backfill should consist of compactable soils, pea gravel or crushed stone. Compact soils to minimum 85% Modified proctor density. Stone backfill larger than 18 mm or less may require the use of a protection course; consult CETCO for specific guidelines. Avoid backfill with aggregate 40 mm or larger.

On horizontal decks, Swelltite requires proper containment from a topping ballast material. Swelltite requires a minimum 75 mm thick structural concrete slab or a minimum paviour assembly weight of 16 kg/m² (includes sand or grout leveling course). When compactable soil topping is used, it must be at least 50mm thick and compacted to a minimum 85% Modified proctor density.

SIZE & PACKAGING

Volclay Swelltite roll size is 1.02 m x 1.5 m (11.5 m² per roll. Each roll weighs approximately 36.8 kg.

ACCESSORY PRODUCTS

M-2000 LIQUID FLASHING

M-2000 Liquid Flashing is a trowel-grade, bitumen modified polyurethane waterproofing mastic used as a detailing product around penetrations, drains and at corner transitions for horizontal deck and vertical wall installations.

M-2000 is a single-component moisture curing elastomer that meets the requirements of ASTM C836-84. Non-hazardous material when shipped via ground trucking service. Do not ship airfreight.

BENTOSEAL®

Trowel grade sodium bentonite compound used as a detailing mastic around penetrations and corner transitions. Bentoseal is packaged in 14.25 litre tubs. (18kg)..

A-3000WB ADHESIVE

Water-based latex adhesive applied to substrates to promote adhesion of Swelltite Membrane. Typical application rate 15m²/litre packaged in plastic 9 litre tubs; 36 tubs per pallet. Non-hazardous material when shipped via ground trucking service. Do not ship air freight.

SEAMTAPE

Thick butyl tape with poly film backing used to seal membrane overlap seams.

WATERSTOP RX101®

Expanding bentonite-based concrete joint strip waterstop designed to replace PVC dumbbell waterstops. Adhered into place with Volclay WB-Adhesive. Waterstop RX101 is supplied in 5m coils, 30m per box.



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