TEGOBLOC™ SWELL

BENTONITE GEOTEXTILE WATERPROOFING SYSTEM | Membrane Waterproofing

DESCRIPTION

TegoBloc™ Swell is a distinctive green colored, high strength geotextile that is a highly effective waterproofing composite with 4.8 kg/sqm of sodium bentonite per square meter (1.0 lbs./sf). The high swelling, low permeable sodium bentonite is encapsulated between a non-woven and woven geotextile. A needle punch process interlocks the geotextiles together forming an extremely strong composite that maintains the equal coverage of bentonite, as well as protects it from inclement weather and construction related damage. Once backfilled, TegoBloc™ Swell hydrates and forms a monolithic waterproofing membrane. TegoBloc™ Swell contains zero VOC's, can be installed in almost any weather condition to green concrete, and most importantly, it has proven effective on both new and remedial waterproofing projects worldwide. TegoBloc™ Swell works 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 TegoBloc™ Swell can self- seal small concrete cracks caused by ground settlement, concrete shrinkage, or seismic action; problems over which there is normally no control. TegoBloc™ Swell forms a strong mechanical bond to concrete when the geotextile fibers are encapsulated into the surface of cast- in-place concrete.

APPLICATIONS

TegoBloc™ Swell is designed for below-grade vertical and horizontal structural foundation surfaces. Typical cast-in-place concrete applications include backfilled concrete walls, earth-covered roofs, structural slabs, tunnels, and property line construction. Property line construction applications include soldier pile and lagging, metal sheet piling, shotcrete, and stabilized earth retention walls. Applications may include structures under continuous or intermittent hydrostatic pressure.

Where contaminated ground-water conditions exhibit higher levels of the following contaminants: salt water, nitrates, phosphates, chlorides, sulfates, lime and organic solvents, contact GMX Technical Service for more information.

INSTALLATION

General: Installation guidelines herein are for cast-in-place concrete applications. For shotcrete, precast concrete, and other applications not covered herein, refer to specific TegoBloc™ Swell literature or contact GMX, INC. for applicable installation guidelines. Install TegoBloc™ Swell in strict accordance with the manufacturer's installation guidelines using accessory products as required. Install TegoBloc™ Swell with the green (woven) geotextile toward the concrete to be waterproofed. Install GMX Waterstop RX in all applicable horizontal and vertical concrete construction joints. Schedule waterproofing material installation to permit prompt placement of concrete or compacted backfill.

Preparatory Work: Under Slab: Substrate should be smooth and compacted to a minimum of 85% Modified Proctor density. Concrete Walls: Concrete should be free of voids and projections. Surface irregularities should be removed before installation. Apply TegoBloc™ LiquiSeal to form-tie pockets, construction joints and honeycombs. Tapered form tie holes extending through the wall should be filled with Department of Transportation (D.O.T.) non-shrink grout and a piece of GMX Waterstop RX centered in the wall.

Property Line Shoring Walls: Install TegoBloc™ Swell only after proper substrate preparation has been completed and is suitable to receive the waterproofing.

UNDER CONCRETE FLOOR SLABS

TegoBloc™ Swell is recommended for use under structural reinforced concrete slabs 100 mm (4") thick or greater on a compacted earth/ gravel substrate a minimum 150 mm (6") thick reinforced slab, if installed over a mud slab. Where hydrostatic conditions exist, install TegoBloc™ Swell under footings and grade beams.

Place TegoBloc™ Swell over the properly prepared substrate with the dark gray (woven) geotextile side up. Overlap all adjoining edges a minimum 100 mm (4") and stagger sheet ends a minimum 300 mm (12"). Fasten edges together a maximum of 450 mm (18") on center.

Cut TegoBloc™ Swell to closely fit around penetrations and pile caps. Install TegoBloc™ GrSwell under cut TegoBloc™ Swell edge at detailing and then apply a minimum 20 mm (¾") thick fillet of TegoBloc™ LiquiSeal to top of cut TegoBloc™ Swell edge at penetrations, pile caps, grade beams, and other detailing. Extend TegoBloc™ LiquiSeal onto TegoBloc™ Swell and detail a minimum of 50 mm (2"). For hydrostatic conditions, TegoBloc™ Swell should be installed under grade beams and footings. Extend TegoBloc™ Swell onto footing a minimum 150 mm (6") when required to tie into vertical wall waterproofing.

Where property line retaining walls, such as soldier pile and lagging, are used as the outside concrete form, install a horizontally oriented TegoBloc™ Swell transition course at the base of the wall per "Shoring Wall Transition" instructions within the "Property Line Construction" section herein. Continue the under slab TegoBloc™ Swell installation up to the retaining wall overlapping the corner transition course a minimum 300 mm (12").

BACKFILLED CAST-IN-PLACE CONCRETE WALLS

Before installing the first course of TegoBloc™ Swell, place TegoBloc™ TxSwell at the wall/footing transition corner. Butt the ends of TegoBloc™ TxSwell together to form a continuous line.

Beginning at the bottom corner of the wall, install TegoBloc™ Swell horizontally oriented with 1.5 m (5-ft.) on one wall and the remainder around the corner on the other wall surface. Cut the bottom edge of TegoBloc™ Swell at the corner a minimum of 150 mm (6") so that TegoBloc™ Swell can be extended onto the footing. Fasten TegoBloc™ Swell into position with washer headed fasteners a maximum 600 mm (24") on center. Then cut and install a TegoBloc™ Swell section over the uncovered footing corner

area. Apply TegoBloc™ LiquiSeal at the TegoBloc™ Swell section to TegoBloc™ Swell overlap at the corner. Install adjacent TegoBloc™ Swell rolls of the bottom course horizontally oriented. Each roll should overlap the preceding roll a minimum 100 mm (4″) and should extend onto the footing a minimum 150 mm (6″). At inside wall corners apply a continuous 20 mm (¾″) fillet of TegoBloc™ LiquiSeal directly in the corner prior to installing TegoBloc™ Swell. Stagger all vertical overlap joints a minimum of 300 mm (12″). For hydrostatic conditions, the vertical wall TegoBloc™ Swell should cover the entire footing and overlap the under slab waterproofing a minimum 150 mm (6″).

Cut TegoBloc™ Swell to closely fit around penetrations. After installing TegoBloc™ Swell, trowel a minimum 20 mm (¾″) thick fillet of TegoBloc™ LiquiSeal around the penetrations to completely fill any space between the penetration and the TegoBloc™ Swell edge. Extend TegoBloc™ LiquiSeal onto the penetration and over the TegoBloc™ Swell edge 38 mm (1-½″). In areas where multiple penetrations are close together, it maybe impractical to cut TegoBloc™ Swell to fit around each penetration. Therefore, apply a 20 mm (¾″) thick fillet of TegoBloc™ Swell around base of each penetration and cover the entire area between the penetrations. Extend TegoBloc™ Swell 38 mm (1-½″) onto the penetrations.

Terminate TegoBloc™ Swell membrane 300 mm (12″) below finished grade elevation with washer-head fasteners maximum 300 mm (12″) on center and a tooled bead of Ultra-Guard EFS. Install TegoBloc™ SA flashing to primed concrete substrate with bottom edge overlapping top edge of TegoBloc™ Swell membrane minimum 150 mm (6″). Overlap all roll ends a minimum 100 mm (4″) to form a continuous flashing. Height of flashing shall be per project details and specifications. Install a rigid termination bar along top edge of TegoBloc™ SA fastened maximum 300 mm (12″) on center. Complete grade termination detail with tooled bead of Ultra-Guard EFS along the top edge, at all penetrations through the flashing, and all exposed overlap seams. Backfill should be placed and compacted to minimum 85% modified proctor density promptly after waterproofing installation. Backfill should consist of compactable soil or angular aggregate 20 mm (¾″) or less and free of debris and sharp objects.

NOTE: TegoBloc™ Swell is not recommended for masonry block walls. Contact GMX, INC. regarding products and installation guidelines for masonry block foundation walls.

PROPERTY LINE CAST-IN-PLACE CONSTRUCTION

Use TegoBloc™ Swell to waterproof various types of cast-in-place property line construction, including metal sheet piling, soldier pile and lagging, auger cast caisson, shotcrete, and stabilized-earth shoring walls.

Lagging Wall Preparation: Remove all projections and fill all voids in the retaining wall larger than 25 mm (1″) with cementitious grout per project design or compacted soil. Drain-Max 200 drainage composite can be installed over lagging gaps up to 63 mm (2-½″) to provide a uniform surface to mount the TegoBloc™ Swell. Gaps larger than 63 mm (2-½″) should be filled with cementitious grout per project design, wood, extruded polystyrene (25 psi min.), spray foam (20 psi min.), or compacted soil even if Drain-Max 200 is installed prior to TegoBloc™ Swell. Do not use plywood or other surface treatment that leaves the lagging gaps void.

Shoring Wall Transition: At base of shoring wall, install TegoBloc™ Swell corner transition sheet horizontally oriented (dark gray woven geotextile facing installer) with the bottom edge extending out onto the horizontal substrate a minimum 300 mm (12″) and the top edge of the sheet extending a minimum 300 mm (12″) above the finished slab elevation. Secure TegoBloc™ Swell sheet to shoring wall with washer-head fasteners maximum 600 mm (24″) on center. Overlap edges of TegoBloc™ Swell sheets a minimum 100 mm (4″). If the slab thickness is greater than 600 mm (24″), install a second full sheet or cut strip of TegoBloc™ Swell on the shoring wall to meet the 300 mm (12″) requirement above of the top slab elevation. Overlap top edge of previous sheet and edges of adjacent sheets a minimum 100 mm (4″).

Shoring Wall Installation: Starting at the base corner, install course of TegoBloc™ Swell (horizontally oriented) to lagging wall over the previously installed corner transition sheet; with the bottom edge extending down to the wall/slab transition. Secure sheet edges to shoring wall with washer-head fasteners maximum 600 mm (24″) on center. After the bottom horizontal course, TegoBloc™ Swell sheets can be installed either vertically or horizontally oriented. Continue TegoBloc™ Swell installation up wall to finished grade elevation overlapping adjacent TegoBloc™ Swell sheet edges a minimum 100 mm (4″) and staggering all sheet roll ends of adjacent courses a minimum 300 mm (12″). Do not allow TegoBloc™ Swell overlap joints to run at same elevation as the concrete pour lift joints; extend membrane past a minimum 150 mm (6″).

Prior to installing TegoBloc™ Swell at grade, install 12 mm (½″) thick cementitious wall board centered over metal soldier pile from finished grade elevation to specified depth of soldier pile and lagging removal. Remove cement wall board during excavation to terminate system at grade.

Tie-Back Heads: Select appropriate size to fit over tie-back plate and allow proper cast-in-place concrete coverage per project requirements. TegoBloc™ Boot should fit over entire tie-back head without the tie-back plate or cables in direct contact with the TegoBloc™ Boot. Prior to TegoBloc™ Boot installation, fill voids in retention wall substrate and tie-back head assembly with spray foam (min 20 psi) or cementitious grout per project design. For non-hydrostatic conditions, install and secure Drain-Max 200 drainage composite course per manufacturer's guidelines to soil retention wall prior to installing TegoBloc™ Boot. For hydrostatic conditions, install TegoBloc™ Boot prior to waterproofing membrane. With soldier piles, strip piles with waterproofing membrane prior to TegoBloc™ Boot placement. Secure TegoBloc™ Boot to soil retention system using washer head fasteners along the outside edge of the fl at base. Apply 6 mm (1/4″) thick by minimum 75

mm (3″) wide continuous ring of TegoBloc™ LiquiSeal onto the fl at base just outside of the 12 mm (½″) raised collar. Install 1.2 m by 1.2 m (4′ x 4′) piece of TegoBloc™ Swell (With precut hole in center to fit tight around the 12 mm (½″) raised collar) over the entire fl at base with outside edges fastened to the retaining wall. Secure inside TegoBloc™ Swell edge around raised collar with washer-head fasteners that pass through the TegoBloc™ LiquiSeal ring; typical fastener spacing 150 mm (6″).

Do not install fasteners or puncture TegoBloc™ Boot inside of the 12 mm (½″) raised collar. Apply counter flashing of TegoBloc™ LiquiSeal along TegoBloc™ Swell sheet edge around raised collar. Then install TegoBloc™ Swell field sheet overlapping outer membrane edge minimum 100 mm (4″).

Penetrations: Install a cut collar of TegoBloc™ Swell tightly around the penetration; extending a minimum 200 mm (8″) radius. Apply TegoBloc™ LiquiSeal over TegoBloc™ Swell collar around penetration, extending TegoBloc™ LiquiSeal a minimum 75 mm (3″) radius at 6 mm (1/4″) thickness. Then install main course of TegoBloc™ Swell membrane tightly around the penetration. Next, detail around penetration with 20 mm (3/4″) thick cant of TegoBloc™ LiquiSeal. Last, install GMX GMX Waterstop RX around the pipe maintaining Min. 75 mm (3″) concrete coverage. With sleeved pipes, Division 3 work should include filling the gap between the pipe and the sleeve with D.O.T. non-shrink grout and install GMX GMX Waterstop RX around pipe sleeve.

Soldier Pile Stripping: Install a strip of TegoBloc™ Swell over all soldier piles with raised lagging hanger bolts, form tie rods, or other irregular surface. TegoBloc™ Swell strip should extend a minimum 150 mm (6″) to both sides of the piling. Apply TegoBloc™ LiquiSeal 6 mm x 50 mm (¼″ x 2″) to TegoBloc™ Swell strip surface along both edges of each soldier pile.

Cementitious Board: Prior to installing TegoBloc™ Swell to finished grade detail, install 12 mm (½″) thick cementitious wall board centered over steel soldier pile from finished grade elevation to specified depth that the top of steel soldier pile and lagging will be removed.

Grade Termination: Terminate TegoBloc™ Swell membrane 300 mm (12″) below finished grade elevation with washer-head fasteners maximum 300 mm (12″) on center and a tooled bead of Ultra-Guard EFS. Install TegoBloc™ SA flashing to primed concrete substrate with bottom edge overlapping top edge of TegoBloc™ Swell membrane minimum 150 mm (6″). Overlap all roll ends a minimum 100 mm (4″) to form a continuous flashing. Height of flashing shall be per project details and specifications. Install a rigid termination bar along top edge of TegoBloc™ SA fastened maximum 300 mm (12″) on center. Complete grade termination detail with tooled bead of Ultra-Guard EFS along the top edge, at all penetrations through the flashing, and all exposed overlap seams.

Where lagging timbers and the top of steel soldier piles are removed, repair any waterproofing damaged by the excavation and removal of the retention wall system. Secure all excavated TegoBloc™ Swell overlap seams with washer-head fasteners maximum 600 mm (24″) on center. Backfill shall be placed and compacted to minimum 85% Modified Proctor density promptly after waterproofing installation. Backfill should consist of compactable soil or angular aggregate 20 mm (¾″) or less and free of debris and sharp objects.

LIMITATIONS

TegoBloc™ Swell should only be installed after substrate preparation has been properly completed and is suitable to receive the waterproofing system. Concrete work should be cast-in-place with conventional forms that produce a smooth surface. Do not use stay-in-place concrete forming; use removable forming products only.

TegoBloc™ Swell is designed for below-grade waterproofing applications where the product is properly confined. TegoBloc™ Swell should not be installed in standing water or over ice. If ground water contains strong acids, alkalis, or is of a conductivity of 2,500 µmhos/cm or greater, water samples should be submitted to the manufacturer for compatibility testing. TegoBloc™ Swell should not be used if contaminated ground water or saltwater conditions exist.

TegoBloc™ Swell is designed for use under reinforced concrete slabs 100 mm (4″) thick or greater on a compacted earth/gravel substrate. TegoBloc™ Swell requires a minimum 150 mm (6″) thick reinforced concrete slab if installed over a mud slab. TegoBloc™ Swell is not designed for split-slab plaza deck construction.

TegoBloc™ Swell is not intended to seal expansion joints; contact GMX, INC. for expansion joint applications. Do not use TegoBloc™ Swell on masonry block foundation walls. Do not apply to shotcrete and precast concrete construction. TegoBloc™ Swell installation guidelines contain herein are for cast-in-place concrete applications and do not cover shotcrete or precast concrete applications. Refer to TegoBloc™ Swell website for additional property line shoring wall construction technique details. Consult GMX, INC. for applicable products and installation guidelines for applications not covered herein.

PACKAGING

TegoBloc™ Swell is available in 3.61′ x 16.4′ rolls, or 59.2 sf. per roll. TegoBloc™ Swell is packaged 35 rolls per pallet.

STORAGE: Keep TegoBloc™ Swell and all accessory products dry prior to back fill or concrete placement.

ACCESSORY PRODUCTS

Install TegoBloc™ Swell using accessory products in strict accordance with the manufacturer's installation guidelines and details. Primary accessory products include TegoBloc™ LiquiSeal, Ultra-Guard EFS, TegoBloc™ SA grade flashing, TegoBloc™ TxSwell, FasTape, TegoBloc™ Boot, and TegoBloc™ GrSwell.

ASSOCIATED SYSTEM PRODUCTS

Drain-Max 200 subsurface drainage composite, CXJ Expansion Joints, and GMX Waterstop RX expanding concrete joint waterstop.

IMPORTANT NOTICE: CONTACT GMX, INC. FOR VERIFICATION OF SPECIFICATION AND INSTALLATION REQUIREMENTS TO COMPLY WITH ISSUANCE FOR ELIGIBILITY OF SYSTEM WARRANTY.

TEGOBLOC™ SWELL

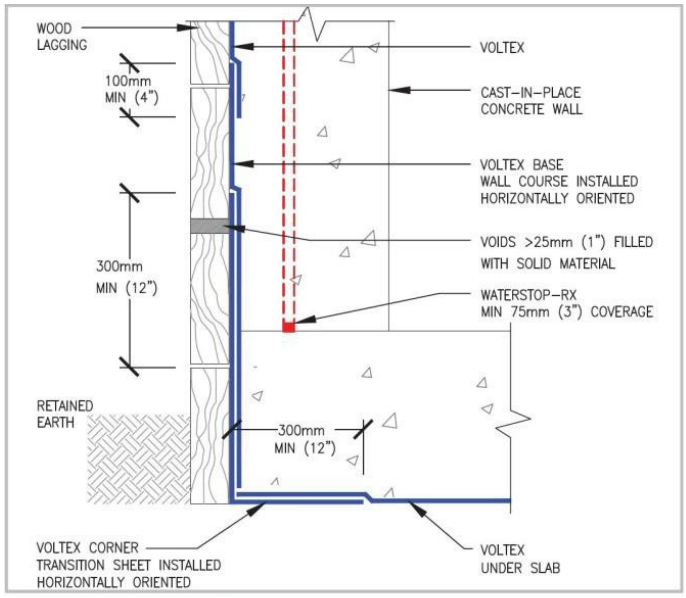
BENTONITE GEOTEXTILE WATERPROOFING SYSTEM | Membrane Waterproofing

GMX A Garland Industries Subsidiary

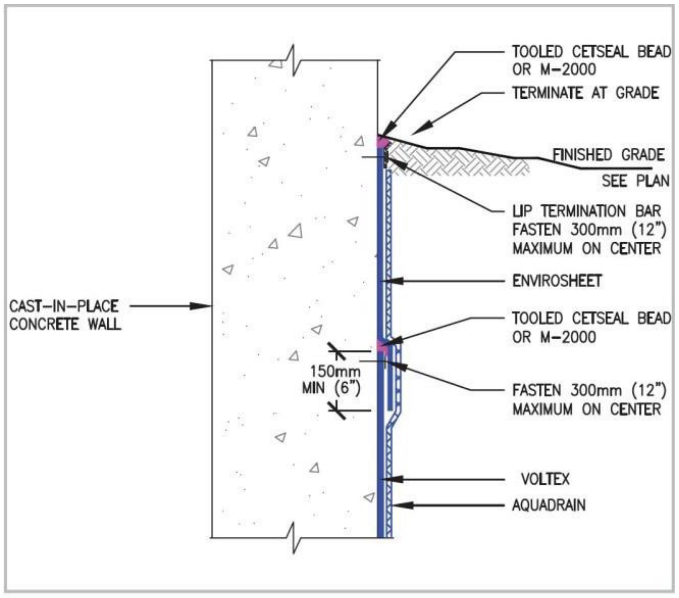
COMMERCIAL

TECHNICAL SERVICES | PRODUCT SPECIFICATIONS Type: TegoBloc™ Swell		
Bentonite Mass Per Unit Area	ASTM D 3776 (mod.)	1.0lb/sqft (4.8kg/sqm)
Peel Adhesion to Concrete	ASTM D 903 (mod.)	15 lbs/in (2.6kN/m min)
Hydrostatic Pressure Resistance	ASTM D 5385 (mod.)	231 ft (70 m)
Permeability	ASTM D 5084	1 x 10^{-9} cm/sec
Grab Tensile Strength	ASTM D 4632	120 lbs (530 N)
Puncture Resistance	ASTM D 4833	140 lbs (620 N)
Low-Temperature Flexibility	ASTM D 1970	Unaffected @ –25° F (-32° C)

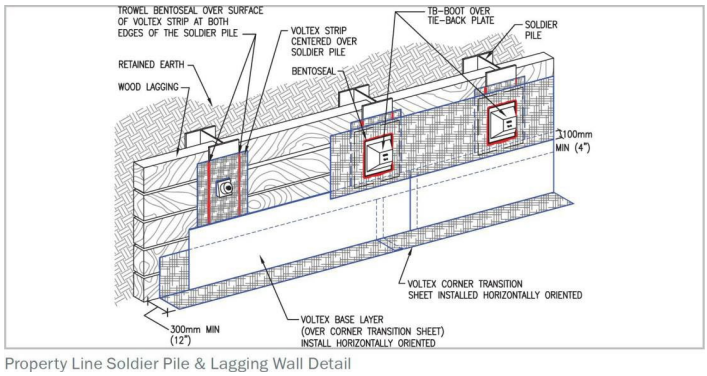
TECHNICAL DATA		
Property	**Test Method**	**Nominal Value**
Bentonite Mass Per Unit Area	ASTM D 3776 (mod.)	1.0lb/sqft (4.8kg/sqm)
Peel Adhesion to Concrete	ASTM D 903 (mod.)	15 lbs/in (2.6kN/m min)
Hydrostatic Pressure Resistance	ASTM D 5385 (mod.)	231 ft (70 m)
Permeability	ASTM D 5084	1 x 10^{-9} cm/sec
Grab Tensile Strength	ASTM D 4632	95 lbs (422 N)
Puncture Resistance	ASTM D 4833	100 lbs (445 N)
Low Temperature Flexibility	ASTM D 1970	Unaffected @ –25° F (–32° C)



Property Line Transition



Grade Termination



Property Line Soldier Pile & Lagging Wall Detail

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