PRODUCT DATA SHEET

UNDERSEAL® BLINDSIDE™ MEMBRANE

Sheet Waterproofing Membrane

MANUFACTURER
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PRODUCT DESCRIPTION
Basic Uses
Underseal® Blindside™ Membrane is used as a waterproofing membrane where vertical, positive-side waterproofing is required, but access to the positive side is impossible due to the soil retention system. In addition to protecting indoor air quality, Blindside Membrane is also a barrier to methane gas and radon gas.

PRODUCT FEATURES
Blindside Membrane provides a permanent seal between the membrane and the poured concrete wall to eliminate moisture migration into the structure.

- Forms a strong mechanical bond when the concrete, at time of pouring, intermingles with the fibers of the nonwoven geotextile.
- Creates a strong adhesive bond when the static load of the poured and cured concrete wall causes the adhesive compound to "cold flow" throughout all remaining voids between the fabric and the concrete wall. (See the McGraw-Hill Dictionary of Architecture and Construction for a definition of cold flow).
- Provides a resistance to concrete construction abuse via the membrane's 217 lb. puncture resistance.
- Acts as a barrier against toxic contaminants, methane gas, and radon gas, which may attempt to enter the structure through concrete cracks.
- May qualify for L.E.E.D. certification via these credits:
    a. IAQ Credit 5 - Indoor Chemical and Pollutant Source Control (below-grade toxin barrier)
    b. SS Credit 3 - Brownfield redevelopment
    c. ID Credit 1 - Innovation in design

COMPOSITION & MATERIALS
Underseal® Blindside Membrane is a strong sheet membrane with a thick, cross-laminated, high-density polyethylene (HDPE) backing, laminated to thick layer of proprietary waterproofing adhesive compound integrated into a nonwoven geotextile fabric. Total membrane thickness is factory controlled at 73 mils**.**

Once the concrete is poured against the Blindside Membrane, the concrete cures and a mechanical bond forms to secure the concrete to the membrane. Also, subsequent to concrete placement, cold flow of the waterproofing compound will take place, and an adhesive bond will be added to the mechanical bond given by the fibers. With both a mechanical and adhesive bond, the concrete will be tightly sealed and bonded to the membrane.

On the fabric side of the membrane, a 4-inch-wide lap of adhesive waterproofing compound is manufactured on one edge and covered with a removable, silicone-coated release sheet. Expose this adhesive compound just prior to the installation of the adjacent roll, forming a tight, self-adhesive, vertical lap.

TECHNICAL DATA
See physical properties table.

INSTALLATION
Substrate Considerations
Care should be taken in the choice of forms selected. One-sided-wall-forming systems are the best choice due to the absence of form ties. Inspect all surfaces for any conditions detrimental to the proper completion of the work. Surfaces should be structurally sound. Remove debris, or any other foreign material, which could potentially damage the Blindside Membrane.

The Underseal® Blindside Membrane is typically installed vertically over one of the below-mentioned substrates.

Timber Lagging
Timber lagging systems should be closely butted together to provide a sound substrate. Make sure all lagging boards are installed flush and in plane within 1/2-inch. Repair missing or damaged lagging boards with concrete grout, treated wood, or both. Fill or cover all gaps between lagging boards exceeding 2 inches using concrete grout or plywood. If lagging boards are placed interior to the steel pile, then cover any gaps between the ends of the boards which exceed 2-inches with plywood, then secure or grout behind for stability. In applications where the lagging wall will be excavated to expose the I-Beam for removal, a cement board must be placed over the I-Beam extending 1-foot on both sides of the I-Beam prior to the installation of the drainboard and Blindside Membrane.

Steel Sheet Piling
If the membrane is to be in continuous contact with the profile of the sheet piling, all sharp protrusions must be addressed or removed. If waterproofing is expected to span the sheet pilings, then place 3/4-inch plywood across the void and mechanically anchor into place every 12-inches O.C. Fill void behind plywood with sand.

Caisson
If the surfaces of drilled piers appear relatively smooth, install (mechanically attach) directly against piers. However, the groove between each pier has to be filled with concrete grout and all sharp protrusions addressed or removed.

Shotcrete Retention System
Remove all sharp protrusions and fill all voids with concrete grout. The concrete surface profile should be between CSP-3 and CSP-8.

Surface Preparation

- Complete the retention system per project specifications.
- Remove objects that could penetrate membrane such as nails, concrete fins, look for gaps larger than 2-inches between timber lagging and any change of plane that could create bridging.
- Never place the membrane in standing water.
- Provide a dry surface prior to application.

Membrane Application
In vertical applications, install Blindside Membrane over Polyflow® 15 or 15P Drainage Composite, installed with the fabric facing the earth retention system**.** Place the Underseal® Blindside Membrane on the wall with the polyethylene backing side toward the Polyflow 15 or 15P. Fasten the top end of a lift,

through the Polyflow 15 or 15P and into the lagging wall, using fasteners appropriate for the substrate with 12-inch spacing across the end and approximately 2-inches from the end.

Install Blindside Membrane when temperatures are 25° F (-4° C) and rising.

Penetrations
The pipe surface should be cleaned and roughened with sandpaper or a wire brush to insure adequate adhesion.

If the annular gap between the rough opening and the pipe through the rough opening exceeds 1/2-inch, a patch of Blindside Membrane is required to close the gap. Extend the size of the patch at least 6" on to surrounding membrane. Seal the edges of the patch to existing membrane with Fabric Tape installed over Blindside Membrane with 650 LT Liquid Adhesive or California Sealant at a rate of 50 – 75 sq. ft. per gallon. While the 650 LT Liquid Adhesive or California Sealant is still tacky, seal the pipe with the LM-95. Apply a cant/ fillet with a minimum 3/4-inch face of LM-95 extending onto the prepared fabric side of the Blindside Membrane a minimum of 3-inches and onto the pipe a minimum of 3-inches. Allow LM-95 to cure 2 hours.

If the annular gap between the rough opening and the pipe through the rough opening is 1/2" or less, apply 650 LT Liquid Adhesive or California Sealant to the fabric side of Blindside Membrane at a rate of 50 – 75 sq. ft. per gallon. Apply a cant/fillet with a min. 3/4" face of LM-95 extending onto the prepared fabric side of the Blindside Membrane a minimum of 3-inches and onto the pipe a minimum of 3-inches. Allow LM-95 to cure 2 hours.

Note: If pipes or penetrations are in tight clusters and a more liquefied detailing liquid is required, use LM-85 SSL. Gas Vapor Protection - Follow the Penetrations protocol, then wrap the penetration with Fabric Tape; and, finally, terminate and secure the top edge with a screw clamp or similar restraining/ clamping devise.

Pipes which are wired together and touching, cannot properly be waterproofed. Ensure all pipes have proper spacing. Recommended spacing for pipe penetrations is 2-inches. The minimum allowed is 1-inch.

Side Laps
If lap areas become dirty, remove all debris and dust from the polyethylene backing, then clean with 30% isopropyl alcohol prior to securing the 4-inch side lap. Fasten every 16-to-24 inches downside lap with powder actuated fasteners 1-inch in from outside edge. Finish the seal by rolling with a laminate-type roller to obtain full adhesion.

End Laps
Prime end laps, and on adjoining sheets, with a minimum 6-inch heavy coat of 650 LT Liquid Adhesive or California Sealant at a coverage rate of 50 – 75 sq. ft. per gallon. Allow this adhesive to dry (until tacky) before membrane application. Install a reverse shingle lap with the Blindside Membrane on the vertical wall; at a maximum 4-inch and a minimum 3-inch overlap. Center and place a 12-inches wide piece of Fabric Tape over the primed seam area. Apply even pressure with a roller to obtain full adhesion.

Top Terminations
It is critical at the top terminations to protect the membrane for future tie in or termination from trade damage. Review BS16 detail for critical tie in warranty information.

Patching
Take precautions to protect the Blindside Membrane during placement of reinforcing steel and concrete. Visually inspect the membrane prior to pouring of concrete for any punctures or damage to membrane which needs to be repaired. Patch any damaged Blindside Membrane by applying 650 LT Liquid Adhesive or California Sealant at a rate of 50 – 75 sq. ft. per gallon to fabric side of the Blindside Membrane. Then apply LM-95 a minimum of 3-inches in each direction and apply Fabric Tape installed over 650 LT Liquid Adhesive or California Sealant at a coverage rate of 50 – 75 sq. ft. per gallon. Extend patches a minimum of 6-inches in all directions from the damaged area. Roll all patches with a hand roller or linoleum roller to insure proper adhesion and seal. Seal around the repaired area edges with LM-95 or Detail Sealant PW. Allow LM-95 or Detail Sealant PW to cure 2 hours.

Rebar Chairs
Steel reinforcement may be applied directly over the Blindside Membrane. It is important that reinforcement (rebar) chairs are compatible with the system. Compatible (rebar) chairs will distribute the load of the steel reinforcement sufficiently to reduce the risk of the chair puncturing the waterproofing membrane when fully loaded with the weight of the reinforcement steel and other common auxiliary loads.

Blocks, pavers or dobies made of concrete or brick are clearly the best choice. Individual chairs are acceptable as long as they have a flat base or bolsters with rails. Contact Polyguard Technical Service for approval and written permission for other types of rebar chairs.

HORIZONTAL INSTALLATION
Blindside Membrane may also be installed horizontally over prepared sub-base such as mudslab, carton forms, fine crushed beds/pea gravel or Polyguard approved drainboard. Refer to Underslab data sheet for additional horizontal installation guidelines.

STORAGE AND HANDLING
Material Handling
Carefully unload and store membrane and accessories. Protect cartons and containers from weather, sparks, flames, excessive heat, cold and lack of ventilation. DO NOT stack membrane material higher than 5' vertically, nor double stack pallets. Store cartons on pallets and cover to prevent water damage.

PRECAUTIONS
Underseal® Blindside Membrane can be adversely affected by ultraviolet light. Cover the membrane as soon as possible. Do not leave exposed to sunlight for over 30 days.

Do not install this product when it is raining or when freezing precipitation is occurring.

The 650 Liquid Adhesive and California Sealant are industrial coatings and would be harmful or fatal if swallowed. It is marked as red label from the standpoint of flash point. Prohibit flames, sparks, welding and smoking during application. Refer to the product label for handling, use, and storage precautions. Solvents could be irritating to the eyes, so flush with water and contact a physician. Avoid prolonged contact with skin and breathing of vapor or spray mist from the liquid adhesive. In confined areas, use adequate forced ventilation, fresh air masks, explosion-proof equipment, and clean clothing. Avoid solvent contact with light bulbs or other high temperature surfaces. The information on this data sheet is designed to be helpful to the reader. It is based on experience and information considered to be accurate and true. Readers should carefully consider and verify the information through detailed investigation of uncertain-areas. Polyguard does not warrant the results to be obtained. Additionally, please read everything here in conjunction with Polyguard's conditions of sale, which are applicable to everything supplied by us. No statement here is intended for any use which would infringe on patent or copyright.

SAFETY
SDS documents for all Polyguard products can be obtained at our website www.polyguard.com. Call Polyguard Products, Inc. at (214) 515-5000 with questions.

WARRANTY
We, the manufacturer, warrant only that this product is free of defects, since many factors which affect the results obtained from this product are beyond our control; such as weather, workmanship, equipment utilized and prior condition of the substrate. We will replace, at no charge, product proved to be defective within twelve (12) months of purchase, provided it has been applied in accordance with our written directions for uses we recommend as suitable for this product. Proof of purchase must be provided.

TECHNICAL SERVICES
Technical assistance, information and Polyguard's products are available through a nationwide network of distributors and architectural representatives, or contact Polyguard Products, Inc.
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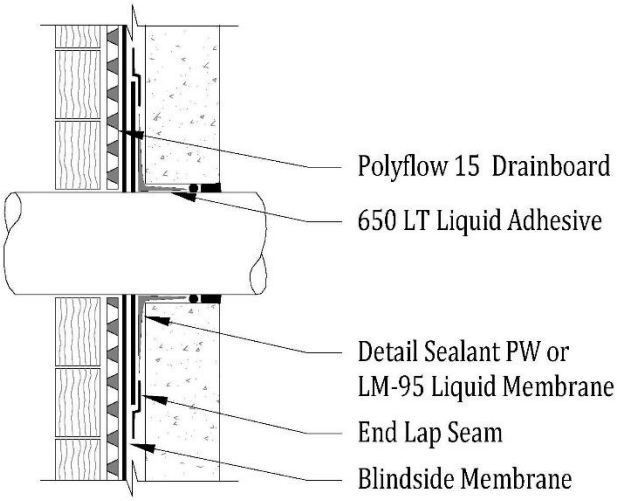
PROPERTY	TEST METHOD	TYPICAL VALUE
FILM COLOR		Black/White
MEMBRANE THICKNESS	ASTM D 1000	73 mils
TENSILE STRENGTH	ASTM D 4632	80 lb.
TENSILE STRENGTH, FILM	ASTM D 412	4,250 psi
HYDRAULIC TRANSMISSIVITY OF A GEOSYNTHETIC USING A CONSTANT HEAD	ASTM D 4716	No measurable flow
(IN PLANE) HYDRAULIC TRANSMISSIVITY OF A GEOSYNTHETIC BY RADIAL FLOW	ASTM D 6574	No water flow
RESISTANCE TO FUNGI IN SOIL	GSA-PBS 07115 – 16 weeks	No effect
RESISTANCE TO PERMEANCE BY METHANE GAS	ASTM D 1434 tested using 99.99% purity	7.2×10^{-7} $ft^3/(ft^2 \cdot hr \cdot psi)$
RESISTANCE TO RADIOACTIVE RADON GAS	Radon Reduction Technology Laboratory % reduction in radon gas diffusion	97.10%
LAP PEEL ADHESION	ASTM D 1876	9.02 lb./in.
PUNCTURE RESISTANCE, MINIMUM	ASTM E 154	217 lb.
RESISTANCE TO HYDROSTATIC HEAD, MINIMUM	ASTM D 5385	231 ft.
PEEL ADHESION TO CONCRETE	ASTM D 903	14.9 lb./in.
ELONGATION – ULTIMATE FAILURE OF RUBBERIZED ASPHALT COMPOUND	ASTM D 412	> 460%
WATER ABSORPTION, MAXIMUM	ASTM D 570	0.1%
CRACK CYCLING	ASTM C 836 Tested @-15°F	No effect
LOW TEMPERATURE FLEXIBILITY	ASTM D 1970 180° bend over 1" mandrel at -20° F (-29° C)	No effect
BREAKING STRENGTH OF 1" WIDTH SAMPLE POLYETHYLENE GEOMEMBRANE LAYER	ASTM D 882	6500 psi
PERMEANCE TO WATER VAPOR TRANSMISSION, MAXIMUM	ASTM E 96 Method B	0.01 perms

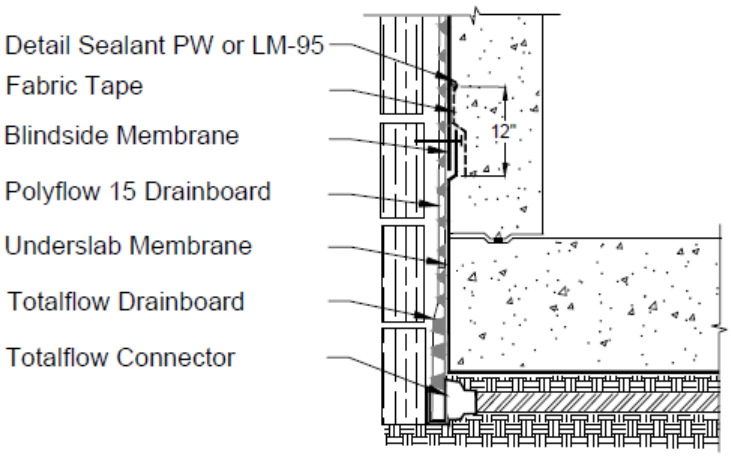
PACKAGING	*PART NUMBER*	*UNIT SIZE*
BLINDSIDE™ MEMBRANE	751	48" x 50' roll
Required Accessories:		
*FABRIC TAPE	UNDERSEAL FABRIC TAPE	12" x 200' roll
650 LT LIQUID ADHESIVE	650-5 LIQ ADH 5 GA	5-gallon pail
650 LT LIQUID ADHESIVE	650-5 LIQ ADH 1 GA	4 – 1 gal pails/ctn
CALIFORNIA SEALANT	CALSEAL5	5-gallon pail
POLYFLOW® 15	POLYFLOW15	4' x 50' roll
POLYFLOW® 15P	POLYFLOW15	4' x 50' roll
Possible Accessories:		
606 TAPE (for a vertical termination to existing concrete)	60604	4" x 50' rolls (6/ctn)
606 TAPE (for a vertical termination to existing concrete)	60606	6" x 50' rolls (4/ctn)
LM-95	LM952	2-gallon pail
POLY COVERS 6" (tie back covers)	POLY COVER 6	N/A
*****DETAIL SEALANT PW™	DETAIL SEALANT PW – SAU 20 OZ	20 sausages/ctn
*****DETAIL SEALANT PW™	DETAIL SEALANT PW – 3 GAL	3-gallon pail
****DETAIL SEALANT PW™ IS ONLY TO BE USED FOR TOP TERMINATION FOR FABRIC TAPE AND ENDLAPS.***		
US INSIDE CORNER BOOT 12" X 12" X 12"	US INSIDE CORNER BOOT 12"	25 pcs/ctn
US OUTSIDE CORNER BOOT 12" X 12" X 18"	US OUTSIDE CORNER BOOT18"	25 pcs/ctn
US PIT TOP CORNER BOOT 6" X 6" X 6"	PREFABRICATED 6" CORNER BOOTS	25 pcs/ctn
Drainage Accessories:		
TOTALFLOW™	TOTAL FLOW	24" x 50' roll
TOTALFLOW™ END OUTLET (4")	OUTLET4-UNIV	N/A
TOTALFLOW™ TEE OUTLET (4")	TEE4-UNIV	N/A

Common Polyguard® Underseal® Blindside™ Membrane Applications

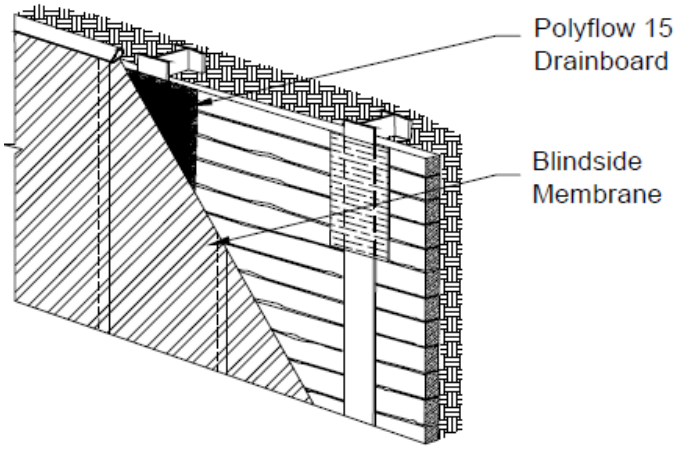
These diagrams are not intended to be application instructions, simply illustrations.



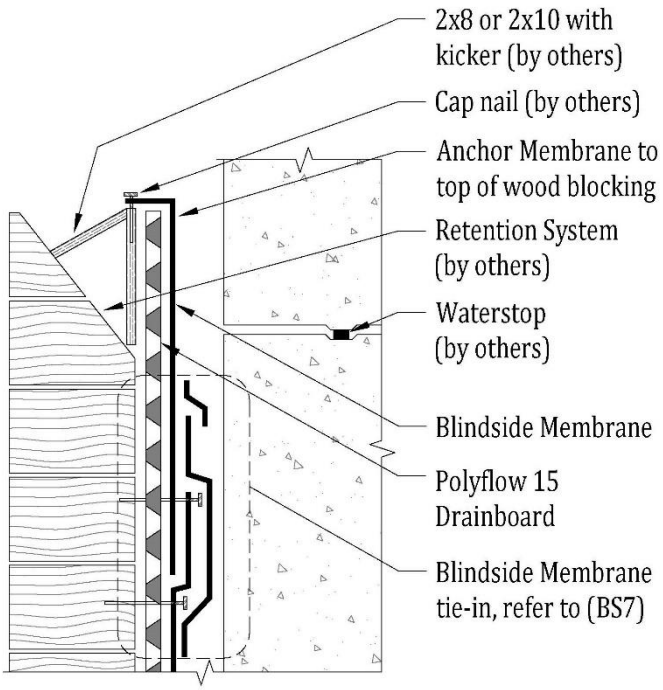
Section @ Blindside Membrane Penetration detail rough-fit around penetration sidewall



Blindside with Totalflow - Tie in to Underslab



Blindside Membrane with Earth Retention System (Soldier Pile and Lagging shown)



Section @ Blindside Membrane Top of Wall Termination

Please Note: Not intended to be full details. For full application detail on these configurations, see Polyguard details BS1, BS4, BS16, US1 or contact Polyguard Products.

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