

# POLYGUARD UNDERSEAL®

## BLINDSIDE WATERPROOFING MEMBRANE

Waterproofing with protection against radon, methane, insects, and contaminants

U.S. Patent No. 7,488,523 and 7,686,903



### PRODUCT FEATURES:

**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, *Underslab Membrane* also is barrier to termites, pesticides, methane gas and radon gas.

**DESCRIPTION:** *Blindside Membrane* is a strong sheet membrane with a 4 mil thick high density polyethylene backing laminated to a 56 mil thick layer of proprietary waterproofing compound integrated with a 23 mil thick nonwoven geotextile fabric. 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" wide lap of adhesive waterproofing compound is manufactured on one edge and covered with a removable silicone coated release sheet. This adhesive compound is exposed just prior to the installation of the adjacent roll forming a tight **self-adhesive vertical lap**.

Total membrane thickness is factory controlled at **73 mils**.

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

1. A strong *mechanical bond* is formed when the concrete, at time of pouring, intermingles with the fibers of the nonwoven geotextile.
2. A strong *adhesive bond* is created when the pressure of the backfill causes the sealant/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*).
3. *Blindside Membrane* has a puncture resistance of 321 lbs, which provides strong resistance to concrete construction abuse.
4. *Blindside Membrane* remains functional if jobsite conditions become challenging. Rainfall, freeze/thaw and wet/dry cycling do not affect the installed system.
5. *Blindside Membrane* also acts as a barrier against termites, toxic contaminants, methane gas and radon which may attempt to enter the structure through cracks in the concrete.

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This information is based on our best knowledge, but  
POLYGUARD cannot guarantee the results to be obtained.



**LIMITATIONS:** *Blindside Membrane* is designed for use in vertical lifts up to 20', in temperatures that are 40°F (4°C) and rising, in dry weather, and exposures of 30 days or less. Consult with Polyguard for technical information regarding low temperature material, lifts greater than 20', and exposures greater than 30 days.

**REFERENCES:** *Blindside Membrane* qualifies under LEED IAQ Credit 5 - Indoor Chemical and Pollutant Source Control (below grade toxin barrier/reduced pesticide usage). SS3 - Brownfield redevelopment (can be used for pesticide contaminated sites). Can be considered for ID-1 Innovation in design.

### **PACKAGING:**

PRODUCT	ROLL SIZE	PACKAGING	SQ.FT./ROLL	LBS./ROLL	CTNS / PALLET
Underseal™ Blindside Membrane	4' x 50'	CARTON	200	70	25
Underseal™ Fabric Tape	12" x 200'	CARTON	200	70	24
Flow 15-P Drainage Composite	4' x 50'	ROLL	200	50	9

**SAFETY:** *Polyguard* liquid adhesives, mastics and liquid membrane products used along with this product can contain varying amounts of solvents and other substances which could be hazardous if not handled safely. Hazards can include breathing vapors, flammability, skin irritation, and toxicity. It is important that users obtain *Polyguard's* current Material Safety Data Sheets, and follow with care all safety instructions related to the products. Of particular importance is the presence of adequate ventilation, and the absence of excessive heat, flame, or sparks in areas where the products are stored, handled, or applied. **CLOSE CONTAINER AFTER EACH USE. KEEP OUT OF REACH OF CHILDREN.**

### **PRODUCT PLACEMENT:**

#### **PREPARATION:**

**FORMS** – 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 that could damage the *Blindside Membrane*. Use repair materials that are acceptable to *Polyguard Products*.

**WOOD LAGGING:** Timber lagging systems should be closely butted together to provide a sound substrate. Fill gaps, missing/damaged boards and adjust board misalignments of over 1/2" with concrete grout, treated wood, plywood or other approved facing. If lagging boards are placed interior to the steel piles any gaps between ends of the boards which exceed 2" should be covered with plywood and secured or grouted behind for stability.

**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" plywood across void and mechanically anchor into place every 12" 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 WITH CONCRETE AND CHEMICALLY STABILIZED EARTH:** Remove all sharp protrusions and fill all voids with concrete grout.

**SLURRY WALL:** Clean off all mud and dirt. Remove all sharp protrusions and fill all voids with concrete grout.

**INSTALLATION:** In vertical applications, *Blindside Membrane* is to be installed over *PolyFlow® 15 P Drainage Composite* that is installed with the fabric interfacing with the earth retention system. Place the *Blindside Membrane* on the wall with the polyethylene backing side toward the *PolyFlow® 15 P* and in lifts up to 20 feet in height. Fasten the top end of a lift, through the *PolyFlow® 15 P* and into the lagging wall, using fasteners appropriate for the substrate and spaced at 12" across the end and approximately 2" from the end.

*Blindside Membrane* seams should be addressed as follows:

**SIDE LAPS** – If lap areas become dirty remove all debris and dust from the polyethylene backing, clean with 30% isopropyl alcohol prior to securing the 4" side lap seal and roll with laminate type roller to obtain full adhesion.

**END LAPS** – End Laps are to be a measured 4". Prime end laps with a coating of **Polyguard 650 LT Liquid Adhesive or California Sealant** applied at a rate 150 - 200 sq. ft. per gallon (13.93 - 18.58 M<sub>2</sub>). All end laps must be installed in shingle fashion with all lower endlaps installed polyethylene side to the fabric of the top lift in order to shed water properly. Overlap endlap pieces 4" and prime fabric side of seams with **650 LT Liquid Adhesive or California Sealant** at a rate of 150-200 sq. ft. per gallon and apply a 12" strip of **Polyguard Fabric Tape** centered over seam extending out 6" past seam on both sides. Roll fabric tape with a laminate roller to ensure adhesion.

**PATCHING** - Take precautions to protect **Blindside Membrane** from damage. Prior to pouring concrete, visually inspect the **Blindside Membrane** for punctures in or damage to the membrane. Punctures and damage are to be repaired using a coating of **Polyguard 650 LT Liquid Adhesive or California Sealant** and a covering of **Underseal Fabric Tape**; each product extending a minimum of 6" in all directions from the damaged area. Apply a coating of **650 LT Liquid Adhesive or California Sealant** at a coverage rate of 150 - 200 sq. ft. per gallon (13.93 - 18.58 M<sub>2</sub>) to the fabric side of the damaged **Blindside Membrane** and then adhere the **Underseal Fabric Tape**. Apply hand and roller pressure over the surface of the **Underseal Fabric Tape** to obtain full adhesion between materials

**PENETRATIONS** - If an annular space around a penetration through the **Blindside Membrane** is ½" or less, prepare the penetration surfaces by removing loose material and bond breaking substances; abrade the surface of the penetration with a wire brush or sand paper and wipe clean with a damp rag. Coat the fabric side of the **Blindside Membrane** that will interface with **Polyguard LM-95 Liquid Membrane or Polyguard Detail Sealant PW** with a coating of **Polyguard 650 LT Liquid Adhesive or California Sealant** at a rate of 150 - 200 sq. ft. per gallon (13.93 - 18.58 M<sub>2</sub>). Using **Polyguard LM-95 Liquid Membrane or Polyguard Detail Sealant PW** form a minimum ¾" cant/fillet around the base of the penetration and extend the coverage beyond the formed cant/fillet onto 3" of the **Blindside Membrane** fabric and onto 3" of the penetration at a thickness of 90 mils.

Note: If pipes or penetrations are in tight clusters, we suggest using **Polyguard LM-85 Liquid Membrane** in combination with a pitch pan. **Polyguard LM-85 Liquid Membrane** is a flowable material.

When an annular space around a penetration through the **Blindside Membrane** is greater than ½", a protocol using **Polyguard Underseal Fabric Tape** is required to make an appropriate seal. Follow the protocol for the ½" or less annular space and then: coat the surface area of the cant/fillet and 3" of the **Blindside Membrane** fabric that is beyond the edge of the **LM-95 or Detail Sealant PW** with a coating of **650 LT Liquid Adhesive or California Sealant** at a rate of 150 - 200 sq. ft. per gallon (13.93 - 18.58 M<sub>2</sub>). (If **Detail Sealant PW** was used to form the cant/fillet and 90 mil coating, allow 24 hours for cure before coating with a **Liquid Adhesive or California Sealant**). Adhere a strip of **Underseal Fabric Tape** around the base of the penetration, covering the cant/fillet surface and + or - 6" beyond the base of the penetration. Apply hand and roller pressure over the surface of the **Underseal Fabric Tape** to obtain full adhesion with the substrates.

**Termite and Gas Vapor Protection** - Follow the Penetrations protocol and then wrap the penetration with **Underseal Fabric Tape** and terminate and secure the top edge with a screw clamp or similar restraining/ clamping devise.

**OWNER INSTRUCTIONS:** This material is offered for sale by **POLYGUARD PRODUCTS, INC.** only for the expressed purposes as described in this literature. Any use of the products other than taught here by **POLYGUARD** shall be the responsibility of the purchaser, and **POLYGUARD** does not warrant, nor will be responsible for any misuse of these products.

The **POLYGUARD** products described here are for construction or industrial use only. Application of the products should be performed by workmen who are skilled in the application of these types of materials, and installation should follow manufacturer specifications.

Material Safety Data sheets and precautionary labels should be read and understood by all user supervisory personnel and employees before using. Consult **POLYGUARD** for Material Safety Data Sheets. Purchaser is responsible for complying with all applicable Federal, State and local laws and regulations covering health, safety, and use of the product, including waste disposal. This is not a Material Safety Data Sheet and is not to be used as such. **POLYGUARD** has prepared separate Material Safety Data Sheets on each product.

**WARRANTY:** **Polyguard Products** are warranted to be free of defects in manufacture for five years. Material will be provided at no charge to replace any defective products.

## PRODUCT PROPERTIES:

PROPERTY	TEST METHOD	ENGLISH	METRIC
Color		Black/White	
Thickness	ASTM D-1000	.073 in.	1.42
Low temperature flexibility	ASTM D-1970 180° at -25°F. (-29°C)	No effect	No Effect
Resistance to hydrostatic head, minimum	ASTM D-5385-93	231 ft.	70.4 m
In Plane Hydraulic Transmissivity of a Geosynthetic by Radial Flow	ASTM D 6574	No water flow	No water flow
Elongation, rubberized asphalt sealant/adhesive component	ASTM D 412	839%	839%
Breaking Strength of 1" width sample Polyethylene Film Layer	ASTM D 882	24.0 lb. in. width	4.3 kg/cm
Tensile Strength of 1" width Polypropylene Geotextile layer	ASTM D 4632	80.0 lb	36.3 kg
Crack cycling	ASTM C-836 Tested @-15°F	Pass	Pass
Puncture resistance, minimum	ASTM E-154	>327 lbs.	>1455.7N
Peel adhesion to concrete	ASTM D-903 modified	14.9 lbs.in	2614 N/m
Lap Peel Adhesion	ASTM D-1876-01*	9.02 lb./in	1.58 N/mm
Self Sealability – Moisture Vapor Transmission g/h ft <sup>2</sup>	ASTM E-96-B** US perms (ng/(Pa x s x m <sup>2</sup> ))	.01	0.6
Water Absorption Maximum	ASTM D-570	.1%	.1%
Permeability (hydraulic conductivity)	ASTM D 5084-90	K=, 1.18 x 10 <sup>-8</sup> cm.s <sup>-1</sup>	K=, 1.18 x 10 <sup>-8</sup> cm.s <sup>-1</sup>
Methane Permeability	ASTM D-1434 tested using 99.99% purity methane ft <sup>3</sup> /(ft <sup>2</sup> • hr • psi) (mol/m <sup>2</sup> • s • Pa)	6.3 x 10 <sup>-7</sup>	3.5 x 10 <sup>-13</sup>
Resistance to Penetration by Termites	Texas A&M Method percentage of penetration	0.0 %	0.0%
Resistance to Penetration by Pesticides	ASTM F- 2130 percentage of penetration	0.0 %	0.0%
Resistance to Fungi in Soil	GSA-PBS 07115 - 16 Weeks	No effect	No effect

\*Test is done using smaller sample than recommended and at room temperature.

\*\* Test method used: ASTM E-96. Sample preparation for nail puncture: ASTM D-1970.