

POLYGUARD UNDERSEAL™

UNDERSLAB WATERPROOFING MEMBRANE

Waterproofing with Added Protection Against
Radon, Methane, Insects, and other Contaminants
(Formerly known as Underseal™ XT 850 Underslab)



PRODUCT FEATURES:

BASIC USES: *Underseal™ Underslab* Membrane* is used as a waterproofing membrane/vapor barrier to virtually eliminate water and vapor transmission through concrete slabs on grade. In addition to protecting floor finishes and indoor air quality, *Underslab Membrane* also acts as a barrier to termites, pesticides, methane gas and radon gas.

DESCRIPTION: *Underslab Membrane* is a strong sheet membrane with a 20 mil thick high strength polyethylene backing that is laminated to a 75 mil thick layer of proprietary waterproofing compound bonded to a nonwoven geotextile fabric. Once the concrete slab is poured on the *Underslab Membrane*, the membrane will mechanically bond tightly and permanently to concrete because of the concrete/fiber attachment. The thick polyethylene backing forms a highly puncture resistant barrier against damage. On the fabric side, a 4" wide lap of waterproofing adhesive compound is manufactured along one edge with a removable silicone coated release sheet. This adhesive is exposed just prior to the installation of the adjacent roll. This provides a 4" wide **self-adhesive overlap** seam. Total membrane thickness is factory controlled at **95 mils**.

ATTRIBUTES: *Underslab Membrane* creates a permanent seal underneath the concrete slab. The membrane features fully-adhered watertight laps and details. Underslab Membrane remains functional if jobsite conditions become challenging. Rainfall, freeze/thaw and wet/dry cycling do not effect the system. The sheet is non-reactive and will not allow moisture to migrate beneath the structure and the waterproofing system. In addition, if cracks develop in the slab the membrane has stress-absorbing properties to allow it to maintain a watertight seal to the structure. *Underslab Membrane* also acts as a barrier against termites, toxic contaminants and gas vapors which may attempt to enter the structure through crack or waterproofed joint openings. *Underslab Membrane* may be installed vertically on removable formwork for waterproof protection for perimeter and grade beam installations as well as on elevator pits, etc. The membrane may also be installed vertically against adjoining structures to provide waterproofing protection. Generally, for most vertical wall applications Polyguard recommends the installation of *Underseal Protected Wall Waterproofing Membrane, Blindside Waterproofing Membrane or Polyguard 650 Membrane*, depending on project conditions, but occasionally the membrane can be vertically, consult Polyguard for vertical recommendations.

LIMITATIONS: *Underslab Membrane* should normally be installed when temperatures are 40°F (4.44°C) and rising. For low temperature use between 25°F – 39°F applicator must contact Polyguard for procedures. This membrane should always be installed when the weather is dry. This product should not be installed when it is raining or when freezing precipitation is occurring. Standing water must be removed prior to concrete being poured on *Underslab Membrane*. Consult Polyguard Products for material handling and storage requirements. Concrete must be poured on installed membrane within 30 days after installation. Extended exposures will be considered, please contact Polyguard for technical assistance.

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Polyguard

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

POLYGUARD PRODUCTS, INC • ENNIS, TEXAS 75120-0755
PH: 214-515-5000 • 800-541-4994 • FAX: 972-875-9425
Web Site: www.polyguardproducts.com

ISO 9001
BUREAU VERITAS
Certification



Polyguard has been ISO 9000 certified since 1996. Current certifications are:
- American Natl. Standards Institute
- Dutch Council for Certification
- Deutscher Akkreditierungs Rat

REFERENCES: *Underseal™ Underslab Waterproofing 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
Underslab Waterproofing Membrane	4' x 50'	ROLL	200	80	22 CTNS
Underseal Fabric Tape	12" x 200'	CARTON	200	70	24 CTNS

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 from *Polyguard* 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: Level, tamp or roll granular base prior to application of *Underslab Membrane*. Sub-base compaction should be accomplished per project specifications. The membrane should never be placed in standing water. Surface must be dry prior to application.

INSTALLATION: Place the *Underslab Membrane* with the high strength backing toward the soil with the fabric facing up to receive the concrete. The membrane should be placed with the longest dimension parallel with the direction of concrete pour. *Underslab Membrane* should be lapped over the concrete footings and slab perimeter/grade beams to insure a tight bond with the concrete pour. All penetrations should be sealed.

PENETRATIONS - If the annular space of pipe through an opening is ½" or less apply the *Polyguard 650 LT Liquid Adhesive or California Sealant* to the fabric side of *Underslab Membrane*. Apply a cant / fillet with a min. 3/4" face of *Polyguard LM-95 Liquid Membrane* or *Polyguard Detail Sealant* extending onto the fabric side of the *Underslab Membrane* and onto the pipe a minimum of 3". The pipe surface should be cleaned and roughened with sandpaper or a wire brush to insure adequate adhesion. Allow *Polyguard Detail Sealant* 24 hours to cure.

Note: If pipes or penetrations are in tight clusters and a more flowable detailing liquid is required LM-95 should be used, contact Polyguard for more details.

If the annular space of pipe through an opening exceeds ½" a patch of *Underseal™ Fabric Tape* is required. Apply a patch of *Underseal™ Fabric Tape* 6" larger than the pipe diameter using the *Polyguard 650 LT Liquid Adhesive or California Sealant* at a rate of 150 - 200 sq. ft. per gallon (13.93 - 18.58 M²). Extend 6" beyond pipe to the fabric side of the *Underslab Membrane*. Press the *Underseal™ Fabric Tape* firmly to obtain full adhesion to the *Underslab Membrane*. Apply a heavy coat 150 - 200 sq. ft. per gallon (13.93 - 18.58 M²) of the *Polyguard 650 LT Liquid Adhesive or California Sealant* to the *Underseal™ Fabric Tape* patch. While the *Polyguard 650 LT Liquid Adhesive or California Sealant* is still tacky, seal the pipe with the *Polyguard LM-95 Liquid Membrane or Polyguard Detail Sealant*. Apply a cant/ fillet with a min. 3/4" face of *Polyguard LM-95 Liquid Membrane or Polyguard Detail Sealant* extending onto the fabric side of the *Underslab Membrane* and onto the pipe a minimum of 3". Allow *Polyguard Detail Sealant* to cure 24 hours. Pipe surfaces must be free from dirt and other contaminants that could act as bond breakers. Cleaning with a wire brush is one acceptable method of surface preparation.

TERMITE AND GAS VAPOR PROTECTION - For full termite and gas vapor protection all pipes must be wrapped using the *Underseal™ Fabric Tape* and secured to the pipe with a screw clamp.

SIDE LAPS – If any lap areas become dirty during construction remove all debris and/or dust from the polyethylene backing. Clean the backing with 30% isopropyl alcohol prior to exposing the 4" self-adhesive seam. Remove the 4" wide silicone treated release sheet and align the adjacent roll for seaming. Once the lap is secured, roll with a min. 75 lb. linoleum roller to obtain full adhesion.

END LAPS - The *Underslab Membrane* overlap must be 4". Center a 12" wide piece of *Underseal™ Fabric Tape* over the seam set onto a heavy coat 150 - 200 sq. ft. per gallon (13.93 - 18.58 M²) of tacky *Polyguard 650 LT Liquid Adhesive or California Sealant*. Apply even pressure with the linoleum roller to obtain full adhesion.

PATCHING - Take precautions to protect the *Underslab 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 areas using *Underseal™ Fabric Tape* installed over *Polyguard 650 LT Liquid Adhesive or California Sealant* at a coverage rate of 150 - 200 sq. ft. per gallon (13.93 - 18.58 M²) to the damaged *Underslab Membrane*. Patches must extend a minimum of 6" in all directions from the damaged area. All patches must be rolled with a hand roller or linoleum roller to insure proper adhesion and seal. Repaired areas must be sealed around the edges with *Polyguard 650 Mastic*.

REBAR CHAIRS: Steel reinforcement may be applied directly over the **Underslab Membrane**. It is of important that reinforcement (rebar) chairs are compatible with the system. Compatible rebar chairs will distribute the load of the steel reinforcement sufficiently that 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.

On compacted earth, stone or mud slabs - concrete or brick (blocks, pavers, or dobies) rebar supports are recommended. However, on mud slab applications steel chairs or beam bolsters are acceptable as long as they have plastic caps or are plastic dipped. Prior to slab pour all standing water must be removed from the membrane.

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	.095 in.	1.86
Low temperature flexibility	ASTM D-146 180° bend over 1" mandrel at -25°F.	No effect	No Effect
Resistance to hydrostatic head, minimum	ASTM D-5385	231 ft.	70 m
Elongation, minimum	ASTM D-412	>850%	>600%
Tensile strength, film minimum	ASTM D-412 (modified die C) psi <i>MPa</i>	2000	13.4
Crack cycling at -10°F (-23°C), 100 cycles	ASTM C-836 Tested @-15°F	No effect	No effect
Puncture resistance, minimum	ASTM E-154 Membrane using 1" (24mm) Rod Lb. (N)	>310 lbs.	>1380
Peel adhesion to concrete	ASTM D-903 lb/in width (N/mm)	31.3	5481 N/m
Lap peel adhesion	ASTM D-1876 (modified ¹)	8.0 lb./in. width	1.4
Permeance to water vapor transmission, maximum	ASTM E-96-B US grains/sq.ft./in. HGF (ng/(Pa x s x m ²))	.01	1.48x10 ⁻⁹
Water absorption, maximum	ASTM D570	.1%	.1%
Methane Permeability	ASTM D-1434 tested using 99.99% purity methane ft ² /(ft ³ • hr • psi) (mol/m ³ • s • Pa)	6.3 x 10 ⁻⁷	3.5 x 10 ⁻¹³
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

¹ Test is done using smaller sample than recommended and at room temperature