

# SECTION 07100

## BLINDSIDE WATERPROOFING MEMBRANE

### PART 1 - GENERAL

#### 1.01 RELATED DOCUMENTS

- A All of the Contract Documents, including General and Supplementary Conditions and Division I General Requirements apply to the work of this section.

#### 1.02 SCOPE

- A The work of this section includes, but is not limited to, the following:
- 1 Installation of waterproofing with termite and crack reduction protection where indicated in the drawings.
  - 2 Prefabricated Drainage Composites
  - 3 Termination bar (optional)
- B Related Sections: Other specification sections which directly relate to the work of this section include, but are not limited to, the following:
- 1 Section 02450 - Foundation and Load-Bearing Elements
  - 2 Section 03300 - Cast-In-Place Concrete
  - 3 Section 02250 - Shoring and Underpinning (Lagging)
  - 4 Section 16000 - Electrical and Conduit

#### 1.03 REFERENCE STANDARDS

- A American Society for Testing and Materials (ASTM):
- |        |   |
|--------|---|
| D146   | Sampling and Testing Bitumen Saturated Felts and Fabrics                                    |
| D412   | Tests for Rubber Properties in Tension  |
| D570   | Test Method for Water Absorption of Plastics  |
| E96(b) | Tests for Water Vapor Transmission of Materials in Sheet Form                               |
| E154   | Test for Puncture Resistance  |
| F2130  | Resistance to Penetration by Pesticides   |
| D4833  | Test Method for Index Puncture Resistance of Geotextiles, Geomembranes and Related Products |
| D4533  | Test Method for Trapezoid Tearing Strength of Geotextiles                                   |
| D1434  | Test Method for Determining Gas Permeability Characteristics of Plastic Film and Sheeting   |
- B General Services Administration, Public Building Service: GSA-PBS-07115 Guide Specification for Elastomeric Waterproofing.
- C Texas A & M Method - Resistance to penetration by termites.

*Underseal™ is protected by U.S. Patent No. 7,488,523*

# Polyguard

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

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D Qualifies under LEED:

- 1 IAQ Credit 5 - Indoor Chemical and Pollutant Source Control (below grade toxin barrier / reduced pesticide usage).
- 2 SS 3 - Brownfield redevelopment (can be used for pesticide contaminated sites)
- 3 Can be considered for ID 1 - Innovation in design.

#### 1.04 SYSTEM DESCRIPTION

Product provided by this section is a strong, sheet membrane of not less than 73 mils thickness, consisting of a high density polyethylene backing laminated to a thick layer of a proprietary stress absorbing, waterproofing formulation, with a top layer of non woven geotextile fabric.

#### 1.05 SUBMITTALS

A General: Submit in accordance with Section 01330.

B Product Data: Submit manufacturer's product literature and installation instructions.

C Samples: Submit representative samples of the following for approval:

- 1 Sheet Membrane
- 2 Fabric Tape and Accessories
- 3 Prefabricated Drainage Composite
- 4 Termination Bar (optional)

D Subcontractor's approval by Manufacturer: Submit document stating manufacturer's acceptance of subcontractor.

E Warranty: Submit a sample of manufacturer's warranty identifying the terms and conditions stated in 1.09

F Substitutions: To be accepted as an equal a product must have demonstrated in documented field trials over a minimum 5 year period the ability to reduce cracking and to maintain a seal even if the slab above it has cracked.

#### 1.06 QUALITY ASSURANCE

A Manufacturer Qualifications: Sheet Membrane Waterproofing Systems must be manufactured by a company with a minimum of 10 years experience in the production and sales of waterproofing membrane materials.

B Applicator Qualifications: A firm having at least 3 years experience in applying these types of specified materials and specifically accepted in writing by the membrane system manufacturer.

C Materials: For each type of material required to complete the work of this section, provide primary materials which are the products of a single manufacturer.

D Pre-Application Conference: A pre-application conference shall be held to establish procedures and to review conditions, installation procedures and coordination with other related work. Meeting agenda shall include review of special details and flashing.

- E Manufacturer's Representative: Arrange to have trained representative of the manufacturer on site periodically to review installation procedures.

#### 1.07 DELIVERY, STORAGE, HANDLING

- A Materials should be delivered to site in manufacturer's original, unopened containers with original labels attached and bearing the following information:
  - 1 Name of material.
  - 2 Manufacturer's batch codes including date of manufacture.
  - 3 Materials Safety Data Sheets.
- B Membrane and accessories should be unloaded and stored carefully. Cartons and containers must be protected from weather, sparks, flames, excessive heat, cold and lack of ventilation. Do not stack membrane higher than 5 feet vertically, nor double stack cartons. Cartons should be stored on pallets and covered to protect from water damage. Any damaged material must be removed from the site and disposed of in accordance with applicable regulations.

#### 1.08 PROJECT CONDITIONS

- A Work should be performed only when existing and forecasted weather conditions are within the limits established by the membrane manufacturer. Membrane should only be installed when temperature is 40°F (4.44°C) and rising. Consult manufacturer for information concerning cooler temperatures.
- B Proceed with installation only when substrate construction and preparation work is complete.
- C Warn personnel against breathing of vapors and contact with skin and eyes; wear appropriate protective clothing and respiratory equipment.
- D Keep flammable products away from spark or flame. Post "No Smoking" signs. Do not allow spark producing equipment to be used during application and until all vapors have dissipated.
- E Maintain work area in a neat and workmanlike condition. Remove empty cartons and rubbish from the site daily.

#### 1.09 WARRANTY

- A Provide a written 5 year material warranty from the manufacturer upon completion and acceptance of the installation.

### PART 2 - PRODUCTS

#### 2.01 MANUFACTURERS

- A Provide Polyguard Underseal™ Blindsight Waterproofing System as manufactured by Polyguard Products, Inc., Ennis, Texas 75120-0755, phone: 800-541-4994.

## 2.02 PRODUCTS

A High Density Blind Side Waterproofing: Shall be Polyguard Underseal™ Blindside Waterproofing Membrane, a 73 mil rubberized asphalt membrane consisting of a strong sheet membrane with a facing of high density polyethylene backing laminated to a thick layer of proprietary stress absorbing / waterproofing formulation, with a top layer of nonwoven geotextile fabric:

1.	Resistance to Penetration by Termites	0.0%	TEXAS A & M TESTING
2.	Resistance to Penetration by Pesticides	0.0%	ASTM F-2130
3.	Resistance to Permeance by Methane Gas	$7.2 \times 10^{-7}$	ASTM D1434
4.	Resistance to Gas Permeance $\text{ft}^3 / (\text{ft}^2 \text{ hr psi})$	$4.8 \times 10^{-7}$	ASTM D-1434-98
5.	Resistance to Fungi in Soil 16 Weeks	No effect	GSA-PBS 07115
6.	Resistance to Permeance by Moisture US grains/h./ft <sup>2</sup>	.01	ASTM E-96-B
7.	Resistance to Puncture - Membrane using 1" (24mm) Rod Lb.	>327	ASTM E-154
8.	Membrane Thickness inch	.073	ASTM D-1000
9.	Elongation - Ultimate Failure of Adhesive Compound - % Elongation at Failure	>655%	ASTM D-412
10.	Cycling Over Crack @ -10° (-23°C) 100 cycles	Pass	ASTM C-836
11.	Peel Adhesion to Concrete- lb/in/ width	14.9	ASTM D-1000
12.	Overlap Bond - lb/in. width	9.02	ASTM D-1876 (modified <sup>1</sup> )
13.	Pliability - 180° bend over 1" mandrel at -25°F (- 32°C)	No Effect	ASTM-D-146
14.	Tensile Strength - Membrane Modified Die C PSI	6783	ASTM D-412
15.	Self Sealability - Water Vapor Transmission g/h ft <sup>2</sup>	.01*	ASTM E-96*

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

### B Accessory Products

- 1 Detailing Membrane: Shall be Polyguard Underseal™ Fabric Tape
- 2 Surface Primer: Shall be Polyguard 650 LT Liquid Adhesive
- 3 Mastic: Shall be Polyguard 650 Mastic
- 4 Liquid Membrane: Shall be Polyguard LM 95
- 5 Termination Bar: Shall be Polyguard Termination Bar (Optional)

C Prefabricated Drainage Composite: Shall be Polyguard Drainage Mats Flow 15-P for vertical applications. Polyguard Drainage Mats shall be designed to promote positive drainage while serving as a protection course.

## PART 3 - EXECUTION

### 3.01 INSPECTION

A Before starting any waterproofing work, the applicator shall thoroughly inspect all surfaces for any conditions detrimental to the proper completion of the work. Should any deficiencies exist, the General Contractor should be made aware of such in writing immediately. Do not proceed with application until all unsatisfactory conditions are corrected.

### 3.02 SURFACE PREPARATION:

A Refer to manufacturer's product literature for surface preparation requirements. Surfaces should be structurally sound. Remove debris or any other foreign materials that could damage the membrane system. Use repair materials that are acceptable by the sheet membrane manufacturer.

B Wood Lagging With Steel Piles

- 1 Make sure all lagging boards are pounded in flush.
- 2 Repair missing or damaged lagging boards with concrete grout, treated wood or both.
- 3 Fill or cover all gaps between lagging boards exceeding 1 inch using concrete grout or plywood.
- 4 If lagging boards are placed interior to the steel pile then any gaps between the ends of the boards which exceed 2 inches should be covered with plywood with grout behind.

C Steel Sheet Piling:

1. Continues contact of profile of the sheet piling, all sharp protrusions must be first addressed or removed.
- 2 If waterproofing is going to span the sheet pilings then place 3/4" plywood across void and shoot into place every 12" O.C.. Fill void behind plywood with sand.

D Caisson:

- 1 Surface of augered piers are relatively smooth install directly against piers. However, the groove between each pier has to be filled with concrete grout and all sharp protrusions addressed or removed.

E Shotcrete with Concrete and Chemically Stabilized Earth:

- 1 Remove all sharp protrusions and fill all voids with concrete grout.

F Slurry Wall:

- 1 Clean off all mud and dirt.
- 2 Remove all sharp protrusions and fill all voids with concrete grout.

3.03 INSTALLATION:

A Drainage Board Installation:

- 1 Drainage board should be applied vertically. Apply drainage board with fabric to lagging, caisson, shotcrete, slurry seal or steel piling walls. Bring drainage board over the top of the surface to be waterproofed and securely tack the drainage board to the top. On lagging walls cut holes in the drainboard where the lag bolts are extending out of the wood lagging into the drainage board.
- 2 Butt drainboard together at side and end seams.
- 3 Apply a thin layer of liquid membrane around bolt extending out of protection board. Allow to cure.

**B Membrane Installation - Vertical Surfaces:**

- 1 Waterproofing membrane should be applied vertically with the high density backing to the fabric side of the drainage board.
- 2 Application up to 20 feet should be done by applying pins with washers every 12 inches across the top lagging thru the membrane and drainage board and allowing the membrane to hang down the wall.
- 3 Applications over 20 feet contact the manufacturer for recommendations.
- 4 Side laps are furnished with edge trim of 4" to allow for a minimum of 2 ½ inches on the side laps. Remove any debris and dust on the polyethylene backing, clean with 30% Isopropyl Alcohol prior to applying to the edge trim.
- 5 End laps, if required, should be primed with a heavy coat 150-200 sq. ft. per gallon of liquid adhesive. Over lap end laps a minimum of 6 inches.
- 6 Apply a heavy coat 150 - 200 sq. ft. per gallon of liquid adhesive to the top of the membrane at the seams. Lower piece of membrane will extend up the wall and lap over the piece of membrane above it (opposite of the standard shingle lap). Place a 12 inch piece of fabric tape centered over the seam. Apply even pressure with roller to obtain full adhesion.
- 7 If annular space of pipe, bolt or penetration of opening is ½" or less apply liquid adhesive to fabric side of membrane. Apply a ¾" cant/fillet around pipe penetration extending onto fabric side of waterproofing barrier membrane and pipe a minimum of 3".
- 8 If annular space of pipe, bolt or penetration of opening exceeds ½" then a patch of fabric seal tape is required. Apply a heavy coat approximately 150 - 200 sq. ft. per gallon liquid adhesive onto the fabric side of the waterproofing barrier membrane extending 6" beyond pipe. Apply a patch 6" larger than pipe diameter. Press or roll patch firmly to obtain full adhesion to waterproofing barrier membrane. Apply another coat of liquid adhesive to the fabric side of the fabric tape patch and apply liquid membrane.
- 9 For full termite protection pipe must be wrapped using fabric tape and applying a screw clamp.
- 10 Visually inspect membrane prior to pouring of concrete for any punctures or damage.
- 11 Repair damaged areas by applying liquid adhesive at a rate of 150-200 sq. ft. per gallon and apply patch at least 3 inches larger than damaged area in all directions.

3.04 TERMINATION BAR: (Optional) Secure at top of wall fastening every 7" O.C.

**END OF SECTION**

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