

SECTION 07100

PROTECTED WALL 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 self-adhering sheet membrane waterproofing where indicated in the drawings.
2. Install termination bar.
3. Prefabricated Drainage Composite (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 02710 - Drainage
2. Section 03300 - Cast-In-Place Concrete
3. Section 05810 - Expansion Joint Cover Assemblies
4. Section 07600 - Flashing and Sheet Metal
5. Section 07900 - Joint Sealants
6. Section 15400 - Drains
7. 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.

U.S. Patent No. 7,488,523

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



Polyguard is ISO 9001 certified since 1996.

D. Radon Reduction Technology Laboratory:

1. Resistance to Permeance by Radioactive Radon Gas
2. Resistance to Diffusion by Radioactive Radon Gas

E. 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, pliable, self adhering sheet membrane of not less than 65 mils thickness, consisting of a high strength polyethylene film bonded to a layer of rubberized asphalt waterproofing compound.

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. Detailing Strips and accessories
3. Termination Bar
4. Drainage Board (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 self-adhesive membrane waterproofing 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. Do not apply membrane to damp, frost covered or otherwise contaminated surfaces. 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. Surfaces to receive waterproofing materials must be free of voids, spalls, loose aggregate and sharp protrusions. The concrete surface must resemble a troweled finish. Broom finish concrete is not acceptable.

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™ Protected Wall Waterproofing System as manufactured by Polyguard Products, Inc., Ennis, Texas 75120-0755, phone: 800-541-4994.

2.02 PRODUCTS

- A. Self-adhesive Membrane Waterproofing: Shall be Polyguard Underseal™ Protected Wall Waterproofing Membrane, a 65 mil rubberized asphalt membrane consisting of a high strength polyethylene film bonded to a layer of rubberized asphalt meeting or exceeding the following requirements:

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	6.3×10^{-7}	ASTM D-1434
4. Resistance to Permeance by Radioactive Radon Gas	1.95×10^{-15}	Radon Reduction Technology Laboratory Method
5. Resistance to Diffusion by Radioactive Radon Gas	4.72×10^{-5}	Radon Reduction Technology Laboratory Method
6. Resistance to Fungi in Soil 16 Weeks	No effect	GSA-PBS 07115
7. Resistance to Permeance by Moisture US grains/sq.ft./in. HGF	.01	ASTM E-96-B
8. Resistance to Puncture - Membrane using 1" (24mm) Rod Lb.	>120	ASTM E-154
9. Resistance to Puncture - Membrane using .35" (8mm) Rod Lb.	>54	ASTM E-4833
10. Resistance to Tearing - Membrane Lb.	78	ASTM D-4533
11. Membrane Thickness inch	.065	ASTM D-1000
12. Elongation - Ultimate Failure of Polyethylene Backing - % Elongation at Failure	>850%	ASTM D-412
13. Elongation - Ultimate Failure of Adhesive Compound - % Elongation at Failure	>1000%	ASTM D-412
14. Cycling Over Crack @ -15/	No effect	ASTM C-836
15. Peel Adhesion - lb/in/ width	10.0	ASTM D-1000
16. Overlap Bond - lb/in. width	8.0	ASTM D-1000
17. Self-Sealability - Water Vapor Transmission g/h ft ²	.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™ Seal Tape
2. Surface Primer: Shall be Polyguard 650 LT Liquid Adhesive, California Sealant or Shur-Tac Waterbase 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 or approved equal

- C. Prefabricated Drainage Composite (Optional): Shall be Polyguard Drainage Mats Flow15-P or Low Flow for vertical applications. Polyguard Drainage Mats shall be designed to promote positive drainage.

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, free of voids, spalls, loose aggregate and sharp ridges. Remove dust, dirt, debris or any other foreign materials such as wax, oil, grease or form release agents. Use repair materials that are acceptable by the sheet membrane manufacturer.

B. Cast-In-Place Concrete

1. Normal weight structural concrete must be allowed to cure a minimum of 7 days. For lightweight structural concrete, the minimum cure time is 14 days. All concrete surfaces must be dry to the touch before proceeding with the installation of the waterproofing system.
2. Fill all form tie holes. Finish flush with the surrounding surface.
3. Fill and repair bug holes in concrete. Finish flush with the surrounding surface.
4. All cracks over 1/16 inch in width and any moving cracks under 1/16 inch shall be routed out to a minimum of 1/4 inch width and sealed using a high performance polyurethane sealant. Allow adequate curing time per the manufacturer's directions. Once cured, install an 8 inch wide strip of Polyguard 650 membrane over the crack.

C. Masonry Surfaces: Apply waterproofing membrane over brick or CMU that has been parged using a cementitious parge coat to level surface and reduce porosity.

3.03 INSTALLATION:

A. Priming: Apply primer to a cleaned, dust free surface. Apply by roller or spray. Apply Polyguard 650 LT Liquid Adhesive, California Sealant or Shur-Tac Waterbase Liquid Adhesive at the rate of 250-300 sq. ft. per gallon. Allow to dry per manufacturer's directions.

B. Membrane Installation - Vertical Surfaces:

1. Waterproofing membrane should be applied vertically in sections of 8 feet in length or less. On walls higher than 8 feet, apply two or more sections with the upper section overlapping the lower.
2. Side laps should be a minimum of 2 ½ inches and end laps should be a minimum of 6 inches.
3. Use a hard roller or firmly press in the material as it is placed on the vertical surface.
4. All terminations of the membrane should receive a bead of mastic. The bead should be troweled to a flat surface approximately 1/8 inch thick by 3/4 inches wide. The mastic should be worked into cut edge terminations.
5. Inadequately lapped seams and damaged areas should be patched with seal tape. The patched area should extend a least 6 inches beyond the defect.
6. Fishmouths and severe wrinkles should be slit, flaps overlapped and repaired as above.
7. All inside and outside corners detailing must be treated with a 12 inch wide strip of seal tape after the application of field sheet membrane. All footing/wall corners shall have a minimum 3/4 inch fillet of liquid membrane.
8. Install a 1 inch, 45 degree cant of Polyguard LM-95 Liquid Membrane at all changes in plane including inside corners allow to cure 24 hours.

3.04 TERMINATION BAR: Place at top termination of field sheet. Anchor every 7 inches O.C.

3.05 PROTECTION AND DRAINAGE COURSE: Protection board is *not required* but an optional drainage board can be applied over membrane to expedite water dispersion prior to backfilling. Apply drainage composite in accordance with manufacturer's written directions.

END OF SECTION