

SECTION 07110

SHEET MEMBRANE WATERPROOFING

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 Protection Board
 - 3 Prefabricated Drainage Composites
 - 4 Perimeter Drainage Composites
 - 5 Waterproofing System Accessory Products
- 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 02712 - Subsurface Drainage Pipe
 - 3 Section 03300 - Cast-In-Place Concrete
 - 4 Section 04200 - Unit Masonry
 - 5 Section 05810 - Expansion Joint Cover Assemblies
 - 6 Section 07150 - Dampproofing
 - 7 Section 07600 - Flashing and Sheet Metal
 - 8 Section 07900 - Joint Sealants
 - 9 Section 15400 - Drains
 - 10 Section 16000 - Electrical and Conduit

1.03 REFERENCE STANDARDS

- A American Society for Testing and Materials (ASTM):
- D146 Sampling and Testing Felted and Woven Fabrics Saturated with Bituminous.
 - 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
- B General Services Administration, Public Building Service: GSA-PBS-07115 Guide Specification for Elastomeric Waterproofing

1.04 SYSTEM DESCRIPTION

Product provided by this section is a strong, pliable, self adhering sheet membrane of not less than 60 mils thickness, consisting of a high density polyethylene film bonded to a layer of rubberized asphalt waterproofing compound.

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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.

1.05 SUBMITTALS

- A General: Submit in accordance with Section 01300.
- 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 Protection Board
 - 3 Prefabricated Drainage Composite
 - 4 Perimeter Drainage Composite
- 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

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 the 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 if the temperature is below - 25°F or to a damp, frost covered or otherwise contaminated surface.

- 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 650 Sheet Membrane 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 650 Membrane, a 60 mil rubberized asphalt membrane consisting of a high density polyethylene film bonded to a layer of rubberized asphalt meeting or exceeding the following requirements:

1.	Adhesion: Peel Adhesion (lb./in. width)	10.0	ASTM D 1000
	Overlap Bond (lb./in. width)	8.0	ASTM D 1000
2.	Tensile Strength: membrane (psi)	325	ASTM D 412 (Die C)
	Film (psi)	6500	ASTM D 882
3.	Puncture Resistance Membrane (lb)	40	ASTM E 154
4.	Pliability - 180 bend over 1" mandrel:	unaffected at -25° F	ASTM D 146
5.	Cycling over crack (100 cycles at -15 F)	unaffected	ASTM C 836
6.	Elongation, ultimate failure of rubberized asphalt membrane:	600%	ASTM D 412 (Die C)
7.	Permanence (grains/sq.ft./hr./inHg):	.05	ASTM E 96 Method B
8.	Resistance to hydrostatic head (ft. of water):	231	ASTM D 5385
9.	Water Absorption (% by weight):	.1	ASTM D 570
10.	Exposure to fungi in soil for 16 weeks	unaffected	GSA-PSS07115

B Accessory Products

- 1 Substrate Conditioner: Shall be Polyguard 650 LT Liquid Adhesive or Polyguard Shur-Tac Waterbase Liquid Adhesive.
- 2 Mastic: Shall be Polyguard 650 Mastic
- 3 Liquid Membrane: Shall be Polyguard LM-95.
- 4 Termination Bar: Shall be Polyguard Termination Bar

- C Protection Course:
- 1 For horizontal applications: Shall be Polyguard Asphaltic Protection Board.
 - 2 For vertical applications: Shall be Polyguard Asphaltic Protection Board or polystyrene protection board (by others).
- D Prefabricated Drainage Composite: Shall be Polyguard Drainage Composites Flow 15-P for vertical applications or Flow 18-H for horizontal applications. Polyguard Drainage Composites shall be designed to promote positive drainage while serving as a protection course.
- E Prefabricated Perimeter Drainage Composite: Shall be Polyguard Total Flow System including Universal "T" Connectors and/or Outlet Connectors as needed for facilitate perimeter 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 that contain these materials. Use repair materials that are acceptable to 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 Concrete should be sloped to provide proper drainage.
 - 3 Fill all form tie holes. Finish flush with the surrounding surface.
 - 4 Fill and repair bug holes in concrete. Finish flush with the surrounding surface.
 - 5 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.
 - 6 Bi-level drains should be installed and have a minimum 3" flange. Drains should be installed with the flange flush and level with the surrounding concrete surface.
- 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 at the rate of 250-300 sq. ft. per gallon. Apply Polyguard Shur-Tac Waterbase Liquid Adhesive at the rate of 350-400 per gallon. Allow to dry per manufacturer's directions.

B Membrane Installation - Vertical Surfaces

- 1 All inside and outside corners shall be treated either with 12 inch wide membrane strip or by applying a 90 mil thick application of Polyguard LM-95. The 12 inch wide membrane should be centered over outside corners.
- 2 Install a 3/4 inch, 45 degree angle cant of Polyguard LM-95 Liquid Membrane at all changes in plane including inside corners.
- 3 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.
- 4 Side laps should be a minimum of 2 ½ inches and end laps should be a minimum of 6 inches.
- 5 Use a hard roller to firmly press in the material as it is placed on the vertical surface.
- 6 All terminations of the membrane should receive a bead of Polyguard 650 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.
- 7 Inadequately lapped seams and damaged areas should be patched with small sections of membrane. The patch should extend a least 6 inches in each direction beyond the defect.
- 8 Fishmouths and severe wrinkles should be slit, flaps overlapped and repaired as above.
- 9 Termination bar at top termination of field sheet. (optional)

C Membrane Installation - Horizontal Surfaces:

- 1 All inside and outside corners shall be treated either with 12 inch strips of membrane or a 12 inch wide by 90 mil thick application of Polyguard LM-95. The field membrane should be centered over the corner. All inside corners shall have a minimum 3/4 inch fillet of Polyguard LM-95 or latex modified cement mortar.
- 2 Waterproofing membrane should be applied to the primed surface starting at the low point and working to the high point in a shingling technique.
- 3 Side laps should be a minimum of 2 ½ inches and end laps a minimum of 6 inches.
- 4 The entire membrane should be firmly rolled with a linoleum roller weighing approximately 75 pounds. This will insure excellent adhesion and minimize air pockets between the substrate and membrane.
- 5 At penetrations, posts or projections, seal to the penetration with Polyguard LM-95 then apply a second flashing sheet over the penetration extending a minimum of 6 inches from the detail. The cut edges of all terminations must be sealed with Polyguard 650 Mastic.
- 6 At drains, apply Polyguard LM-95 around the inside edge of the drain out at least 6 inches then overlap with sheet membrane a minimum of 6 inches. All permanently exposed cut edge terminations must be sealed with Polyguard 650 Mastic.
- 7 Membrane turned up on walls shall be terminated into a reglet or under a counter flashing. The membrane may also be rolled firmly to the wall and sealed with a troweled bead of Polyguard 650 Mastic.
- 8 Inadequately lapped seams and damaged areas should be patched with small section of membrane. The patch area should extend a least 6 inches beyond the defect.
- 9 Fishmouths and severe wrinkles should be slit, flaps overlapped and repaired as above.
- 10 Upon completion of horizontal membrane application, flood test the surface with 2 inches of water for 24 hours. Check with the structural engineer to make sure the deck structure will withstand the weight of the flood test.
- 11 Mark any leak areas found during flood test and make repairs.

3.04 PROTECTION AND DRAINAGE COURSE: Apply protection board and/or drainage composite and perimeter drainage composite in accordance with manufacturer's written directions.

END OF SECTION