

650 MEMBRANE

Sheet Waterproofing Membrane

MANUFACTURER

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PRODUCT DESCRIPTION

Basic Uses

650 Membrane is used on concrete foundation walls, split slabs, sills and spandrel beams, tunnels, plaza decks, parking garages and related applications where waterproofing is critical. Polyguard 650 Membrane may also be used on wood, concrete masonry (CMU) structures and Insulated Concrete Forms (ICF). When 650 Membrane is used for balcony applications over conditioned space, Polyguard's Dual Core System is required.

Balconies: Please consult Polyguard 650 Membrane Balcony Detail or Balconyguard data sheet and details for description and installation instructions.

PRODUCT FEATURES

- Factory bonding assures 60-mil uniform thickness
- Wide membrane width allows for fast and easy application, with reduced seams on continuous flat surfaces
- Detail Tape available for trim corners, construction joints, and other applications.
- Release film does not tear like paper release
- Extended selvage edge provides asphalt-to-asphalt adhesion at the seam
- White color to help reflect heat

650 Membrane conforms to the following specifications:

- AIA MasterSpec Section 07111
- American Railway Engineering Association (AREA) 29-2
- Corps of Engineers CEGS-0711
- Department of the Navy NAV FAC TS 07111
- Federal Construction Guide FCGS 07111
- General Service Administration PBS (PCD) 07111
- LARR Report # RR25879
- SWRI
- Veterans Administration 14-08-1 Section 07311

COMPOSITION & MATERIALS

650 Membrane is a strong, pliable, self-adhesive sheet consisting of a 4-mil cross-laminated, high-density polyethylene (HDPE) backing, bonded to 56 mils of rubberized asphalt waterproofing compound.

Use 650 Membrane for ambient and substrate surface temperatures of 40° F (5° C) and rising.

TECHNICAL DATA

See physical properties table.

INSTALLATION

Surface Preparation

- Prior to starting work, check that all horizontal surfaces to be waterproofed slope towards drainage or refer to balcony details for zero-slope applications. System is not intended for areas designed to retain water indefinitely, such as reflecting ponds and fountains, but can retain casual water, such as ponding.
- A smooth monolithic concrete surface is required. Provide a Concrete Surface Profile (CSP) 1 thru 3. Broom surfaces are not recommended.
- Concrete should be dry, frost free and cured a minimum of seven days prior to application of Polyguard membrane and Liquid Adhesive. on vertical substrates. On horizontal structural concrete surfaces the cure time is 21 to 28 days with no additional rain or moisture.
- Surface must be free of voids, spalled areas, sharp projections, loose aggregate and form release agents.
- Do not use concrete curing compounds containing oil, wax or pigments.
- Form release agents must be the self-dissipating type which will not transfer to the membrane.
- Surface defects; such as cracks, single bug holes of 1/2-inch or greater, or cavities; should be filled and finished flush with a Portland cement grout or concrete. Single bug holes can also be filled with Detail Sealant PW™ or LM-95 Liquid Membrane.
- Finish below-grade (except footings) and the top of projecting ledge surfaces to a beveled or rounded edge.
- Concrete masonry walls or brick require a well-adhered parge coat before application of membrane. Striking off joints flush with surface is also required.
- Clean all surfaces to remove debris, dust and loose stones before application begins. DO NOT apply system-to frozen concrete.

Penetration/Inside Corner/Fillet/Detail

Liquid Membrane

LM-95 LIQUID MEMBRANE: Two-component pail
DETAIL SEALANT PW™: Single-component sausage.

- Apply fillets formed by Detail Sealant PW, LM-95 Liquid Membrane, latex modified cement mortar or epoxy mortar at the base of foundation walls, footings, and inside corners. Provide a 3/4" fillet face.
- DO NOT use wood or fiber cant strips.
- DO NOT prime underneath Detail Sealant PW or LM-95 Liquid Membrane when applied to concrete.

- Cover all inside corners and the base of the foundation wall to footing joint using a 12-inch-wide strip of Detail Tape centered along the axis. Press or roll firmly to achieve a complete seal. Detail Sealant PW or LM-95 Liquid Membrane may be substituted for the initial 12-inch-wide strip of Detail Tape on inside corners by applying a minimum of 90 mils, 3/4" fillet (cant) 6" vertically and horizontally away from the fillet (cant).
- At penetrations, posts, or projections, seal with Polyguard® Detail Sealant PW™ or Polyguard® LM-95 Liquid Membrane 6 inches onto concrete and 3-inches onto penetrating item; then apply a second flashing sheet over the penetration extending a minimum of 6 inches from the detail. The seal the cut edges of all terminations must be sealed with Polyguard® Detail Sealant PW™ or Polyguard® LM-95 Liquid Membrane.
- Treat drains and projections with a second ply of 650 Membrane for a distance of 6" away from drain or projection. Seal all terminations with Detail Sealant PW or LM-95 Liquid Membrane.
- Complete detail work prior to mixing LM-95 Liquid Membrane. Pot life of this product is approximately 60 minutes after mixing at 70° F (21° C). Detail Sealant PW™ can also be used, allowing a minimum 2 hours to cure prior to waterproofing membrane application.
- Pipes which are wired together and touching, cannot properly be waterproofed. Ensure all pipes have proper spacing. Recommended spacing for pipe penetrations is 2-inches. The minimum allowed is 1-inch.

Priming

Stir Liquid Adhesive before use.

- 650 LT Liquid Adhesive, California Sealant or 650 WB Liquid Adhesive provides a tacky adhesive surface.
- 650 LT Liquid Adhesive or California Sealant should be applied over the entire surface at a rate of 250-300 square feet per gallon. 650 WB Liquid Adhesive should be applied over the entire surface at a rate of 350-400 square feet per gallon.
- Re-prime if membrane is not applied to the Liquid Adhesive within the same working day.
- Use brush or sort nap lamb's wool roller for Liquid Adhesive application.
- Liquid Adhesive must be tacky to touch, but not wet, prior to application of 650 Membrane.
- Metal surfaces may require Liquid Adhesive to obtain bond of membrane to substrate.
- Field test to determine adhesion to substrate(s) prior to 650 membrane application.
- Tack or cure for these products is totally dependent on relative humidity, ambient temperature, and substrate surface temperature.

Sheet Membrane

Apply Polyguard 650 Membrane in any width up to 48-inches. Side laps must be a minimum of 2-1/2 inches. Staggered end laps should be minimum 6 inches.

When applying Polyguard 650 Membrane on vertical walls, a determined effort must be made to assure complete adhesion of membrane to the primed surface. Use heavy hand pressure while smoothing out the membrane surface as it is applied. Roll installed membrane with a hand roller to ensure complete bond.

On horizontal surfaces, apply membrane from low to high pitch for maximum drainage. Use a minimum 75 lb. linoleum roller to roll membrane immediately after application, with special attention at overlaps and "T-Joints". Seal all end laps with Detail Sealant PW™ or LM-95 Liquid Membrane.

When vertical walls that are more than 8-feet high, which are to be waterproofed, apply 650 Membrane in sections no longer than 8-feet, starting from the lower foundation base and rising to the top with the 6-inches overlap, shingling down on each ply of membrane. Apply Polyguard 650 Membrane on the horizontal footing and terminated with Detail Sealant PW or LM-95 Liquid Membrane. If the footing is smooth and otherwise properly prepared, it is acceptable to extend the 650 Membrane down the exterior face of the footing and terminate with Detail Sealant PW or LM-95 Liquid Membrane. Follow these measures for membrane termination when bottom of interior floor height is:

- Even to 6": Apply 650 Membrane across the top of footer and terminate on vertical face of footer, sealing terminal edge with Detail Sealant PW or LM-95 Liquid Membrane. For a poured-in-place footer, terminate the membrane within 3" of outer edge and finish with a termination (term) bar. Seal term bar, fasteners and terminal edge of membrane with Detail Sealant PW™ or LM-95 Liquid Membrane.
- 6" – 12": Terminate 650 Membrane on top of footer a minimum of 12 inches, and seal with Detail Sealant PW or LM-95 Liquid Membrane. Vertical face terminations are preferred.
- 12-inches or higher: Terminate 650 Membrane at vertical-to-horizontal juncture and seal with Detail Sealant PW or LM-95 Liquid Membrane.

Complete the upper terminating edge of Polyguard 650 Membrane applied to a vertical wall over the top of the wall. If terminated on the vertical surface, use a reglet, counter flashing or termination bar. Firmly press the terminated edge with a hand roller and protect with a troweled bead of Detail Sealant PW or LM-95 Liquid Membrane.

Properly seal static cracks more than 1/16-inch wide on horizontal or vertical surfaces in accordance with the sealant manufacturer's instruction, apply a 12-inch-wide strip of 650 Membrane.

Seal cold joints, T-Joints, and evident working cracks, with joint fillers, water-stop or sealant. Place a 12-inch strip of 650 Membrane centered directly over and along the crack. Overlay the 12-inch strip with the 650 Membrane field application, providing double strength at the area of movement.

650 Membrane does not function as an expansion joint material, only as a waterproofing cover for expansion joint materials. All expansion joints should be properly sealed with joint fillers or an expansion joint as primary waterproofing. Then apply an 8" inverted piece of 650 Membrane centered over and across the joint, followed by a 12" strip adhered directly over joint. Full width 650 Membrane should follow. Construction joints, control joints, and cold joints should be sealed with joint fillers and Detail Tape, then apply 650 Membrane over the joint.

Inspection and Repairs

Visually inspect membrane for tears, punctures, air blisters and "fishmouths," prior to water tests, placement of protection board and backfilling. Make repairs by removing all damaged membrane so only well-bonded 650 Membrane remains. Re-prime any exposed concrete. After Liquid Adhesive is dry, apply a new sheet of membrane over the concrete, extending 6-inches onto previously applied 650 Membrane. Care should be taken to obtain good adhesion between membrane used for repairs and originally applied 650 Membrane. Seal edges with Detail Sealant PW™. Slit all "fishmouths," overlap the pieces, place patch over area and roll in place. Puncture air blisters, expel the air, prime and cover with patch. Extend the patch material minimum 6 inches in all directions beyond the repair area, then seal the patch edges with Detail Sealant PW™.

Membrane Termination

Apply Detail Sealant PW or LM-95 Liquid Membrane at all terminations at the end of each day's work. Detail Sealant PW should be allowed to cure 2 hours when used under the 650 Membrane.

Membrane Protection

Protection board is required over 650 Membrane. Extruded polystyrene is acceptable for vertical applications. Polyflow® 15 or 15P drainage boards can be used in place of protection board. Use 1/8-inch Asphalt Protection Board to protect membrane on horizontal surfaces subject to normal construction traffic. Use 1/4-inch Asphalt Protection Board to protect the membrane on horizontal surfaces subject to heavy construction traffic. For balcony decks with less than 3-inches of concrete and foot traffic only, use Polyflow® BD. Apply protection board systems according to the manufacturer's application and guide specifications.

Membrane surfaces should be free of stones and dirt prior to protection board installation. When adhering protection board systems to Polyguard 650 Membrane, use a Polyguard approved adhesive system. Spot adhesion, rather than full adhesion, should be used so that in the event of backfill settlement exerting downward pressure, the protection system will detach from the membrane and slip downwards.

Drainage Board

For Vertical surfaces, use Polyflow® 15 or 15P Protection/Drainage Board. For horizontal surfaces, use

Polyflow 18. For balcony decks with less than 3-inches of concrete and foot traffic only, use Polyflow® BD. Consult Polyguard for specific recommendations.

Drainage Systems

Perimeter drainage system should be Totalflow™ with appropriate connectors/outlets.

Backfill Requirements

No waiting is required before backfilling. Backfill material should be select fill:

- free of large dirt clods, rock, tree roots and debris.
- a type readily compactable upon deposit.
- be compacted per project specifications in 12-inch lifts.
- not have a high-water content that would cause the soil to shrink upon drying.

Use mechanical compaction in horizontal layers to achieve these results.

Topping Systems Requirements

On horizontal areas Polyguard recommends a flood test or appropriate leak detection methods.

STORAGE AND HANDLING

Material Handling

Membrane and accessories should be unloaded and stored carefully. Protect cartons and containers from weather, sparks, flames, excessive heat, cold and lack of ventilation. DO NOT stack membrane material higher than 5-feet vertically, nor double stack pallets. Store cartons on pallets and cover to prevent water damage. For best results, store membrane above 50°F (10°C) prior to application.

Precautions

- The Liquid Adhesive is an industrial coating and would be harmful or fatal if swallowed. It is marked as red label from the standpoint of flash point.
- Prohibit flames, sparks, welding and smoking during application.
- Refer to product label for handling, using and storage precautions.
- Solvents could be irritating to the eyes; flush with water and contact physician.
- Avoid prolonged contact with skin and breathing of vapor or spray mist from liquid adhesive. In confined areas, use adequate forced ventilation, fresh air masks, explosion-proof equipment and clean clothing.
- Avoid solvent contact with light bulbs or other high temperature surfaces.

Ultraviolet Protection

650 Membrane is adversely affected by ultraviolet light. Cover the waterproofing system as soon as possible; DO NOT leave exposed to sunlight for over 30 days.

SAFETY

SDS documents for all Polyguard products can be obtained at our website www.polyguard.com. Call Polyguard Products, Inc. at (214) 515-5000 with questions.

WARRANTY

We, the manufacturer, warrant only that this product is free of defects, since many factors which affect the results obtained from this product are beyond our control; such as weather, workmanship, equipment utilized and prior condition of the substrate. We will replace at no charge product proved to be defective within twelve (12) months of purchase, provided it has been applied in accordance with our written directions for uses we recommended as suitable for this product. Proof of purchase must be provided.

TECHNICAL SERVICES

Technical assistance, information and Polyguard's products are available through a nationwide network of distributors and architectural representatives, or contact Polyguard Products, Inc.
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PROPERTY	TEST METHOD	TYPICAL VALUE
FILM COLOR		Blue/White
MEMBRANE THICKNESS	ASTM D 1000	60 mils
TENSILE STRENGTH, MEMBRANE	ASTM D 412 Modified Die C	M-805 PSI T-846 PSI
ELONGATION - ULTIMATE FAILURE OF RUBBERIZED ASPHALT	ASTM D 412 Modified Die C	M-323% T-503%
TENSILE STRENGTH, FILM	ASTM D 882	7294 PSI
PERMEANCE	ASTM E 96 Method B	0.022 Perms
CRACK CYCLING	ASTM C 836 Tested @-15° F (-26° C)	No effect
PEEL ADHESION (TO CONCRETE)	ASTM D 903	17 lbs./in. width
PEEL ADHESION (LAPS – MEMBRANE TO MEMBRANE)	ASTM D 903	19 lbs./in. width
LAP PEEL ADHESION	ASTM D 1876	8.0 lbs./in. width
LOW TEMPERATURE FLEXIBILITY (-20° F)	ASTM D 1970 Modified	Pass
PLIABILITY	ASTM D 146 180° bend over 1" mandrel at -25° F (-32° C)	No effect
PUNCTURE RESISTANCE - MEMBRANE	ASTM E 154	69 lbs.
RESISTANCE TO HYDROSTATIC HEAD	ASTM D 5385	231 ft.
EXPOSURE TO FUNGI IN SOIL	GSA-PBS 07115 (16 weeks)	No effect
WATER ABSORPTION	ASTM D 570	0.1%

PACKAGING	PART NUMBER	UNIT SIZE
Polyguard 650 MEMBRANE – 36"	650L36	36" x 66.7' roll
Polyguard 650 MEMBRANE – 48"	650L48	48" x 50' roll
Required Accessories:		
DETAIL TAPE	650L12	12" x 50' rolls (4/ctn)
650 LT LIQUID ADHESIVE	650-5 LIQ ADH 5 GA	5-gallon pail
650 LT LIQUID ADHESIVE	650-5 LIQ ADH 1 GA	4 – 1 gal pails/ctn
650 WB LIQUID ADHESIVE	PG.650.WB.5	5-gallon pail
CALIFORNIA SEALANT	CALSEAL5	5-gallon pail
LM-85 SSL	LM85-2 SSL	2-gallon pail
LM-85 SSL	LM85-5 SSL	5-gallon pail
LM-95	LM952	2-gallon pail
DETAIL SEALANT PW™	DETAIL SEALANT PW – SAU 20 OZ	20 sausages/ctn
Drainage Accessories:		
POLYFLOW® BD (For Balcony Applications Only)	POLYFLOWBD	4' x 50' roll
POLYFLOW® 15	POLYFLOW15	4' x 50' roll
POLYFLOW® 15P	POLYFLOW15P	4' x 50' roll
POLYFLOW® 18	POLYFLOW18	4' x 50' roll
TOTALFLOW™	TOTAL FLOW	24" x 50' roll
TOTALFLOW™ END OUTLET (4")	OUTLET4-UNIV	sold each
TOTALFLOW™ TEE OUTLET (4")	TEE4-UNIV	sold each

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