

## 650 TRM - For Concrete Foundations

Termite Waterproofing Barrier

### MANUFACTURER

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### PRODUCT DESCRIPTION

#### Basic Uses

Since 2002, hundreds of foundations across the United States have been protected with our 650 TRM to exclude both water and termites. 650 TRM is a "peel and stick" barrier membrane used on concrete, plywood & OSB.

Polyguard waterproofing membranes have been used worldwide on both commercial and residential construction since 1970. Research and testing of termite and pest exclusion, in cooperation with scientists at Texas A&M's Urban and Structural Entomology Laboratory, began in 1999. Today, 650 TRM is a key part of a building envelope system for waterproofing and termite exclusion.

### PRODUCT FEATURES

- The only physical termite barrier with over 2 decades of university backed testing. TRM has been evaluated by the ICC (International Code Council) against their AC 308 standard Acceptance Criteria for Termite Physical Barrier Systems.
- Strong, pliable, self-adhesive sheet.
- 4-mil high density polyethylene film bonded to 64 mils of barrier sealant = 68 mils thick.
- Formulated for low temperature application down to 30°F (-1°C).
- No waiting is required before backfilling. Backfill material should be dry sand or dry soil dirt. Backfill can also be drainage gravel as long as Polyguard's Polyflow® 15P is used.
- 30-day UV exposure.

### COMPOSITION & MATERIALS

650 TRM is a strong, pliable, self-adhesive sheet made of a 4-mil high-density polyethylene film bonded to 64 mils of barrier sealant. 650 TRM is formulated for low temperature application down to 30°F (-1°C). It is wound on a disposable treated release sheet which can be peeled away to expose the adhesive face.

### REFERENCES

There are several ways in which LEED credits might be earned by incorporating TRM Barrier System components into the structure.

Increasingly, LEED has incorporated Integrated Pest Management (IPM) into standards.

LEED calls for IPM protocols to "*minimize pest problems and exposure to pesticides*".

A key IPM element is "*Non-chemical pest preventative measures.....designed into the structure....*". TRM Barriers are non-chemical pest preventative measures.

LEED rating systems for homes incorporate (SSC5) "*Non-toxic pest control*". Two components found in the TRM Barrier System are mentioned; they are steel mesh and sand barriers. Both are used as termite barriers.

TRM Sealant / membranes are not mentioned, as they are only now entering the field for sustainable construction alternatives.

The incorporation of TRM Sealant / membranes into the building envelope should be a strong candidate for Innovation credit.

Finally, if the project site is former agriculture land with residual pesticide contamination, TRM Barriers may qualify under LEED IAQ Credit 5 - Indoor Chemical and Pollutant Source Control (below grade toxin barrier) or SS3 - Brownfield redevelopment.

### TECHNICAL DATA

See physical properties table.

### INSTALLATION

**Preparation:** Apply 650 TRM only in fair weather, with temperatures above 30°F (-1°C) and rising. If water base primer is to be used, temperatures must be above 40°F (5°C).

Prior to starting work, check that all horizontal surfaces slope towards drainage. This material is not designed to be applied in areas where water will pond.

A smooth monolithic concrete surface is required. Broom surfaces are not recommended. Concrete should be dry, frost free and cured a minimum of seven days prior to application of 650 TRM and liquid adhesive. Surface must be free of voids, spalled areas, sharp projections, loose aggregate, and form release agents. Concrete curing compounds containing oil, wax or pigments should not be used.

Form-release agents must be self-dissipating which will not transfer to the 650 TRM barrier. Surface defects such as cracks, holes or cavities should be filled and finished flush with a Portland cement grout or concrete. Top surfaces of projecting ledges, below grade, except footings, should be finished to a bevel with Portland cement mortar. Concrete block walls or brick require a well adhered parge coat before application of barrier. 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 liquid adhesive or 650 TRM to frozen concrete.

Cracks of more than 1/16-inch on horizontal or vertical surfaces should be properly sealed in accordance with sealant manufacturer's instruction and pre-stripped with a 12-inch-wide strip of 650 TRM or Detail Sealant PW™.

Cold joints, T-Joints should be properly sealed with joint fillers, waterstop or sealant. A 12-inch (305 mm) strip should be placed directly over and centered in the crack with the final applied barrier providing double strength at the area of movement.

All expansion joints, contraction joints, evident working cracks and control joints should be properly sealed with joint fillers sealant or expansion joints by others.

An expansion joint cover consisting of an inverted 8-inch strip, covered by a 12-inch strip, shall be placed directly over the joint, prior to the final barrier installation.

**Detail Sealant:** Apply fillets formed by Polyguard's Detail Sealant PW™, Polyguard's LM-95, latex modified cement mortar or epoxy mortar at the base of foundation walls and footings. DO NOT use wood, fiber cant strips, or mastic. Fillets of Detail Sealant PW should be applied to provide a 3/4-inch face and extend 6-inches vertically and horizontally, 90 mils.

Cover all corners, joints and the base of the foundation wall and footing using a 12-inch-wide strip of 650 TRM centered along the axis. Press or roll firmly to achieve a complete seal. Apply a second layer of 650 TRM. Detail Sealant PW may be substituted for the initial 12-inch-wide barrier strip on inside corners.

Pretreat inside corners with Detail Sealant PW at 6-inches in each direction from corners and form a fillet with Detail Sealant PW and apply a 12-inch strip of 650 TRM centered on the corners.

Detail Sealant PW may be substituted for the initial layer of sheet barrier on drains and protrusions by applying a 90-mil thick layer from the drain or protrusion out and extending 6-inches underneath sheet barrier. Apply Detail Sealant PW vertically to be level with height of wearing surface. Flash drains and projections with a second layer of 650 TRM for a distance of 6-inches from drain or projection. Seal all terminations with Detail Sealant PW, LM-95 or TRM Sealant.

**Priming:** Priming can be done using Polyguard's 650 LT Liquid Adhesive, California Sealant or 650 WB Liquid Adhesive. If using 650 LT Liquid Adhesive or California Sealant be certain to review our safety information and the SDS. 650 WB Liquid Adhesive is to be used only for temperatures above 40°F (5°C).

Stir liquid adhesive before use. If using 650 LT Liquid Adhesive or California Sealant, apply at a rate of 250-350 square feet per gallon. If using 650 WB Liquid Adhesive, apply at a rate of 350-400 square feet per gallon. Primed surfaces must be re-primed if 650 TRM is not applied to the Liquid Adhesive within the same working day. Use brush or lamb's wool roller for application. 650 WB Liquid Adhesive can also be applied using airless or air assisted sprayer. Liquid Adhesive must be dry prior to application of barrier. Liquid Adhesive retains a tacky adhesive surface.

Primed surfaces should be immediately covered or protected to prevent contamination of the Liquid Adhesive. Metal surfaces may require Liquid Adhesive to obtain bond of barrier to substrate. Field test to determine adhesion. Surface must be free from contaminants.

**Membrane Installation:** 650 TRM must be overlapped. Side laps must be a minimum of 2-1/2-inches. Staggered end laps should be minimum 6-inches.

When applying 650 TRM on vertical walls, a determined effort must be made to assure complete adhesion of barrier to the primed surface. Hand roll overlap seams with a wall type narrow roller. Use heavy hand pressure while smoothing out the barrier surface, as it is applied.

On horizontal surfaces, apply 650 TRM from low to high pitch for maximum drainage. Use linoleum roller or water filled garden roller, covered with two plies of indoor- outdoor carpet to roll barrier immediately after application, with special attention at overlaps and "T- Joint". Seal all end laps with Detail Sealant PW™.

It is recommended that when vertical sections of more than 8-feet are to be protected, 650 TRM should be applied in sections no longer than 8-feet, starting from the lower foundation base and rising to the top with the 6-inch overlap, shingling down on each layer of barrier.

650 TRM should be applied over the edge of the footing at the foundation base with the 6-inch overlap, shingling down on each layer of barrier.

Terminations on vertical surface use a termination bar, reglet, or counter flashing. The terminated edge should be pressed firmly with a silicone roller and protected from water with a troweled bead of Detail Sealant PW™, LM-95 or TRM Sealant.

**Flashing:** Finish vertical wall barrier on top edge under flashing or in reglet. Seal T-Joints and terminations with a troweled bead of Detail Sealant PW™ or TRM Sealant.

Care should be taken to obtain good adhesion between barrier used for repairs and originally applied barrier.

**Terminations:** Detail Sealant PW™, LM-95 or TRM Sealant or should be applied at all terminations at the end of each day's work.

**Inspections and Repairs:** Visually inspect 650 TRM for tears, punctures, air blisters and "fishmouths", prior to water tests, placement of protection board and backfilling. Make repairs by removing all damaged 650 TRM so that only well bonded barrier remains. Re-prime any exposed concrete. After Liquid Adhesive is dry, apply a new sheet of 650 TRM over the concrete, extending 6-inches onto previously applied barrier. Slit all "fishmouths", overlap the pieces, place patch over area and roll or press in place. Puncture air blisters, expel the air, prime and cover with patch. Seal edges with Detail Sealant PW or TRM Sealant.

#### **Ultraviolet Protection:**

650 TRM can be adversely affected by ultraviolet light. The barrier material must be covered as soon as possible and not left open to sunlight for >30 days.

650 TRM left exposed on top of foundation walls or parapets should be covered with weather resistant flashing.

**Membrane Protection and Drainage Mat:** Polyguard's Polyflow® 15-P Drainage Protection/Drainage Mat with built in puncture protection for vertical surfaces is required. This helps keep the structure dry and makes it less attractive to foraging termites.

Drainage systems should be designed with pipe sizes large enough to prevent water accumulation against the foundation. Perforated pipe should be covered with fabric to prevent fines or dirt from plugging perforations. Pipe should be of sufficient strength to prevent deformation due to soil weight or movement. Consideration should be given to provide drain outlets to the interior of the building when the water table level is above the base of the waterproofing barrier.

**Backfill:** No waiting is required before backfilling. Backfill material should be dry sand or dry soil dirt as following:

- Fill material free of large dirt clods, rock, tree roots and debris.
- Backfill should be of a type readily compactable.
- It should be placed against the drainage mat in 6-inch to 8-inch compacted layers to avoid vertical settlement.
- Backfill should not have a high-water content that would cause soil to shrink upon drying.
- Mechanical compaction in horizontal layers should be used to achieve these results if necessary.
- Avoid sharp impact to the drainage mat.

#### **MAINTENANCE**

No maintenance should be required unless the product has been damaged by construction or by some other activity.

#### **LIMITATIONS**

When properly installed, TRM Barrier products will physically block termites from entering the structure at the protected area but will not block termites from entering at other points on the structure. Installing more TRM components blocks more termite entry points but does not guarantee protection in areas the TRM products are not applied.

Polyguard's TRM System has been extensively tested, both in the laboratory and in long term field trials at multiple sites, against *Reticulitermes flavipes* and *Coptotermes formosanus* subterranean termites, which can be said to be the most voracious insects in the United States measured in terms of property damage.

There are numerous other termite species worldwide, not known to be present in the United States, which are equally or more voracious than the U.S. species which were tested. A limited amount of testing outside of the United States has been done or is in progress. Contact Polyguard for up-to-date information about non-domestic testing.

Purchaser is responsible for complying with all applicable federal, state, or local laws and regulations covering use of the product, including waste disposal.

## STORAGE

All Polyguard products must be handled in a safe manner. Some products may contain solvents, and these deserve special attention to safety since their vapors are both flammable and harmful if inhaled. Read both the product label and the Safety Data Sheet (SDS) before use.

## SAFETY

SDS documents for all Polyguard products can be obtained at our website [www.polyguard.com](http://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
COLOR	-	Red / White
MEMBRANE THICKNESS	ASTM D 1000	68 mils
LONG TERM TESTING AGAINST TERMITE PENETRATION	ICC AC 380	ICC AC 380 Compliance <a href="#">ICC ESR-3632</a>
ELONGATION OF BARRIER SEALANT – PERCENT STRETCH BEFORE FAILURE	ASTM D 412	> 1000%
PESTICIDE REPELLENCY (CHLORDANE, FIPRONIL, PERMETHRIN)	ASTM F 2130	0% penetration
PERMEANCE TO MOISTURE / WATER VAPOR	ASTM E 96-B	0.03 Grains/ft <sup>2</sup> /hr./in
TENSILE STRENGTH – FILM BACKING	ASTM D 882	44.82 PSI
TENSILE STRENGTH – BARRIER COMPOSITE	ASTM D 412 (Modified Die C)	325 PSI
WATER ABSORPTION	ASTM D 570	0.1%
PEEL ADHESION	ASTM D 1000	10.0 lb./in width
OVERLAP BOND	ASTM D 1000	8.0 lb./in width
LOW TEMPERATURE FLEXIBILITY	ASTM D 146 180° bend over 1" mandrel @ -25°F (-32°C)	No cracking or delamination
BARRIER PUNCTURE RESISTANCE	ASTM E 154 (Blunt Instrument)	50 lb.
RESISTANCE TO HYDROSTATIC HEAD	ASTM D 5385	231 ft.

PACKAGING	PART NUMBER	UNIT SIZE
<b>650 TRM</b>	TERMFOUND36	36" x 66.7' roll
<b>650 TRM Accessories:</b>		
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	650-5 WB ADH	5-gallon pail
CALIFORNIA SEALANT	CALSEAL5	5-gallon pail
DETAIL SEALANT PW™	DETAIL SEALANT PW - SAU 20 OZ	20 sausages/ctn
LM-95	LM952	2-gallon pail
TRM SEALANT - Quart	TERMSEAL Q	4 – 1 qt/ctn
TRM SEALANT - Gallon	TERMSEAL GALLON	4 – 1 gal/ctn
<b>Drainage Accessories:</b>		
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	OUTLET4-UNIV	sold each
TOTALFLOW TEE OUTLET	TEE4-UNIV	sold each

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