



01-1451

**Date:** 8/13/2025

**Submittal No:** 09

**Project:** Fletcher ES Mod. Classroom Building  
BP# 02 Building & Site Concrete  
9801 Highland Knolls Dr.  
Bakersfield, CA 93306

**Owner:** Bakersfield City School District  
1300 Baker St.  
Bakersfield, CA 93305

**Architect:** Ordiz Melby Architects, Inc.  
5500 Ming Ave. Ste. 280  
Bakersfield, CA 93309

**Contractor:** JTS Construction  
P.O. Box 41765  
Bakersfield, CA 93384-1765

**Subcontractor:** N/A

**Submittal:** Damp Proofing & Waterproofing

**Contractor's Stamp**  
JTS CONSTRUCTION  
BY: Omar Cabral  
DATE: 08/13/2025  
REVIEWED/RESUBMIT

<input checked="checked" type="checkbox"/>	REVIEWED	<input type="checkbox"/>	NOT ACCEPTABLE
<input type="checkbox"/>	REVISE AND RESUBMIT	<input type="checkbox"/>	FOR RECORD ONLY
<input type="checkbox"/>	REVIEWED AND CORRECTED		

The review of Shop Drawings and/or Submittals is only for conformance with the design concept of the Project and compliance with the information given in the contract documents. Contractor is responsible for dimension confirmation and correlation at the job site, for information that pertains solely to the fabrication processes or to techniques of construction, and for coordination of the work of all trades involved in the project. The review of these Shop Drawings and/or Submittals does not relieve the Contractor from compliance with the Contract Documents.

**Ordiz-Melby Architects, Inc.**

BY Muhammad M. Melby DATE 08/15/2025



# 650 WB Liquid Adhesive

## PRODUCT OVERVIEW



650 WB Liquid Adhesive is a water-based, low-tack adhesive which is specifically formulated to provide excellent adhesion. 650 WB Liquid Adhesive will be pink color in appearance.

- Apply to clean and dry poured-in-place concrete, concrete masonry block (CMU), precast concrete, and/or Insulated Concrete (ICF) wall surfaces to prime/condition them to be suitable for the application of Polyguard Residential Self-Adhering Sheet Membranes and Self-Adhering Sheet Flashing Membranes
- Easy to install via roller or brush
- Designed to be used in ambient temperatures and surface temperatures between 40°F (5°C) and 120°F (49°C)
- Available in 1 and 5 gallon sizes
- Coverage area up to 400 SF/Gal depending on wall surface porosity and texture

REV062824





## 650 TRM - For Concrete Foundations

Termite Waterproofing Barrier

### MANUFACTURER

Polyguard Products, Inc.  
Ennis, TX 75119  
(214) 515-5000  
[www.polyguard.com](http://www.polyguard.com)

### 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.  
P.O. Box 755, Ennis, TX 75120-0755  
Sales: (615) 217-6061 • Tech Support: (214) 515-5000  
Email: [archtech@polyguard.com](mailto:archtech@polyguard.com)  
Website: [www.polyguard.com](http://www.polyguard.com)

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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## SECTION 07 13 26

### SELF-ADHERING SHEET WATERPROOFING WITH TERMITE BARRIER (650 TRM SYSTEM)

\*\*\*\*\*  
*This guide specification has been prepared by Polyguard Products Inc., in printed and electronic media, as an aid to specifiers in preparing written construction documents for self-adhering sheet membranes. Polyguard® 650 TRM is a strong, pliable, self-adhesive sheet consisting of a 4-mil, high-density polyethylene (HDPE) backing bonded to 64 mils of rubberized asphalt waterproofing compound. 650 TRM is formulated for low temperature application down to 30°F (-1°C). 650 TRM is used to exclude both water and termites.*

*Edit entire master document to suit project requirements. Modify or add items as necessary. Delete items which are not applicable. Words and sentences may contain choices to be made regarding inclusion or exclusion of a particular item or statement. This section may include performance-, proprietary-, and/or descriptive-type specifications. Edit to avoid conflicting requirements. Editor notes to guide the specifier are included between lines of asterisks to assist in choices. Remove these editor notes before final printing of specification.*

*This guide specification is written around the Construction Specifications Institute (CSI) Section Format standards.*

*For specification assistance on specific product applications, please contact our offices or any of our local product representatives throughout the country.*

*Polyguard Products Inc. reserves the right to modify these guide specifications at any time. Updates for this guide specification will be posted on the manufacturer's web site and/or in printed media as they occur. Manufacturer makes no expressed or implied warranties regarding content, errors, or omissions in the information presented.*

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Surface preparation.
- B. Application of self-adhering waterproofing and insect barrier membrane system.
- C. Accessory Products

##### 1.02 RELATED SECTIONS

\*\*\*\*\*  
*Specifier Notes: Edit the list of related sections as required for the project. List other sections dealing with work directly related to this section.*

- A. Section 03 30 00 – Cast-in-Place Concrete
- B. Section 04 20 00 – Unit Masonry
- C. Section 07 11 00 – Dampproofing
- D. Section 07 13 00 - Underslab Sheet Waterproofing with Non-Pesticide Termite Barrier
- E. Section 07 13 26 - Self-Adhering Sheet Waterproofing with Termite Barrier
- F. Section 07 60 00 – Flashing and Sheet Metal
- G. Section 07 92 00 – Joint Sealants



- H. Section 07 95 00 – Expansion Control
- I. Section 31 31 16 - Pest Control Barriers.
- J. Section 33 46 00 – Subdrainage

### 1.03 REFERENCES

- A. International Code Council (ICC):
  - 1. AC 380 Acceptance Criteria for Termite Physical Barriers – Evaluation Report demonstrating five-year multi-site field trial against Formosan termites, with zero failures, plus other criteria.
- B. ASTM International (ASTM):
  - 1. ASTM D 146 – Standard Test Methods for Sampling and Testing Bitumen-Saturated Felts and Fabrics Used in Roofing and Waterproofing.
  - 2. ASTM D 412 – Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension.
  - 3. ASTM D 570 – Standard Test Method for Water Absorption of Plastics.
  - 4. ASTM D 882 – Standard Test Method for Tensile Properties of Thin Plastic Sheeting.
  - 5. ASTM D 1000 – Standard Test Methods for Pressure-Sensitive, Adhesive-Coated Tapes used for Electrical and Electronic Applications.
  - 6. ASTM D 1876 – Standard Test Method for Peel Resistance of Adhesives.
  - 7. ASTM D 5385 – Standard Test Method for Hydrostatic Pressure Resistance of Waterproofing Membranes.
  - 8. ASTM E 96 (Method B) – Standard Test Method for Water Vapor Transmission of Materials.
  - 9. ASTM E 154 – Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs, on Walls, or as Ground Cover.
  - 10. ASTM F 2130 – Measuring Repellency, Retention, and Penetration of Liquid Pesticide Formulation Through Protective Clothing Materials.
- C. General Services Administration:
  - 1. Public Building Service: GSA-PBS-07115 Guide Specification for Elastomeric Waterproofing

### 1.04 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data:
  - 1. Manufacturer's product data, installation instructions, use limitations and recommendations. Include certification of data indicating VOC (Volatile Organic Compound) content of all components of barrier system.
  - 2. Proof of long-term termite resistance. Submit a copy of ICC ESR Evaluation Report showing compliance with AC 380 – International Code Council - Acceptance Criteria for Termite Physical Barriers demonstrating five-year multi-site-controlled field trial against Formosan termites with zero failures, plus other criteria.
  - 3. Preparation instructions and recommendations.
  - 4. Storage and handling requirements and recommendations.
  - 5. Typical installation methods.
- 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. Shop drawings: Include details of materials, construction, and finish. Include relationship with adjacent construction.
- E. Sustainable Design Submittals: LEED v4.
  - 1. EA prerequisite and credit – Energy Performance:
    - a. Indicate how this material can improve energy conservation.
  - 2. MR credit - Regional Materials and Recycling content:
    - a. Indicate percentage of materials recycled pre-consumer.



- b. Indicate percentage of materials recycled post-consumer.
  - c. Indicate percentage of materials sourced within 100 miles of the manufacturing facility.
- 3. MR credit – Building Product Disclosure and Optimization:
  - a. Indicate whether the building product(s) have published a complete Health Product Declaration (HPD) with full disclosure of known hazards to at least 0.1 percent (1000 ppm) in compliance with the Health Product Declaration Open Standard addressing all components of the system.
- 4. EA prerequisite and credit – Energy Performance:
  - a. Indicate how this material can improve energy conservation.
- 5. MR credit: Construction and Demolition Waste Management:
  - a. Indicate what portion of the building product is recyclable in areas where there is facility to recycle.
  - b. For each recyclable material listed in 5.a above, list its weight.
- 6. EQ credit – Low Emitting Materials:
  - a. For each building product material used on the interior of the structure, and applied on site, list the VOC content and where the material is applied.
  - b. For each building product material used on the exterior of the structure, and applied on site, list the VOC content and where the material is applied.
- 7. IN credit - Innovation – Interior Wellness and Comfort:
  - a. Provide test results documenting the ability of product to physically block termite access into a structure, thus reducing the usage of pesticides.
  - b. Provide details of why the product can increase long-term comfort or interior wellness of the building occupants.
- 8. IN credit – Innovation - Indoor Integrated Pest Management:
  - a. LEED v4 standards call out the implementation of IPM (Integrated Pest Management). Typical LEED wording in IPM guidelines is “Nonchemical pest preventive measures, either designed into the structure or implemented as part of pest management activities. Describe the area(s) of the building envelope where this building product will provide protection against entry of insects.
- 9. LEED v4 for Homes – SS credit - Nontoxic Pest Control - Pest Control Alternatives:
  - a. Provide documentation of the ability of product to physically block termite or other pest access into structure.
- 10. LEED v4 for Homes – EA credit – Air Infiltration:
  - a. Provide details of how the building product will reduce air infiltration to the structure.

#### 1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Barrier System Sheet Membrane must be manufactured by a company with a minimum of ten (10) years of experience in the production and sales of membrane waterproofing materials.
- B. Applicator Qualifications: A firm having at least three (3) years of 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.

#### 1.06 PRE-INSTALLATION CONFERENCE

- A. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Manufacturer’s Representative, Contractor, and trades involved. Agenda shall include schedule, responsibilities, critical path items, approvals, and to establish procedures and to review conditions, installation procedures and coordination with other related work. Review the details and waterproofing specifications.



## 1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- B. Store materials in a clean, dry area in accordance with manufacturer's instructions.
- C. Store adhesives at temperatures of 40° F (5°C) and above to facilitate handling.
- D. Store barrier membrane cartons on pallets.
- E. Do not store at temperatures above 90 degrees F (32 degrees C) for extended periods.
- F. Keep away from sparks and flames.
- G. Completely cover when stored outside. Protect from rain.
- H. Protect materials during handling and application to prevent damage or contamination.
- I. Avoid use of products which contain tars, solvents, pitches, polysulfide polymers, or PVC materials that may come into contact with waterproofing membrane system.

## 1.08 PROJECT CONDITIONS

- A. Perform work 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 (-4°C) or to a damp, frost covered, or otherwise contaminated surface.
- B. Proceed with installation only when substrate construction and preparation work is complete. If necessary, ensure that subsoil is approved by architect or geotechnical firm.
- 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 use of spark-producing equipment 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. Manufacturer warrants 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, proven defective product 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. A five (5) year material or system warranty may be available upon request. Contact Polyguard Products, Inc. for further details.

## PART 2 PRODUCTS

### 2.01 MANUFACTURER

- A. Polyguard Products Inc. P.O. Box 755 Ennis, TX 75120-0755; Phone: (214) 515-5000  
Email: [info@polyguard.com](mailto:info@polyguard.com)



## 2.02 SYSTEM MATERIALS

- A. Basis of Design: Self-adhesive Waterproofing Membrane: Polyguard® 650 TRM, a 68-mil rubberized-asphalt barrier consisting of a high-density polyethylene film bonded to a layer of rubberized asphalt meeting or exceeding the following requirements:

### PHYSICAL PROPERTIES

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/ft²/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.

## 2.03 SYSTEM ACCESSORIES

### A. Surface Primer Roller-Grade Adhesive:

1. Polyguard® 650 LT Liquid Adhesive (not suitable for ICF): A rubber-based, tacky adhesive which is specifically formulated to provide excellent adhesion.
2. Polyguard® California Sealant (not suitable for ICF): A rubber-based sealant which is specifically formulated to provide excellent adhesion. The VOC (Volatile Organic Compound) content meets the South Coast Air Quality Management District regulations established under the February 1, 1991 version of Rule 1168 ©) (2) Adhesion and Sealant Applications. California Sealant is classified as an Architectural Sealant Primer Porous, with VOC of 527 g/L. Current SCAQMD regulations for this type sealant primer are 775 g/L.
3. Polyguard® 650 WB Liquid Adhesive (suitable for ICF): A water-based, rubber-based adhesive which is specifically formulated to provide excellent adhesion.

### B. Sealant:

1. Polyguard® Detail Sealant PW™: A single-component, STPE, 100% solid moisture-cured, elastomeric sealant. It is an environmentally friendly, non-isocyanate product that replaces silicone and urethane sealants. It is also a low VOC / HAPS-free, cold-applied, self-adhesive, elastomeric sealant.
2. Polyguard® TRM Sealant: A single-component, STPE, 100% solid moisture-cured, elastomeric sealant. It is an environmentally friendly, non-isocyanate product that replaces silicone and urethane sealants. It is also a low VOC / HAPS-free, cold-applied, self-adhesive, elastomeric sealant.

C. Liquid Membranes:

1. Polyguard® LM-95 Liquid Membrane: A two-component, asphalt-modified, urethane.

D. Drainage Composite:

1. Polyguard® BD Drainage Mat (for balcony applications only): A sheet molded drainage for balcony decks with less than 3-inches of concrete and foot traffic only. It is manufactured with a geocomposite of a formed impermeable polymeric core covered on one side with a non-woven filter fabric that allows water to flow to designated drainage exits.
2. Polyguard® Polyflow® 15 Drainage Mat: Two-part, prefabricated, geocomposite drain consisting of a formed polymeric core covered on one side with polymeric filter fabric. The fabric allows water to pass into the drain core while restricting the movement of soil particles which might clog the core. The core allows water to flow to designated drainage exits.
3. Polyguard® Polyflow® 15 Drainage Mat: Two-part, prefabricated, geocomposite drain consisting of a formed polymeric core covered on one side with polymeric filter fabric. The fabric allows water to pass into the drain core while restricting the movement of soil particles which might clog the core. The core allows water to flow to designated drainage exits.
4. Polyguard® Polyflow® 18 Drainage Mat: Two-part, prefabricated, geocomposite drain consisting of a formed polymeric core covered on one side with woven mono-filament filter fabric. The fabric allows water to pass into the drain core while restricting the movement of soil particles which might clog the core. The core allows the water to flow to designated drainage exits.
5. Polyguard® Totalflow™: Totalflow is a combination of our Polyguard sheet drain products with our unique Totalflow™ product. In the Totalflow™ system, the sheet drain performs its normal function of water collection, while the Totalflow™ section provides both water collection and a high-profile section allowing for high-capacity water flow to designated drainage exits.

E. Universal Fittings:

1. Polyguard® Totalflow™ Tee Outlet: A formed polymeric connection fitting to aid the collected water into a pipe drainage system.
2. Totalflow™ End Outlet: A formed polymeric connection fitting to aid the collected water into a pipe drainage system.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine surfaces to receive self-adhering membrane. Notify the general contractor if surfaces are not acceptable. Do not begin surface preparation or application until unacceptable conditions have been corrected.

3.02 SURFACE PREPARATION

- A. Protect adjacent surfaces not designated to receive waterproofing.
- B. Clean surfaces to receive waterproofing in accordance with manufacturer's instructions.
- C. Do not apply waterproofing to surfaces unacceptable to manufacturer.
- D. Concrete surfaces must be clean, smooth, and free of standing water.
- E. Patch all holes and voids and smooth out any surface misalignments.
- F. If the surface is ICF, clean all dust off of the ICF surface.



#### G. Cast-In-Place Concrete:

1. 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. Fill all form tie holes. Finish flush with the surrounding surface.
2. Fill and repair cracks, single bug holes of 1/2-inch or greater, or cavities in concrete with a Portland cement grout or concrete. Single bug holes can also be filled with Polyguard Detail Sealant PW™ or LM-95 Liquid Membrane. Finish flush with the surrounding surface.
3. 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. Upon cure, install a 12-inch-wide strip of Polyguard® 650 TRM over the crack.

#### H. Masonry Surfaces:

1. Striking off joints flush with surface is also required. Concrete masonry walls or brick with deeply recessed mortar joints require a well-adhered parge coat before application of membrane.

### 3.03 APPLICATION

#### A. Priming:

1. Apply primer to a cleaned, dust free surface. Apply by roller or spray. When applying Polyguard® 650 LT Liquid Adhesive or Polyguard® California Sealant, apply at a rate of 250 – 300 square feet per gallon. When applying Polyguard® 650 WB Liquid Adhesive, apply at a rate of 350-400 square feet per gallon. Allow to dry per manufacturer's directions. Do not prime underneath sealant.

#### B. Membrane Installation - Vertical Surfaces:

1. All inside and outside corners shall be treated either with a 12-inch-wide strip of 650 TRM centered along the vertical axis, or by applying a 90-mil thick application of Polyguard® Detail Sealant PW™ or Polyguard® LM-95 Liquid Membrane.
2. Install a 3/4-inch, 45-degree angle cant (fillet) of Polyguard® Detail Sealant PW™ or Polyguard® LM-95 Liquid Membrane at all changes in plane including inside corners to 6" vertically and horizontally beyond the cant (fillet). Do not use wood or fiber cant strips.
3. Waterproofing membrane should be applied vertically in sections of 8 feet in length or less. When vertical walls sections of more than 8-feet are to be waterproofed, apply 650 TRM 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.
4. Side laps should be 2-1/2 inches minimum and staggered end laps should be 6 inches minimum.
5. Use a hard roller or firmly press in the material as it is placed on the vertical surface.
6. 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 cut edges of all terminations must be sealed with Polyguard® Detail Sealant PW™ or Polyguard® LM-95 Liquid Membrane.
7. 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.
8. All terminations of the membrane should receive a troweled bead of Polyguard® Detail Sealant PW™, LM-95 Liquid Membrane to a flat surface approximately 1/8-inch thick by 3/4-inch wide.
9. Inadequately lapped seams and damaged areas should be patched with Polyguard® Detail Tape. Patched areas should extend at least 6 inches in each direction beyond the defect.

10. Fishmouths and/or severe wrinkles should be slit, flaps overlapped, and repaired.

C. Membrane Installation – Horizontal Surfaces:

1. All inside and outside corners shall be treated either with 12-inch strips of 650 TRM or a 12-inch wide by 90-mil thick application of Polyguard® Detail Sealant PW™ or Polyguard® LM-95 Liquid Membrane. The field membrane should be centered over the corner. All inside corners shall have a minimum 3/4-inch fillet of Polyguard® Detail Sealant PW™ or Polyguard® LM-95 Liquid Membrane or latex modified cement mortar.
2. Apply waterproofing membrane to the primed surface starting at the low point and working to the high point in a shingling technique for maximum drainage.
3. Side laps should be 2-1/2 inches minimum and staggered end laps should be 6-inches minimum. Refer to Polyguard slope and/or zero-slope applications for Balconies and proper lap adhesion requirements.
4. Firmly roll the entire membrane with a minimum 75 lb. linoleum roller immediately after application. This will ensure excellent adhesion and minimize air pockets between the substrate and membrane.
5. 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 650 TRM 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® Detail Sealant PW™ or Polyguard® LM-95 Liquid Membrane.
6. At drains, apply Polyguard® Detail Sealant PW™ or Polyguard® LM-95 Liquid Membrane around the inside edge of the drain out onto substrate at least 6 inches then overlap with sheet membrane a minimum of 6 inches. Seal all permanently exposed cut edge terminations with Polyguard® Detail Sealant PW™ or Polyguard® LM-95 Liquid Membrane.
7. Membrane turned up on walls shall be terminated. Firmly press the terminated edge with a hand roller and protect with a troweled bead of Detail Sealant PW or LM-95 Liquid Membrane.
8. Inadequately lapped seams and damaged areas should be patched with additional membrane. Extend patch at least 6 inches beyond the defect.
9. Slit all "fishmouths," overlap the pieces, place patch over area and roll in place. Air blisters are typically caused by exposure and heat; this condition will subside as the sun no longer heats the membrane. This condition does not need attention unless blisters are large or excessive, softball size, and do not dissipate. Puncture large air blisters, expel the air, prime and cover with patch. Extend the patch material at a minimum of 6 inches in all directions beyond the repair area, then seal the patch edges with Detail Sealant PW or LM-95 Liquid Membrane.
10. Upon completion of horizontal membrane application, Polyguard recommends a flood test or appropriate leak detection method be completed on 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. Mark any leak areas found during flood test and make repairs.

D. Protection and Drainage Course:

1. Apply protection board and/or drainage composite and perimeter drainage composite in accordance with manufacturer's written directions.

3.04 FIELD QUALITY CONTROL

- A. Field Inspection: Coordinate field inspection in accordance with appropriate sections in Division 01.

**\*\* NOTE TO SPECIFIER \*\*** Include if manufacturer provides field quality control with onsite personnel for instruction or supervision of product installation, application, erection or construction. Delete if not required.

- B. Manufacturer's Services: Coordinate manufacturer's services in accordance with appropriate sections in Division 01.



### 3.05 CLEANING AND PROTECTION

- A. Clean products in accordance with the manufacturers recommendations.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION



# 650 TRM

## PRODUCT OVERVIEW

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 and ICF.

Polyguard waterproofing membranes (without termite exclusion) 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 with waterproofing and termite exclusion.

- The only physical termite barrier with over two decades of university testing and has been evaluated by the ICC (International Code Council) against their AC 380 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.
- 30-day UV exposure.

Property	Test Method	Typical Value
Color		Red/White
Membrane Thickness	ASTM D 1000	68 mils
Long Term Testing Against Termite Protection	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/Vapor	ASTM E 96 Method B	0.03 Grains/ft <sup>2</sup> /hr./in
Tensile Strength, Film	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 lbs./in. width
Overlap Bond	ASTM D 1000	8 lbs./in. width
Low Temperature Flexibility	ASTM D 146 180° bend over 1" mandrel at -25° F (-32° C)	No cracking or delamination
Barrier Puncture Resistance	ASTM E 154 (Blunt Instrument)	50 lbs.
Resistance to Hydrostatic Head	ASTM D 5385	231 ft.

REV121624



Companion Products

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650 LT  
Liquid Adhesive



650 WB  
Liquid Adhesive



California  
Sealant



Detail  
Sealant PW™



LM-95



Polyflow®  
15/15P



Polyflow®  
18



Polyflow®  
BD



Totalflow™



Totalflow™  
End Outlet

Totalflow™  
Tee Outlet

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**polyguard**

3801 S. I-45 - Ennis, TX 75119

214-515-5000

[www.polyguard.com](http://www.polyguard.com)



@polyguardproducts