



# APPLICATION / SPECIFICATION DATA

## ELASTA-TUFF BG-3000-R-60 MIL

### FLUID APPLIED, POLYURETHANE MEMBRANE WATERPROOFING SYSTEM

#### 1. GENERAL

**1.1 Scope:** This specification covers the installation of a VOC-compliant, fluid applied, elastomeric waterproofing membrane system for waterproofing applications involving split slab construction, exterior foundation walls, planter boxes, base slab waterproofing or waterproofing requirements under tile or pavers with a separate mortar bed. This membrane system is designed to form an adhesive bond to the waterproofed substrate in order to prevent lateral water migration between the membrane and base slab or vertical wall while at the same time allowing for normal hairline shrinkage cracking without membrane rupture.

**1.2 Work Included:** Install waterproofing membrane system consisting of caulking, flashing reinforcements or joint reinforcements, TUFFLEX Epoxy Primer-Sealer, ELASTA-TUFF BG-3000 Fluid Applied Membrane, TUFFLEX "PW" woven polyester reinforcing fabric and TUFFLEX approved protection panel or drainage composite. Apply in accordance with these specifications and latest general instructions supplied by TUFFLEX Polymers (TUFFLEX).

**1.3 Work Not Included:** Work under this section shall not include finishing and corrective work in connection with surfaces to receive the liquid-applied coating system. Nor does it include furnishing and installation of metal flashing, drains, vents, ducts, curbs or any other penetration through the deck.

#### 1.4 Condition of Concrete Surfaces:

1.41 The concrete surfaces shall be of sound structural grade (3000 psi compressive strength recommended), of adequate design and thickness, and shall have a steel-troweled followed by a fine broom finish, free of fins, ridges, voids or air entrained holes.

1.42 Concrete shall be cured by water curing method. Curing compounds or chemical curing agents of any type shall not be used unless they will completely dissipate within 28 days.

1.43 Concrete shall be cured at least 28 days and shall be sloped for proper drainage of water off the membrane.

1.44 Saw-cut control joints and/or expansion joints shall have been properly installed over all structural supports in order to control cracking caused by deflection and shrinkage.

1.45 Any required drains, vents, ducts, or other penetrations should be installed at the time the main deck is poured. All exterior metal pans containing concrete fill should be of the "ventilating type" and the venting perforations should be made clean and clear of any foreign material.

1.46 Voids, rock pockets and excessively rough surfaces shall be repaired with UI-7109 epoxy-plus-sand mortar or ground to match the surrounding unrepaired areas.

1.47 All vertical masonry, block or brick surfaces shall have been grouted smooth with an approved cementitious grout and allowed to cure prior to applying primer or membrane coating. An alternate to concrete grouting is to surface the walls with an epoxy block filler.

1.48 All surfaces must be free of visible moisture, grease, dirt and corrosion. Remove all fresh asphalt, resin-based curing compounds, loose scale and any other foreign deposits.

1.49 The prime contractor shall coordinate the work of the plumbing contractor, the concrete contractor and other trades to insure the proper installation of the drain bases and any other plumbing work during the placement of the concrete and to insure that the integrity of the installed membrane is maintained.

#### 1.5 Inspection Requirements:

1.51 Prior to the start of the application work, the surfaces to be coated should be inspected and approved by representatives of the waterproofing membrane manufacturer and the Factory Qualified Applicator. A written notice to the prime contractor or the owner shall be provided to verify the substrate condition.

1.52 The waterproofing contractor shall have sole right of access to the specified areas for the time needed to complete the multi-layered applications and affect an adequate cure. All traffic shall remain

off the membrane until a "water test" has been completed, until the protection layer has been properly installed, and until the prime contractor or owner's representative has accepted and approved the completed waterproofing installation.

#### 2. QUALIFICATIONS

##### 2.1 Waterproofing Applicator:

2.11 Shall be experienced in successfully applying the same or similar materials and shall be specifically approved as a Factory Qualified Applicator in writing by TUFFLEX.

2.12 Shall be financially responsible and be ready and able to submit any required project warranty.

2.13 Shall submit to the prime contractor and the building owner the required certificates of insurance prior to starting the project.

**2.2 Sample Submittals:** Submit samples showing the approximate applied thickness of the waterproofing membrane, the polyester reinforcing fabric, and the proposed protection panel or drainage composite. The submittal shall also include the manufacturer's application-specification sheet and a list of materials by name and quantity to be used on this project in order to demonstrate compliance with these specifications.

#### 3. MATERIALS

The materials shall be delivered to the job site in the original sealed containers bearing the product name, manufacturer's lot number, directions for use and precautionary labels. All products listed are manufactured or supplied by TUFFLEX.

**3.1 Caulking Compound:** Shall be a TUFFLEX approved single component or two-component high performance polyurethane compound.

**3.2 Flashing Reinforcement:** Shall be uncured neoprene sheet at 45-60 mils thickness, woven polyester reinforcing fabric, or as otherwise recommended by the coatings manufacturer.

**3.3 Primer:** Shall be Tuff-Poxy #3, low VOC, solvent based Epoxy-Polyamine, low viscosity, two-component primer/sealer.

**3.4 Membrane:** Shall be ELASTA-TUFF BG-3000, a VOC-compliant, high elongation, moisture cured, modified polyurethane membrane. It shall be supplied in a standard Horizontal Grade with the option for a Vertical Grade additive and shall meet or exceed the following typical properties:

#### ELASTA-TUFF BG-3000 MEMBRANE

PROPERTY	TYPICAL VALUE	TEST METHOD
Color	Black	
Base Rubber	Polyurethane	
Solids Content	92± 2% by Weight	
VOC Content	100 grams/liter	
Flash Point	Above 120°F	
Hardness, Shore A	40 ± 5	ASTM D-2240
Tensile Strength	300 ± 50 psi	ASTM D-412
Ultimate Elongation	500 ± 100 %	ASTM D-412
Tear Strength (without reinforcement)	75 pli	ASTM D-624
Adhesion to Primed Concrete	15 lbs/in	ASTM D-903
Moisture Vapor Transmission @ 60 mils	<0.6 perms	ASTM E-96
Service Temp. Range	-30°F to + 180°F	

**3.5 Specifications and Standards:** The cured ELASTA-TUFF BG-3000 membrane meets the performance requirements of ASTM Specification C 836.

**3.6 Reinforcing Fabric:** Shall be TUFFLEX "PW" woven, high tensile strength, polyester reinforcing fabric.

**3.7 Protection Course:** Shall be a TUFFLEX approved asphalt impregnated Pre-molded Protection Board with a minimum thickness of 1/8 inch or a TUFFLEX approved Geotextile Drainage Composite.

## 4. SUBSTRATE PREPARATION

### 4.1 Concrete Surfaces:

4.11 The concrete surface must be thoroughly clean, dry and free from any surface contaminants or curing compounds. If it is necessary to remove surface contaminants, acceptable methods of cleaning are sandblasting, acid etching or mechanical grinding followed by the complete and thorough removal or any residue.

4.12 All shrinkage cracks over 1/16 inch in width and all moving cracks under 1/16 inch in width shall be routed out to ¼ inch minimum in width and depth and filled flushed with polyurethane elastomeric sealant.

4.13 All cracks, whether caulked or not, shall be stripe-coated with 30 mils of ELASTA-TUFF BG-3000 Membrane extending to 3 inches on either side of the crack. Moving cracks in the structural slab which are 1/16 inch wide or greater should be routed to form a joint and treated and caulked as an expansion or contraction joint.

4.14 Mask and protect all adjacent areas not to be coated.

4.15 Whenever coating over structural concrete containing lightweight aggregate, the entire substrate may need to be sealed by applying VRP-111 Vapor Reduction Epoxy Primer prior to applying the Membrane System.

4.16 Apply a 1 inch cant face strip of polyurethane sealant around all pipes, drains and vertical junctions.

4.17 All expansion and control joints should be cleaned, primed, fitted with a backing rod and caulked with a high performance one-component or two-component polyurethane sealant. Joints shall be stripe-coated with a 30 dry mil preparatory coat of ELASTA-TUFF BG-3000 and may need to be reinforced with uncured neoprene rubber sheet.

## 5. APPLICATION OF MEMBRANE

5.1 When the job site or environmental conditions require, prime all surfaces with Tuff-Poxy #3 Epoxy Primer/Sealer applied at the approximate rate of 300 square feet per gallon.

5.2 After all the primer and preparatory work has been completed the ELASTA-TUFF BG-3000 Membrane should be applied as detailed below.

### 5.3 For Horizontal Surfaces:

5.31 Apply the ELASTA-TUFF BG-3000 liquid membrane by squeegee or roller at the rate of 4.5 gallons of material per 100 square feet of surface to produce a minimum membrane thickness of 60 dry mils (1.5 mm). Two (2) applications are recommended applied at 35 wet mils of membrane per application. Install the TUFFLEX "PW" polyester reinforcing fabric by embedding it into the wet layer of coat # 1. Allow the polyester fabric embedded 1<sup>st</sup> layer of ELASTA-TUFF BG-3000 to cure a minimum of 16 hours before applying the 2<sup>nd</sup> layer of membrane. If the succeeding layer of membrane should become dirty or contaminated, wipe clean with xylene or acetone immediately prior to applying the next application.

5.32 Control application rate by means of premeasured surface areas.

### 5.4 For Vertical Surfaces:

5.41 Thoroughly blend one pint of TUFFLEX 950 Vertical Additive Thickener into a 5-gallon pail of ELASTA-TUFF BG-3000. Allow a short induction period for thickening then apply the ELASTA-TUFF BG-3000 by trowel or heavy duty roller at the rate of 4.5 gallons of material per 100 square feet of surface to produce an average membrane thickness of 60 dry mils (1.5 mm). A minimum of two applications are needed to obtain 60 dry mils of membrane. Install the polyester reinforcing fabric by embedding it into the wet layer of coat #1. Allow the polyester fabric embedded 1<sup>st</sup> layer of ELASTA-TUFF BG-3000 Vertical Grade to cure a minimum of 16 hours before applying the succeeding layers of membrane. If the membrane should become dirty or contaminated, wipe clean with xylene or acetone immediately prior to applying the next application.

5.42 Carefully control application of the ELASTA-TUFF BG-3000 Vertical Grade coating to avoid runs and sags. Control the application rate by means of premeasured surface areas.

## 6. FIELD QUALITY CONTROL

6.1 As the application progresses, and before the ELASTA-TUFF BG-3000 has attained its final set, verify the applied thickness by use of a mil-thickness gauge. To those areas which are deficient, immediately apply additional membrane to produce the required thickness.

6.2 Verify the integrity of the cured membrane on horizontal surfaces by damming the entire area and flooding with water to a minimum depth of 2 inches. Allow the water to set 24 to 48 hours and make visual inspections. Drains should be plugged and barriers placed to contain the water. If repairs are necessary, drain and dry, and then reapply membrane to areas where leakage is detected.

6.3 Prior to installation of the protection course visually inspect all waterproofed vertical areas and all other areas which cannot be water tested for voids, damage, or rupture. Repair as required.

6.4 **Thickness:** The overall dry film thickness of the completed ELASTA-TUFF BG-3000 Waterproofing Membrane, excluding reinforcing fabric, shall be a minimum of 60 dry mils (1.5 mm).

## 7. MEMBRANE PROTECTION

As soon as possible after completion of a successful water test or visual inspection and/or repairs, cover membrane with protection board or geotextile drainage composite as indicated on the project drawings. All horizontal and vertical membrane must be protected. All membrane should be covered or protected within 14 days after application.

## 8. PRECAUTIONS

Persons having skin sensitive to urethanes and petroleum solvents should wear protective gloves and respiratory masks while applying. Mix and apply these coatings in well-ventilated areas while observing normal safety precautions. Store ELASTA-TUFF BG-3000 and the Tuff-Poxy #3 Epoxy Primer in tightly sealed containers in cool, dry areas until ready to use.

## 9. GUARANTEE / WARRANTY

When this Elastomeric Coating System is installed by a Factory Qualified Applicator, is inspected and approved in accordance with these specifications, and after receipt of the final payment, the Factory Qualified Applicator shall issue the applicator's customary and standard installation guarantee covering defects in material and workmanship.

TUFFLEX Polymers (TUFFLEX) warrants its products to be free of defects in workmanship and materials only at the time of shipment from our factory. If any TUFFLEX materials prove to contain manufacturing defects that substantially affect their performance TUFFLEX will, at its option, replace the material or refund the purchase price.

The dollar value of TUFFLEX'S liability and buyer's remedy under this limited warranty shall not exceed the purchase price of the TUFFLEX materials in question.

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