



Tropical Roofing Products-CONCRETE – 1PLY-4.5G911

Built On The Principles of Quality & Integrity

PART I – GENERAL

APPLICABLE PUBLICATIONS

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

1. American Society for Testing and Materials Publication (ASTM)
2. ENERGY STAR® guidelines for energy efficiency (Roof Coatings)
3. CRRC – Cool Roof Rating Council
4. California Building Standards Code - Title 24

QUALITY CONTROL

1. Contractor shall be an approved applicator by Tropical Roofing Products who has a general knowledge and understanding of standard roofing practices as defined by the NRCA and knowledge of the Tropical Roofing Products materials to be used herein this specification.
2. Prior to starting the application of the roofing system, there will be a project conference with the owner's representative to assure a clear understanding of the specifications. The conference shall be attended by the Contractor and by Tropical Roofing Products representative.
3. For all warranties, a licensed contractor, authorized by Tropical Roofing Products as an approved applicator with proven business stability should be used to ensure proper installation.

SUBMITTALS

Descriptive literature: Submit manufacturer's application instructions and technical data sheets or catalog cuts on materials.

DELIVERY, STORAGE AND HANDLING

1. Store and handle Tropical Roofing Products materials in a manner that will ensure there is no possibility of contamination.
2. Store materials in a dry, well ventilated, weather tight location at temperatures between 50°F -80°F until the materials are applied.
3. Keep product lids tightly closed on all containers when not in use.
4. Take all necessary precautions to ensure that damage and overspray will not occur. Tropical Roofing Products is not responsible for damages caused by the overspray of its products.

PROJECT CONDITIONS

1. All warranties require wet substrate components of the existing roof to be replaced. A moisture scan is recommended to validate that the underlying roof system insulation is moisture free.
2. Air intake, vents, blowers, air conditioning units and evaporative coolers shall be shut down for the duration of the project.
3. Curing time for all products is critical. Applicator must allow for sufficient cure time for each product.
4. Do not begin work if temperature fall below 50°F.



APPLICATION REQUIREMENTS/100 SQ. FEET OF SURFACE*		
System Component	Gallon(s)	Dry Mills
1. #970 Acrylic Concrete Primer	0.5 Gal	N/A
2. #911 Eternalastic (Base-Coat)	2.5	21
3. #932 Polyester Fabric (1 st Ply)	1 Ply	6
4. #911 Eternalastic White (1 st Top Coat)	1.0	8.3
5. #911 Eternalastic White (2 nd Top-Coat)	1.0	8.3
SYSTEM WET/DRY MILS & WEIGHT*		
1. Total System Dry Weight (approximate)	36 lbs.	
2. Total System Wet/Dry Mills (approximate)	72/44 mils	
SYSTEM COMPONENT PERFORMANCE & TEST METHODS		
# 911	#951	#932
SRI - 108 CRRC ID - 0656-0002	MAX V.O.C 15 G/L	Weight 3-oz/sq. yd.
ASTM D6083 UL Class A	Solids BY Wt. 75.7%	Trapezoid ASTM D1117 16 lbs. Burst ASTM D3786 177lbs.
Title 24 Compliant Solids By Vol. 52%	Solids By Vol. 59.9%	Elongation ASTM D1682 62% Tensile ASTM D 1682 57 lbs

**Note: dry film values shown are approximations and can vary depending on surface conditions. DFT includes 6 mils for fabric.*

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PART II – PRODUCTS

DESCRIPTION OF THIS RESTORATION SYSTEM

A highly reflective Fluid Applied All Acrylic Restoration Coating System used to restore existing or new structural concrete roof. This restoration system is reinforced with heavy duty polyester fabric to extend the life of the existing substrate. This restoration system is applied directly over the existing substrates eliminating the need for roof tear offs. This restoration system will significantly reduce roof temperatures and energy costs. When used in this specification over a new or existing concrete roof, a seamless, monolithic roof system is achieved.

MATERIALS

- Eternalastic Elastomeric Roof Coating #911:**
#911 is a professional grade 100% acrylic Elastomeric coating that exhibits maximum flexibility in cold climates and meets ASTM D 6083. In addition, #911 is Energy Star Approved, California Title 24 compliant, UL classified, and Miami-Dade County Approved, #911 will dramatically reduce roof temperatures while protecting the underlying roof membrane.
- ETERNALASTIC CONCRETE PRIMER #970**
#970 is water-based Eternalastic concrete primer applied over the concrete to prepare the surface for maximum performance and adhesion. #911 Eternalastic roof coating should not be applied to unprimed concrete.
- Fibered Eternamastic Elastomeric Roof Mastic #951:**
#951 is a fiber-fortified, tough, durable, white elastic compound of high-grade raw materials. Easy to apply by brush, this fiber reinforced, viscous mastic is an integral part of waterproofing roofing surfaces. The #951 is a superior choice in maintenance and re-roofing situations. #951 should be used at laps, cracks, seams, directional wall changes, screw heads, or any place a roof intrusion is made.
- SEBS Elastomeric Flashing Mastic #975:**
#975 is a single component block copolymer Elastomeric mastic that forms a durable elastomeric flashing membrane. It has exceptional elongation properties, cold weather pliability, excellent weather and water resistance, good chemical resistance, and is highly reflective. It works great to patch and repair properly prepared existing EPDM, APP, SBS, BUR, PVC, Fiberglass, Concrete, and Wood. #975 forms an excellent sealant for horizontal and vertical seams and joints in a metal roofing system as well as drains and ponding susceptible areas.
- Polyester Fabric #932:**
#932 polyester fabric is non-woven, spun bonded 100% that covers 10 squares per roll, firm or soft. Tropical Roofing Products #932 is available in variable widths and must be used in conjunction with #951 fibered Eternamastic at all seams, penetrations, joints or transitions that are subjected to high shear.

PART III - EXECUTION

PREPARATION

- Preparation of the roof substrate is the responsibility of the installer, who shall address and correct all of the conditions listed in this section. Examine substrates to receive new roofing. Do not proceed with the installation unless satisfactory conditions have been corrected in a manner acceptable to Tropical Roofing Products.
- Sweep or blow dirt and dust from roof surface. Power wash roof with liquid detergent and rinse thoroughly with water.
- Use diluted chlorine solution to treat areas of mildew, fungus or algae.
- Loose coating, paint, rust and scale shall be removed using wire brush and scraper, or water blasting. Remove loose rust by: water blasting at min 2,400psi; wire brushing; hand sanding.
- Inspect, repair or replace all roof edge detail.
- Securely fasten all edge metal flashings.
- Prepare all metal prior to application of coatings.
- Concrete must be completely cured a minimum of 28 days.
- Moisture content must be the equivalent of 3 lbs. or less per 1000 sq. ft. using ASTM F1869 Calcium Chloride Standard Test Method testing, or 75% or less relative humidity using ASTM F2170 Standard Test Method for determining relative humidity in concrete.
- Remove curing compounds if present, by etching with 10% muriatic acid and brooming, followed by clean water rinse. Allow to thoroughly dry before applying priming.
- Remove all laitance, debris, dust or powder from concrete surface.
- Treatment of Ponding Water Areas:** Installer is to mechanically eliminate all ponding water areas on the roof prior to application of Tropical Roofing Products materials. The National Roofing Contractors Association (NRCA) considers ponding water on any roof undesirable and recommends that all roof systems be designed and built to ensure positive drainage. (See the NRCA Roofing and Waterproofing Manual).

APPLICATION

FLASHING APPLICATION

- After completion of substrate preparation, all flashing details, penetrations and curbs shall be flashed with #951 fibered Eternamastic and shall be feathered at the edges in order for the water to flow over the various flashing details.
- Base Flashings:** Install the base flashing over the cant strip using 6" or 12" of #932 polyester fabric as needed. Saturate into a full coat of 3 gallons per 100 sq. ft. (per ply) of #911 to achieve full saturation. Terminate at least 2" above the cant and extend at least 2" onto the deck.

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3. **Wall Flashings:** Install the wall flashing using one full ply of #932 polyester fabric set into a full coat of 3 gallons per 100 sq. ft. (per ply) of #911, achieving full saturation. #932 polyester fabric shall extend over cant strip onto deck and continue up wall to terminate as necessary-- under counter flashing, reglets or wall cap flashing. Wall flashing shall extend out onto the deck at least 2" beyond the termination of the base flashing.
4. **Edge Flashings:** Replace gravel stops and metal edge where necessary. Where gravel stop is replaced, replace with low or no rise metal edge. Metal edge shall be nailed at 4" on center. Strip-in the metal with #932 polyester fabric and #951 fibered Eternamastic ensuring all the nails are completely covered. Where edge flashing is left in place, cut back roofing 2" from rise and strip-in with #932 polyester fabric and #951 fibered Eternamastic providing positive attachment of the metal edge to the new coating system.
5. **Roof Drains:** Remove clamping ring and clean all existing build-up from around the drains and sumps. Apply #951 fibered Eternamastic or #975 SEBS Elastomeric mastic in a three course fashion across the entire drain/sump area. Extend the application into the drain bowl from center of drain onto the deck 6" beyond drain sump. Allow to cure. Replace clamping ring. The base coat application shall be applied overlapping onto the reinforced #951 fibered Eternamastic or #975 SEBS Elastomeric mastic and cut around the clamping ring.
6. **Curb Flashings:** All curb flashings shall be flashed with at least a 2" wide x 1/16" thick of #951 fibered Eternamastic.
7. **Fasteners:** Encapsulate all fasteners using #951 fibered Eternamastic with #932 polyester fabric, which shall be cut around all fasteners so fabric lies flat.
8. **Penetrations:** #951 fibered Eternamastic along with #932 polyester fabric shall be applied around the base of the penetration, extending at least 4" onto the vertical and 4" onto the base. Embed a 6" width of #932 polyester fabric using additional #951 fibered Eternamastic as necessary to accommodate the shape of the penetration.
9. **Skylights & Curbed AC Units:** Curb skylights shall be treated in the same fashion as curb flashings. The perimeter shall be flashed with a 4" of #932 polyester fabric along with #951 fibered Eternamastic. The 4" #932 polyester fabric is divided 2" evenly between the vertical and the roof surface. All exposed skylight fasteners shall be encapsulated with #951 fibered Eternamastic.
10. **Seams:** All seams and areas around roof protrusions (vents, scuttle hatches, etc.) are to be treated with #951 fibered Eternamastic along with #932 polyester fabric to achieve watertight seals in a three course fashion (refer to flashing section for details).

11. **Pitch Pans:** Pitch pans shall be sealed using #951 fibered Eternamastic with #932 polyester fabric in a three course fashion (refer to flashing section for details).
12. **Condensation Lines:** Condensation lines shall be installed from HVAC units to gutters as part of the overall drainage system. The type of piping used for condensation lines may vary depending on local building codes.
13. Inspect Preliminary Work / Flashing Details for problem areas (e.g., gaps, cracks, fish mouths, air pockets, etc.)

#970 CONCRETE PRIMER APPLICATION

1. Apply #970 concrete primer using a roller or sprayer at a ratio of 0.5 gallon per 100 sq. ft. to cover the entire roof. Coverage should include laps, cracks, seams, directional wall changes, roof intrusions.
2. Allow for proper curing time of 2-4 hours dependent on temperature and humidity.

BASE COAT APPLICATION

1. Use 9" brushes, or 18" rollers with 3/4" to 1 "knap designed for roof coating.
2. Use short bristle brush/roller on smooth substrates, and longer bristle brush/roller on rough substrates.
3. Over the properly prepared surface, apply the base coat 46-48 inches wide at a rate of 2 gallons per 100 sq. ft.
4. Immediately following and starting with the low edge of the roof, embed a full width of #932 40" polyester fabric into the wet coating continuing up the roof with full width sheets stopping 6" above the Cant Strip of the parapet wall.
5. Lightly brush each polyester fabric to achieve full saturation having no wrinkles or voids.
6. Immediately apply a second coat of base coat over the polyester fabric at the rate of at least 0.5 gallon per 100 square feet.
7. Do not walk on the polyester during application while base coat is still wet causing displacement of the coating.
8. Overlap each polyester fabric strip by 3 inches until the entire roof surface is covered.
9. Apply extra coating when overlapping fabric between the layers to assure sufficient saturation and good adhesion of the layer on top. All the edges of the overlapping fabric should be completely embedded in coating.
10. The base coat shall extend up the entire parapet walls stopping at the bottom edge of the coping metal.
11. The base coat shall be brought to the riser of the gravel guard if there is no parapet wall.
12. Allow the base coat to dry (12 to 24 hours weather dependent).
13. The entire base coat DFT must be at least 27 mils taking into consideration an additional 6 mils for polyester fabric embedded in the basecoat.

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PIPE FLASHINGS & PENETRATIONS – SURFACE TREATMENT

After the base coat is cured and prior to the application of the top coat:

1. Apply #951 fibered Eternamastic and #932 polyester fabric in a three course fashion to all pipe flashings, cones, exposed metal joints and flanges.
2. Apply #951 fibered Eternamastic to all corners at curbs and skylight flashings or any area that has been previously repaired with roofing mastic.

PONDED AREAS & DRAINS APPLICATION

After the base coat is cured and prior to the application of the top coat:

1. All areas around drains and scuppers shall be treated with a second layer of #932 polyester fabric saturated in the #911 Eternalastic coating.
2. Waterways and any locations where water ponds for more than 48 hours shall be treated with a second layer of #932 polyester fabric embedded in the #911 Eternalastic coating. The #932 polyester fabric shall extend 12" beyond the designated ponding area or as necessary to extend beyond the drain sump. In this area, saturate the #932 polyester fabric into a 3 gallon per 100 sq. ft. application of #911 and brush lightly to achieve full saturation without wrinkles or voids.

TOP COAT APPLICATION

1. A visual inspection of the entire base coat should be performed to confirm an acceptable surface / substrate to accept the top coat. Any deficiencies must be repaired prior to application of the top coat.
2. Apply the first layer of top coat with #911 Eternalastic at an application rate of 1.0 gallon per 100 sq. ft. to achieve required DFT of 8.3 mils or 16 mils wet.
3. The top coat shall completely cover the base coat including expansion joint covers, parapets and flashings.
4. Allow a minimum of 12 hours drying time prior to any foot traffic or inspections. (Weather dependent).
5. Apply second layer of the top coat with #911 Eternalastic perpendicular from the first in a 'cross hatch' manner at an application rate of 1.0 gallon per 100 sq. ft. to achieve required DFT of 8.3 mils or 16 of mils wet.
6. The minimum DFT of the entire top coat must be 16.6 mils.
7. Allow a minimum of 12-24 hours drying time before allowing any foot traffic or inspections.
8. After curing, inspect for defects and repair as necessary.
9. Pay special attention not to overspray, which can texture or discolor adjoining finished sections.
10. Note: Total minimum Restoration System Dry Film Thickness for the entire restoration system shall be 44 mils nominally.

INSTALLATION OF WALKWAYS (OPTIONAL):

In high-traffic areas and around mechanical equipment, walkways should be installed to protect the coating system from damage.

FIELD QUALITY CONTROL

1. Maintain Job Progress Report / Daily Log of work completed as required to assure installation is in accordance with manufacturer requirements.
2. Provide on-the-job inspections, technical assistance and material application guidance as may be necessary to complete roofing material application in accordance with Tropical Roofing Products warranty requirements.

JOB COMPLETION

1. Inspect completed coating system and correct all defects to meet the specification and/or warranty requirements.
2. **Transparent or Thin Areas:** If areas appear to be undercoated, recoating may be needed to ensure final thickness to meet the Tropical Roofing Products specifications Total Dry Mills.
3. **Delamination:** Verify that all coated areas appear to be fully adhered to the substrate. A visual inspection looking for typical signs of poor adhesion such as flaking, blistering etc. should be made. Re-priming and/or recoating will be required if such areas are apparent.
4. **Pin Holing:** Certain job or site conditions may result in pin holing or out gassing during curing or cause pin holes in the substrate. Again, a visual inspection looking for typical signs of out gassing such as excessive pockmarks, pinholes etc. should be done.
5. **Delaminating:** Delamination is caused when water-based coatings freeze, or solvent entrapment in solvent based coatings occurs. The coating surface may exhibit extreme wrinkles, small blisters and may have loss of adhesion. These areas will not "self-heal" and must be removed, power washed and a new coating must be applied.
6. **Texture Finish:** Heavy patterns, blistering, "skinning," etc. may appear in the final finish. These may indicate that the coat is too thick, a build-up has occurred or another application problem. Check with Tropical Roofing Products Technical Representative for remedial advice.
7. A Tropical Roofing Products Technical Representative will inspect the finished system and notify the contractor with any defects in the application.
8. Restrict construction traffic and equipment movement on the completed coating system to only essential personnel. Provide appropriate protection against traffic and construction activities on completed roofs. Damage to the roof by other trades shall not be the responsibility of Tropical Roofing Products.

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HOUSEKEEPING ITEMS

1. Contractor shall take photographs of representative roof areas, including detail work before work commences, after the surface has been properly prepared, after all flashing and detail work has been performed, and after the application of the #911 Eternalastic coating membrane.
2. Installer shall provide the following support for on-site inspections by a representative from Tropical Roofing Products (list is not comprehensive):
 - a. Representative from the contractor's company who has authority to make binding decisions.
 - b. Required means to access all areas of the treated roof.
 - c. Previous photographs of the roof.
3. Access must be granted to all areas of the restored roof system.
4. Installer shall take special care when moving spray hoses and other equipment on the roof in order to prevent damage to the flashing work and encapsulated fastener heads. Also, all spray equipment shall remain on the ground for the duration of the job.
5. If there will be an extended period of time (6 months or greater) between application of base and finish coats, the use of #911 Eternalastic (white) for the base coat (versus gray) is recommended. The base coat shall be thoroughly cleaned before applying the finish coat.

REPAIRS

1. In the event that the #911 Eternalastic membrane is damaged or punctured, repairs are to be performed using #951 fibered Eternamastic along with #932 polyester fabric (where necessary) as follows:
 - a. Damaged areas are to be cut, cleaned and dried.
 - b. Apply #951 fibered Eternamastic, and feather out onto the existing #911 Eternalastic membrane with a minimum of 2-4 inches beyond the existing coating.
 - c. If a new penetration area has been cut, embed #932 polyester fabric into the #951 fibered Eternamastic according to standard Tropical Roofing Products specifications.

CLEAN UP

1. Remove masking and protection tapes.
2. The HVAC vents and units can be opened and restarted once the spray operation is complete.
3. Remove all roof related trash and debris from jobsite.
4. Dispose of containers in accordance with local regulations.
5. For application questions, please contact Tropical Roofing Products at 1-877-827-2622.

ENGINEERING

Tropical Roofing Products does not practice Engineering or Architecture. Any review of the building's construction or inspection of roof plans or inspection of the building's structural roof deck by Tropical Roofing Products representatives shall not constitute any warranty by Tropical Roofing Products of such plans, specifications or construction. Any roof inspections are solely for the benefit of Tropical Roofing Products.

MAINTENANCE

To maintain your warranty coverage and in order to ensure that your roof will continue to perform to its fullest during the entire time of the warranty, always adhere to Tropical Roofing Products Care and Maintenance program and guidelines.

IMPORTANT:

The applicators strict adherence to this specification is the only way Tropical can ensure that this product will perform as intended. Accordingly, any changes made to specifications must be reviewed, approved in writing and signed by Tropical Roofing Products Director of Manufacturing & Technical Services prior to application.

End of Section
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