

SECTION 07560

FLUID-APPLIED ROOFING

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**** NOTE TO SPECIFIER ** Tropical Roofing Products; fluid-applied roofing systems.**

This section is based on the products of Tropical Roofing Products, which is located at:
1904 S.W. 31st Ave.
Hallandale, FL 33009.
Toll Free Tel: (800) 432-2855.
Email: sales@gotropical.com.
Web: www.tropicalroofingproducts.com.

Tropical Roofing Products is a trusted national manufacturer of a full range of innovative solutions and systems technologies that effectively seal, waterproof and maintain the roof for the life of the building. We offer Fluid Applied Roof Restoration Systems and Coatings used in the repair, maintenance and restoration of low slope roofing systems for every substrate allowing building owners to avoid costly, time consuming tear-offs and to realize their goal of achieving long-term roof performance and the lowest roof life cycle cost. Products are tested for fire resistance and wind uplift by UL and FM and are certified to comply with ASTM Specifications by UL Laboratories. All products are formulated and engineered for exceptional performance and safety. Our Energy Star rated and CRRC listed coatings can help buildings obtain LEED points. Tropical Roofing Products' Fluid Applied Systems are warranted and preferred by Architects, Consultants, Contractors, Building Owners, Property Managers, and other specifiers. The Tropical Roofing Products Technical Team is experienced and equipped to provide total Restoration System support in all phases of the project.

- Fabric Reinforced Acrylic Restoration Systems
- Silicone Restoration Systems
- Emulsion-based Acrylic Restoration Systems
- Cements, Adhesives, Mastics

PART 1 GENERAL

1.1 SECTION INCLUDES

**** NOTE TO SPECIFIER ** Delete items below not required for project.**

- A. Fluid-Applied, Highly-Reflective Seamless Roofing Restoration Systems, Including the Following:
 - 1. Fabric-reinforced, all acrylic system.
 - 2. Emulsion based acrylic system.
 - 3. Silicone system.
 - 4. Primers.
 - 5. Accessories.

1.2 RELATED SECTIONS

**** NOTE TO SPECIFIER ** Delete any sections below not relevant to this project; add others as required.**

- A. Section 06100 - Rough Carpentry.
- B. Section 07200 - Building Insulation.

- C. Section 07260 - Flashing and Sheet Metal.
- D. Section 07724 - Roof Hatches.
- E. Section 07810 - Skylights.
- F. Section 15430 - Plumbing Specialties.

1.3 REFERENCES

**** NOTE TO SPECIFIER ** Delete references from the list below that are not actually required by the text of the edited section.**

- A. National Roofing Contractors Association (NRCA) Roofing and Waterproofing Manual.
- B. ASTM International (ASTM):
 1. ASTM C 1371 - Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers.
 2. ASTM C 1549 - Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Solar Reflectometer.
 3. ASTM D 522 - Standard Test Methods for Mandrel Bend Test of Attached Organic Coatings.
 4. ASTM D 562 - Standard Test Method for Consistency of Paints Measuring Krebs Unit (KU) Viscosity Using a Stormer-Type Viscometer.
 5. ASTM D 624 - Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers.
 6. ASTM D 1079 - Standard Terminology Relating to Roofing, Waterproofing, and Bituminous Materials.
 7. ASTM D 1117 - Standard Guide for Evaluating Nonwoven Fabrics.
 8. ASTM D 1227 - Standard Specification for Emulsified Asphalt Used as a Protective Coating for Roofing.
 9. ASTM D 1644 - Standard Test Methods for Nonvolatile Content of Varnishes.
 10. ASTM D 1682 - Standard Methods of Test for Breaking Load and Elongation of Textile Fabrics.
 11. ASTM D 2196 - Standard Test Methods for Rheological Properties of Non-Newtonian Materials by Rotational Viscometer.
 12. ASTM D 2240 - Standard Test Method for Rubber Property - Durometer Hardness.
 13. ASTM D 2370 - Standard Test Method for Tensile Properties of Organic Coatings.
 14. ASTM D 2697 - Standard Test Method for Volume Nonvolatile Matter in Clear or Pigmented Coatings.
 15. ASTM D 3786 - Standard Test Method for Bursting Strength of Textile Fabrics—Diaphragm Bursting Strength Tester Method.
 16. ASTM D 3960 - Standard Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings.
 17. ASTM D 4263 - Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method.
 18. ASTM D 6083 - Standard Specification for Liquid Applied Acrylic Coating Used in Roofing.
 19. ASTM D 6694 - Standard Specification Liquid-Applied Silicone Coating Used in Spray Polyurethane Foam Roofing.
 20. ASTM E 96 - Standard Test Methods for Water Vapor Transmission of Materials.
 21. ASTM E 108 - Standard Test Methods for Fire Tests of Roof Coverings.
 22. ASTM E 1980 - Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces.
- C. Underwriters Laboratories (UL): ANSI/UL 790 - Standard Test Methods of Roof Coverings.
- D. Underwriters Laboratories (UL) - Roofing Systems and Materials Guide.

- E. ENERGY STAR® guidelines for energy efficiency (Roof Coatings).
- F. EPA Method 24 - Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings.
- G. CRRC – Cool Roof Rating Council.
- H. California Building Standards Code - Title 24.
- I. NSF International.
- J. PRI Construction Materials Technologies, LLC.
- K. Sheet Metal and Air Conditioning Contractors National Association, 1nc. (SMACNA) - Architectural Sheet Metal Manual.
- L. TT-C-555B- Wind Driven Rain Resistance.
- M. WPSTM C-560

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Provide current standard printed product literature indicating characteristics of membrane materials and accessories:
 1. Application instructions.
 2. Technical data sheets.
 3. Safety data sheets.
- C. Shop Drawings: Submit shop drawings of cold fluid-applied reinforced polyurethane showing a project plan, size, flashing details, and attachment for review and approval by the Owners Representative and Membrane Manufacturer.
- D. Warranty Documentation: Submit 2 executed copies of manufacturer warranties for the periods stipulated, starting from the date of the substantial completion.
- E. Samples: For reinforcing fabric, two samples representing actual textures and thicknesses.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing fluid applied roofing membranes with a minimum of 20 years of documented experience with applications in the United States. Membrane Manufacturer shall submit the following certifications for review:
 1. Substrates and conditions are acceptable for purpose of providing specified warranty.
 2. Materials supplied shall meet the specified requirements.
- B. Applicator Qualifications: Company specializing in performing the work of this section with 3 years documented experience and approved by system manufacturer for warranted membrane installation. Applicator shall submit the following certification for review:
 1. Applicator shall submit documentation from the membrane manufacturer to verify contractor's status as an approved applicator for warranted installations.
- C. Source Limitations: Components listed shall be provided by a single manufacturer or approved by the primary roofing manufacturer.

1.6 PRE-INSTALLATION MEETINGS

- A. Pre-Installation Conference: Prior to beginning work, convene a conference to review conditions, system requirements, submittals, installation procedures, schedules, required inspections, and coordination with other work.
- B. Convene minimum two weeks prior to starting work of this section.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store and handle materials and products in strict compliance with manufacturer's instructions and recommendations and industry standards.
- B. Store and handle materials in a manner that will protect from damage and ensure there is no possibility of contamination.
- C. Store materials in a dry, well ventilated, weather tight location at temperatures between 50 and 80 degrees F (10 and 27 degrees C) until the products are ready to be applied.
- D. Do not stack material pallets more than two high.

1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
 - 1. Do not apply roofing/waterproofing membrane during or with the threat of inclement weather.
 - 2. Do not begin work if rain or heavy dew is expected within forty- eight hours of application.
 - 3. Ensure that substrate materials are dry and free of contaminants. DO NOT commence with the application unless substrate conditions are suitable. Contractor shall demonstrate that substrate conditions are suitable for the application of the materials.

**** NOTE TO SPECIFIER ** Delete warranty options not required.**

1.9 WARRANTY

- A. Manufacturer's Material Warranty: Provide manufacturer's material only warranty under provisions of this section; for supply of materials only, limited to amounts necessary to effect repairs necessitated solely by material defective in content and composition.

**** NOTE TO SPECIFIER ** For acrylic elastomeric systems choose one of the first three paragraphs below. Delete warranty periods not required.**

- 1. Warranty Period: 5 years.
- 2. Warranty Period: 10 years.
- 3. Warranty Period: 12 years.

**** NOTE TO SPECIFIER ** Lifetime warranty is for silicone system only. Delete if not required.**

- 4. Warranty Period: Lifetime Limited.

- B. Manufacturer's Labor and Material System Warranty: Provide manufacturer's limited warranty for cost of labor and materials.

**** NOTE TO SPECIFIER ** Delete warranty periods not required.**

- 1. Warranty Period: 10 years.
- 2. Warranty Period: 15 years.
- 3. Warranty Period: 20 years.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Tropical Roofing Products, which is located at: 1904 S.W. 31st Ave.; Hallandale, FL 33009; Toll Free Tel: 800-432-2855;; Email: _____; Web: www.tropicalroofingproducts.com.

**** NOTE TO SPECIFIER ** Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.**

- B. Substitutions: Not permitted.

- C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

**** NOTE TO SPECIFIER ** Delete if not required.**

2.2 FABRIC REINFORCED ALL ACRYLIC ROOF SYSTEM

**** NOTE TO SPECIFIER ** Delete if not required.**

- A. Fabric Reinforced All Acrylic Roof System for EPDM Substrates: Tropical Roofing Products.

**** NOTE TO SPECIFIER ** Select warranty length required, delete warranty lengths not required.**

1. 10 Year Warranty System:
 - a. Primer: #990 Eternalastic at 500 square feet per gallon.
 - b. Base Coat: #911 Eternalastic at 2.5 gallons per 100 square feet, for 21 mil dry thickness.
 - c. Polyester Fabric: #932.
 - d. Top Coat: #911 Eternalastic, Two coats at 0.75 gallons each per 100 square feet, for 12.5 mil dry thickness.
 - e. Total Surface: 40 mil dry thickness.
2. 15 Year Warranty System:
 - a. Primer: #990 Eternalastic.
 - b. Base Coat: #911 Eternalastic at 2.5 gallons per 100 square feet, for 21 mil dry thickness.
 - c. Polyester Fabric: #932.
 - d. Top Coat: #911 Eternalastic, Two coats at 1.0 gallons each per 100 square feet, for 16 mil dry thickness.
 - e. Total Surface: 44 mil dry thickness.
3. 20 Year Warranty System:
 - a. Primer: #990 Eternalastic.
 - b. Base Coat: #911 Eternalastic at 2.5 gallons per 100 square feet, for 21 mil dry thickness.
 - c. Polyester Fabric: #932.
 - d. First Top Coat: #911 Eternalastic at 1.5 gallons per 100 square feet, for 12.5 mil dry thickness.
 - e. Polyester Fabric: #932.
 - f. Second Top Coat: #911 Eternalastic at 1.5 gallons per 100 square feet, for 12.5 mil dry thickness.
 - g. Total Surface: 52 mil dry thickness.

**** NOTE TO SPECIFIER ** Delete if not required.**

- B. Fabric Reinforced All Acrylic Roof System for Bitumen Substrates: Tropical Roofing Products.

**** NOTE TO SPECIFIER ** Select warranty length required, delete warranty lengths not required.**

1. 10 Year Warranty System:
 - a. Primer: #980 Eternalastic.
 - b. Base Coat: #911 Eternalastic at 3 gallons per 100 square feet, for 24 mil dry thickness.
 - c. Polyester Fabric: #932.
 - d. Top Coat: #911 Eternalastic, Two coats at 0.75 gallons each per 100 square

- feet, for 12 mil dry thickness.
- e. Total Surface: 42 mil dry thickness.
- 2. 15 Year Warranty System:
 - a. Primer: #980 Eternalastic.
 - b. Base Coat: #911 Eternalastic at 3 gallons per 100 square feet, for 24 mil dry thickness.
 - c. Polyester Fabric: #932.
 - d. Top Coat: #911 Eternalastic, Two coats at 1.0 gallons each per 100 square feet, for 16 mil dry thickness.
 - e. Total Surface: 46 mil dry thickness.
- 3. 20 Year Warranty System:
 - a. Primer: #980 Eternalastic.
 - b. Base Coat: #911 Eternalastic at 3 gallons per 100 square feet, for 24 mil dry thickness.
 - c. Polyester Fabric: #932.
 - d. First Top Coat: #911 Eternalastic at 1.5 gallons per 100 square feet, for 12 mil dry thickness.
 - e. Polyester Fabric: #932.
 - f. Second Top Coat: #911 Eternalastic at 1.5 gallons per 100 square feet, for 12 mil dry thickness.
 - g. Total Surface: 54 mil dry thickness.

**** NOTE TO SPECIFIER ** Delete if not required.**

- C. Fabric Reinforced All Acrylic Roof System for Concrete Substrates: Tropical Roofing Products.

**** NOTE TO SPECIFIER ** Select warranty length required, delete warranty lengths not required.**

- 1. 10 Year Warranty System:
 - a. Primer: #970 Eternalastic.
 - b. Base Coat: #911 Eternalastic at 2.5 gallons per 100 square feet, for 20 mil dry thickness.
 - c. Polyester Fabric: #932.
 - d. Top Coat: #911 Eternalastic, Two coats at 0.75 gallons per 100 square feet, for 12 mil dry thickness.
 - e. Total Surface: 38 mil dry thickness.
- 2. 15 Year Warranty System:
 - a. Primer: #970 Eternalastic.
 - b. Base Coat: #911 Eternalastic at 2.5 gallons per 100 square feet, for 20 mil dry thickness.
 - c. Polyester Fabric: #932.
 - d. Top Coat: #911 Eternalastic, Two coats at 1.0 gallons per 100 square feet, for 16 mil dry thickness.
 - e. Total Surface: 42 mil dry thickness.
- 3. 20 Year Warranty System:
 - a. Primer: #970 Eternalastic.
 - b. Base Coat: #911 Eternalastic at 2.5 gallons per 100 square feet, for 20 mil dry thickness.
 - c. Polyester Fabric: #932.
 - d. First Top Coat: #911 Eternalastic at 1.5 gallons per 100 square feet, for 12 mil dry thickness.
 - e. Polyester Fabric: #932.
 - f. Second Top Coat: #911 Eternalastic at 1.5 gallons per 100 square feet, for 12 mil dry thickness.
 - g. Total Surface: 50 mil dry thickness.

**** NOTE TO SPECIFIER ** Delete if not required.**

D. Fabric Reinforced All Acrylic Roof System for Metal Substrates: Tropical Roofing Products.

**** NOTE TO SPECIFIER ** Select warranty length required, delete warranty lengths not required.**

1. 10 Year Warranty System:
 - a. Primer: #960 Eternalastic.
 - b. Base Coat: #911 Eternalastic at 2.5 gallons per 100 square feet, for 20 mil dry thickness.
 - c. Polyester Fabric: #932.
 - d. Top Coat: #911 Eternalastic, Two coats at 0.75 gallons each per 100 square feet, for 12 mil dry thickness.
 - e. Total Surface: 38 mil dry thickness.
2. 15 Year Warranty System:
 - a. Primer: #960 Eternalastic.
 - b. Base Coat: #911 Eternalastic at 2.5 gallons per 100 square feet, for 20 mil dry thickness.
 - c. Polyester Fabric: #932.
 - d. Top Coat: #911 Eternalastic, Two coats at 1.0 gallons each per 100 square feet, for 16 mil dry thickness.
 - e. Total Surface: 42 mil dry thickness.
3. 20 Year Warranty System:
 - a. Primer: #960 Eternalastic.
 - b. Base Coat: #911 Eternalastic at 2.5 gallons per 100 square feet, for 20 mil dry thickness.
 - c. Polyester Fabric: #932.
 - d. First Top Coat: #911 Eternalastic at 1.5 gallons per 100 square feet, for 12 mil dry thickness.
 - e. Polyester Fabric: #932.
 - f. Second Top Coat: #911 Eternalastic at 1.5 gallons per 100 square feet, for 12 mil dry thickness.
 - g. Total Surface: 50 mil dry thickness.

**** NOTE TO SPECIFIER ** Delete if not required.**

E. Fabric Reinforced All Acrylic Roof System for TPO or PVC Substrates: Tropical Roofing Products.

**** NOTE TO SPECIFIER ** Select warranty length required, delete warranty lengths not required.**

1. 10 Year Warranty System:
 - a. Base Coat: #991 at 1.5 gallons per 100 square feet for 12 mil dry thickness.
 - b. Polyester Fabric: #932.
 - c. Top Coat: #911 Eternalastic, Two coats at 1.25 gallons each per 100 square feet, for 20 mil dry thickness.
 - d. Total Surface: 38 mil dry thickness.
2. 15 Year Warranty System:
 - a. Base Coat: #991 at 1.5 gallons per 100 square feet for 12 mil dry thickness.
 - b. Polyester Fabric: #932.
 - c. Top Coat: #911 Eternalastic, Two coats at 1.5 gallons each per 100 square feet, for 24 mil dry thickness.
 - d. Total Surface: 42 mil dry thickness.
3. 20 Year Warranty System:
 - a. Base Coat: #991 at 2.0 gallons per 100 square feet for 16 mil dry thickness.
 - b. Polyester Fabric: #932.
 - c. First Top Coat: #911 Eternalastic at 1.75 gallons per 100 square feet, for 14 mil dry thickness.
 - d. Polyester Fabric: #932.
 - e. Second Top Coat: #911 Eternalastic at 1.75 gallons per 100 square feet, for 14 mil dry thickness.
 - f. Total Surface: 50 mil dry thickness.

**** NOTE TO SPECIFIER ** #932 Fabrics is non-woven, spun bonded 100% polyester that covers 10 squares per roll Firm or Soft. TRP #932 4",12", 20" and 40" webbing must be used in conjunction with #951 Eternamastic at all seams, roof penetrations, joints or changes in plane that are subjected to high shear.**

- F. Polyester Fabric: Tropical Roof Products #932: Non-woven, spun bonded 100 percent polyester fabric.
1. Weight per square yard: 3 ounces.
 2. Bursting Strength (ASTM D3786): 177 pounds.
 3. Tensile Strength (ASTM D1682): 57.1 psi.
 4. Tear Strength (ASTM D1117): 16.1 pounds.
 5. Elongation (ASTM D1682): 62 percent.
 6. Conformability: Excellent.
 7. Ease of Saturation: Excellent.
- G. Elastomeric Roof Coating: Tropical Roof Products #911 Eternalastic. Tested per ASTM D 6083.
1. Good resistance to ponding water.
 2. Contains no plasticizers or migrating fire retardants.
 3. Fire Rating (ASTM E 108): Class A.
 4. Application Rate, 100 square feet: 1.5 gallons.
 5. Brookfield Viscosity at 73.4 degrees F (ASTM D 2196): 15,100 cps.
 6. Viscosity at 73.4 degrees F (ASTM D 562): 96 KU.
 7. Total Solids (by volume) (ASTM D 2697): 62.3 percent.
 8. Total Solids (by weight) (ASTM D 1644): 79.8 percent.
 9. Weight per gallon: 10.8-11.8.
 10. Application: Airless sprayer or roller.
 11. Recommended Wet Film Thickness: 24 mils.
 12. Recommended Dry Film Thickness: 12 mils.
 13. Elongation at 73 degrees F (ASTM D 2370): 160 percent.
 14. Tensile Strength at 73 degrees F (ASTM D 2370): 243 psi.
 15. Specific Gravity: 1.22 – 1.42.
 16. Low Temperature Flexibility (ASTM D 522): Pass.
 17. Resistance to Wind Driven Rain (TT-C-555B): Pass.
 18. Permeance (20 mil dry film) (ASTM D 1653): 3.9 perms.
 19. Tear Resistance (ASTM D 624): 81.3 lbf/in.
 20. Application Temperature: 50 - 110 degrees F.
 21. Drying Time, 75 degrees F: Approximately 24 hours per coat.
 22. Clean Up: Water before curing.

**** NOTE TO SPECIFIER ** #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. This reflective mastic is a superior choice in maintenance as well as new or re-roofing situations. This flexible product should be used at laps, cracks, seams, directional wall changes, screw heads, or any place a roof intrusion is made.**

- H. Fibered Elastomeric Roof Mastic: Tropical Roof Products #951 Eternamastic.
1. Color: White.
 2. Application Rate, 1 gallon: 10 - 12.5 square feet.
 3. Total Solids (by weight): 67.8 percent.
 4. Total Solids (by volume): 72.3 percent.
 5. Specific Gravity: 1.16 - 1.36.
 6. Weight per gallon: 10.5-11.5.
 7. Viscosity (75 degrees F): 58,500 – 60,500 cps.
 8. Application: Stiff bristle brush or trowel.
 9. Recommended Wet Film Thickness: 100 mils.
 10. Recommended Dry Film Thickness: 60 mils.

11. Elongation: 560 percent.
12. Tensile Strength: 213 psi.
13. Application Temperature: 42 - 120 degrees F.
14. Drying Time, 75 degrees F, 50 percent RH: 15 hours.
15. Clean Up: Mineral spirits or paint thinner.

**** NOTE TO SPECIFIER ** #990 is used as a pre-treatment of black EPDM rubber roof membrane prior to power washing and application of Eternalastic coating. The unique chemistry of #990 Eternalastic EPDM Primer is designed for use with Eternalastic Coating, and pre-treatment with #990 EPDM Primer significantly improves the adhesion of Eternalastic to EPDM rubber. Delete if not required.**

- I. Rinseable Primer: Tropical Roof Products #990 Eternalastic. Rinseable low viscosity, sprayable liquid.
 1. Application Rate, 500 square feet: 1 gallon.
 2. Total Solids (by weight): 14-18 percent.
 3. Weight per gallon: 7.8-8.8.
 4. Application: Compressive air sprayer.
 5. Viscosity: Same as water.
 6. Application Temperature: 32 - 120 degrees F.
 7. Drying Time: 30 minutes.
 8. Clean Up: Mineral spirits or paint thinner.

**** NOTE TO SPECIFIER ** #980 developed to help ensure superior finished coating adhesion as well as prevent coating discoloration. For metal roofing, it is recommended that all asphalt products be removed. #980 Eternalastic Acrylic Asphalt Primer should be applied and allowed to dry over those areas where residual asphalt remains. Primer application can be by brush, roller, or airless sprayer. #980 Eternalastic Acrylic Asphalt Primer promotes coating adhesion, prevents asphalt bleed through, is easily applied, and is environmentally friendly. Delete if not required.**

- J. Acrylic Elastomeric Primer: Tropical Roof Products #980 Eternalastic. Water based.
 1. Application Rate, 100 square feet: 1 gallon.
 2. Total Solids (by weight): 23-27 percent.
 3. Weight per gallon: 7.8-8.8.
 4. Application: Compressive air sprayer.
 5. Viscosity: 80-90 KU.
 6. Application Temperature: 50 - 120 degrees F.
 7. Drying Time: 2-4 hours.
 8. Maximum VOC Content: 99 g/L.
 9. Wet Appearance: White.
 10. Dry Appearance: Clear.
 11. Clean Up: Mineral spirits or paint thinner.

**** NOTE TO SPECIFIER ** #970 developed to help ensure superior finished coating adhesion. #970 Eternalastic Concrete Primer is to be used when applying any Eternalastic product to any structural concrete surface. This primer will absorb into the concrete thus preparing the surface for maximum performance and adhesion. #911 Eternalastic Coating should be Applied to unprimed concrete. Delete if not required.**

- K. Concrete Primer: Tropical Roof Products #970 Eternalastic. Water based, easily applied.
 1. Application Rate, 200 square feet: 1 gallon.
 2. Total Solids (by weight): 23-27 percent.
 3. Weight per gallon: 7.8-8.8.
 4. Application: Compressive air sprayer.
 5. Viscosity: 80-90 KU.
 6. Application Temperature: 50 - 120 degrees F.
 7. Drying Time: 2-4 hours.
 8. Maximum VOC Content: 99 g/L.

9. Wet Appearance: White.
10. Dry Appearance: Clear.
11. Clean Up: Mineral spirits or paint thinner.

**** NOTE TO SPECIFIER ** #960 is designed for use only on rusted metal surfaces. For spot rusted areas, clean with wire brush before application of primer. If rusting is prevalent throughout the roof surface, this product should be applied with an airless sprayer. #960 Eternalastic Metal Primer promotes coating adhesion, is water based, is easily applied, and is environmentally friendly. Delete if not required.**

- L. Metal Primer: Tropical Roof Products #960 Eternalastic. Water-based.
 1. Application Rate, 100 square feet: 1 gallon.
 2. Total Solids (by weight): 45-49 percent.
 3. Weight per gallon: 7.8-8.8.
 4. Application: Compressive air sprayer.
 5. Viscosity: 80-90 KU.
 6. Maximum VOC Content: 207 g/L.
 7. Appearance: White.
 8. Application Temperature: 50 - 120 degrees F.
 9. Drying Time: 2 hours.
 10. Clean Up: Mineral spirits, paint thinner, or water in wet stage.

**** NOTE TO SPECIFIER ** Delete if not required.**

2.3 EMULSION BASED ACRYLIC ROOF SYSTEM

- A. Emulsion Based Acrylic Roof System for Bitumen Substrates: Tropical Roofing Products.

**** NOTE TO SPECIFIER ** Select warranty length required. For 10 year warranty, 2 systems are available, one using #911 top coat and one using #921 top coat. Delete systems not required.**

1. 10 Year Warranty System:
 - a. Non-Fibered Emulsion: #360, 6 gallons per 100 square feet.
 - b. Polyester Fabric: #930.
 - c. Top Coat: #911 Eternalastic, 2 coats at 1.5 gallons per 100 square feet.
 - d. Total Surface: 67 mil dry thickness.
2. 10 Year Warranty System:
 - a. Non-Fibered Emulsion: #360, 6 gallons per 100 square feet.
 - b. Polyester Fabric: #930.
 - c. Top Coat: #921 REFLEX, 2 coats at 1.5 gallons per 100 square feet.
 - d. Total Surface: 67 mil dry thickness.
3. 15 Year Warranty System:
 - a. Non-Fibered Emulsion: #360, 6 gallons per 100 square feet.
 - b. Polyester Fabric: #930.
 - c. Non-Fibered Emulsion: #360, 6 gallons per 100 square feet.
 - d. Polyester Fabric: #930.
 - e. Top Coat: #911 Eternalastic, 2 coats at 2 gallons per 100 square feet.
 - f. Total Surface: 120 mil dry thickness.
4. 20 Year Warranty System:
 - a. Non-Fibered Emulsion: #360, 6 gallons per 100 square feet.
 - b. Polyester Fabric: #930.
 - c. Non-Fibered Emulsion: #360, 6 gallons per 100 square feet.
 - d. Polyester Fabric: #930.
 - e. Top Coat: #911 Eternalastic, 1 coat at 2 gallons and 2 coats at 1.5 gallons per 100 square feet.
 - f. Total Surface: 128 mil dry thickness.

**** NOTE TO SPECIFIER ** #360 is versatile, protective water based roof and waterproof coating. #360 is ideal for use as a surface coating for built-up roofing, metal, and masonry surfaces, and for pipes and tanks above or below ground level. #360 is made from asphalt emulsified with**

bentonite clay and water. #360 is cold-applied, corrosion-resistant, and waterproof when dry, while also resisting most corrosive fumes and spray.

- B. Non-Fibered Emulsion: Tropical Roof Products #360: Solvent free, all purpose, non-fibered coating.
1. Meets and exceeds all requirements of ASTM D 1227, Type III, Class I.
 2. Application Rate, 100 square feet: 2-3 gallons.
 3. Total Solids: 45-55 percent.
 4. Weight per gallon: 8.2-8.7.
 5. Application: Airless sprayer or roller.
 6. Flammability: Wet film, non-combustible.
 7. Flame Spread: Dry film, self-extinguishing.
 8. Flexibility: Remains flexible below freezing.
 9. Elongation: Excellent.
 10. Tensile Strength: Excellent.
 11. Heat Resist at 212 degrees F: No sag, blistering, or slipping.
 12. Permeability: Varies with thickness, 0.0 – 2.0.
 13. Application Temperature: Minimum 50 degrees F.
 14. Drying Time, 70 degrees F/ 50 percent humidity: 12 hours to firm set.
 15. Clean Up: Mineral spirits or paint thinner.

**** NOTE TO SPECIFIER ** #930 4", 6" or 12" webbing must be used in conjunction with #951 Eternamastic at all seams, roof penetrations, joints or changes in plane that are subjected to high shear.**

- C. Polyester Fabric: Tropical Roof Products #930: Non-woven, spun bonded 100 percent polyester fabric.
1. Weight per square yard: 2.75 ounces.
 2. Bursting Strength (ASTM D3786): 99.6 pounds.
 3. Tensile Strength (ASTM D1682): 31.6 psi.
 4. Tear Strength (ASTM D1117): 13.2 pounds.
 5. Elongation (ASTM D1682): 40.6 percent.
 6. Conformability: Excellent.
 7. Ease of Saturation: Excellent.
- D. Elastomeric Roof Coating: Tropical Roof Products #911 Eternalastic. Tested per ASTM D 6083.
1. Good resistance to ponding water.
 2. Contains no plasticizers or migrating fire retardants.
 3. Fire Rating (ASTM E 108): Class A.
 4. Application Rate, 100 square feet: 1.5 gallons.
 5. Brookfield Viscosity at 73.4 degrees F (ASTM D 2196): 15,100 cps.
 6. Viscosity at 73.4 degrees F (ASTM D 562): 96 KU.
 7. Total Solids (by volume) (ASTM D 2697): 62.3 percent.
 8. Total Solids (by weight) (ASTM D 1644): 79.8 percent.
 9. Weight per gallon: 10.8-11.8.
 10. Application: Airless sprayer or roller.
 11. Recommended Wet Film Thickness: 24 mils.
 12. Recommended Dry Film Thickness: 12 mils.
 13. Elongation at 73 degrees F (ASTM D 2370): 160 percent.
 14. Tensile Strength at 73 degrees F (ASTM D 2370): 243 psi.
 15. Specific Gravity: 1.22 – 1.42.
 16. Low Temperature Flexibility (ASTM D 522): Pass.
 17. Resistance to Wind Driven Rain (TT-C-555B): Pass.
 18. Permeance (20 mil dry film) (ASTM D 1653): 3.9 perms.
 19. Tear Resistance (ASTM D 624): 81.3 lbf/in.
 20. Application Temperature: 50 - 110 degrees F.

21. Drying Time, 75 degrees F: Approximately 24 hours per coat.
22. Clean Up: Water before curing.

**** NOTE TO SPECIFIER ** #921 is an Energy Star® rated, CRRC-rated, Title 24 compliant, U.L. classified, elastomeric coating that forms a seamless and flexible layer of protection for your roof and designed to dramatically reduce interior temperatures. Formulated to provide a tough, durable weather resistant coating. Flexible, fast drying, elastomeric coating adheres readily to most roofing substrates. Significant degree of flexibility gives the coating the ability to expand and contract with the movement on the roof.**

- E. Energy Star Rated Elastomeric Roof Coating: Tropical Roof Products #921 REFLEX.
 1. Resistant to mold and mildew.
 2. CRRC product ID: 0656-0001.
 3. Maximum VOC content: 49 g/L.
 4. Solar Reflective, DOE: 0.84.
 5. Total Solids (by weight): 64 percent.
 6. Weight per gallon: 10.5 pounds.

**** NOTE TO SPECIFIER ** #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. This reflective mastic is a superior choice in maintenance as well as new or re-roofing situations. This flexible product should be used at laps, cracks, seams, directional wall changes, screw heads, or any place a roof intrusion is made.**

- F. Fibered Elastomeric Roof Mastic: Tropical Roof Products #951 Eternamastic.
 1. Color: White.
 2. Application Rate, 1 gallon: 10 - 12.5 square feet.
 3. Total Solids (by weight): 67.8 percent.
 4. Total Solids (by volume): 72.3 percent.
 5. Specific Gravity: 1.16 - 1.36.
 6. Weight per gallon: 10.5-11.5.
 7. Viscosity (75 degrees F): 58,500 – 60,500 cps.
 8. Application: Stiff bristle brush or trowel.
 9. Recommended Wet Film Thickness: 100 mils.
 10. Recommended Dry Film Thickness: 60 mils.
 11. Elongation: 560 percent.
 12. Tensile Strength: 213 psi.
 13. Application Temperature: 42 - 120 degrees F.
 14. Drying Time, 75 degrees F, 50 percent RH: 15 hours.
 15. Clean Up: Mineral spirits or paint thinner.

**** NOTE TO SPECIFIER ** Delete if not required.**

2.4 SILICONE ROOF SYSTEM

**** NOTE TO SPECIFIER ** Delete if not required.**

- A. Silicone Roof System for EPDM Substrates: Tropical Roofing Products.

**** NOTE TO SPECIFIER ** Select warranty length required, delete warranty lengths not required.**

1. 10 Year Warranty System:
 - a. Primer: #990 Eternalastic.
 - b. Base Coat: #914P Eterna-Sil at 1 gallon per 100 square feet.
 - c. Top Coat: #914P Eterna-Sil at 0.5 gallons per 100 square feet.
 - d. Total Silicone Thickness: 21 mil dry.
2. 15 Year Warranty System:
 - a. Primer: #990 Eternalastic.
 - b. Base Coat: #914P Eterna-Sil at 1 gallon per 100 square feet.
 - c. Top Coat: #914P Eterna-Sil at 1 gallons per 100 square feet.
 - d. Total Silicone Thickness: 28 mil dry.

3. 20 Year Warranty System:
 - a. Primer: #990 Eternalastic.
 - b. Base Coat: #914P Eterna-Sil at 1.25 gallon per 100 square feet.
 - c. Top Coat: #914P Eterna-Sil at 1.3 gallons per 100 square feet.
 - d. Total Silicone Thickness: 36 mil dry.
4. 25 Year Warranty System:
 - a. Primer: #990 Eternalastic.
 - b. Base Coat: #914P Eterna-Sil at 1.5 gallon per 100 square feet.
 - c. Top Coat: #914P Eterna-Sil at 1.5 gallons per 100 square feet.
 - d. Total Silicone Thickness: 43 mil dry.

**** NOTE TO SPECIFIER ** Delete if not required.**

B. Bitumen Substrates: Tropical Roofing Products.

**** NOTE TO SPECIFIER ** Select warranty length required, delete warranty lengths not required.**

1. 10 Year Warranty System:
 - a. Bleed Blocker: #996.
 - b. Base Coat: #914P Eterna-Sil at 1 gallon per 100 square feet.
 - c. Top Coat: #914P Eterna-Sil at 0.5 gallons per 100 square feet.
 - d. Total Silicone Thickness: 21 mil dry.
2. 15 Year Warranty System:
 - a. Bleed Blocker: #996.
 - b. Base Coat: #914P Eterna-Sil at 1 gallon per 100 square feet.
 - c. Top Coat: #914P Eterna-Sil at 1 gallons per 100 square feet.
 - d. Total Silicone Thickness: 28 mil dry.
3. 20 Year Warranty System:
 - a. Bleed Blocker: #996.
 - b. Base Coat: #914P Eterna-Sil at 1.25 gallon per 100 square feet.
 - c. Top Coat: #914P Eterna-Sil at 1.3 gallons per 100 square feet.
 - d. Total Silicone Thickness: 36 mil dry.
4. 25 Year Warranty System:
 - a. Bleed Blocker: #996.
 - b. Base Coat: #914P Eterna-Sil at 1.5 gallon per 100 square feet.
 - c. Top Coat: #914P Eterna-Sil at 1.5 gallons per 100 square feet.
 - d. Total Silicone Thickness: 43 mil dry.

**** NOTE TO SPECIFIER ** Delete if not required.**

C. Concrete Substrates: Tropical Roofing Products.

**** NOTE TO SPECIFIER ** Select warranty length required, delete warranty lengths not required.**

1. 10 Year Warranty System:
 - a. Base Coat: #914P Eterna-Sil at 1 gallon per 100 square feet.
 - b. Top Coat: #914P Eterna-Sil at 0.5 gallons per 100 square feet.
 - c. Total Silicone Thickness: 21 mil dry.
2. 15 Year Warranty System:
 - a. Base Coat: #914P Eterna-Sil at 1 gallon per 100 square feet.
 - b. Top Coat: #914P Eterna-Sil at 1 gallons per 100 square feet.
 - c. Total Silicone Thickness: 28 mil dry.
3. 20 Year Warranty System:
 - a. Base Coat: #914P Eterna-Sil at 1.25 gallon per 100 square feet.
 - b. Top Coat: #914P Eterna-Sil at 1.3 gallons per 100 square feet.
 - c. Total Silicone Thickness: 36 mil dry.
4. 25 Year Warranty System:
 - a. Base Coat: #914P Eterna-Sil at 1.5 gallon per 100 square feet.
 - b. Top Coat: #914P Eterna-Sil at 1.5 gallons per 100 square feet.
 - c. Total Silicone Thickness: 43 mil dry.

**** NOTE TO SPECIFIER ** Delete if not required.**

D. Metal Substrates: Tropical Roofing Products.

**** NOTE TO SPECIFIER ** Select warranty length required, delete warranty lengths not required.**

1. 10 Year Warranty System:
 - a. Primer: #960 Eternalastic.
 - b. Base Coat: #914P Eterna-Sil at 1 gallon per 100 square feet.
 - c. Top Coat: #914P Eterna-Sil at 0.5 gallons per 100 square feet.
 - d. Total Silicone Thickness: 21 mil dry.
2. 15 Year Warranty System:
 - a. Primer: #960 Eternalastic.
 - b. Base Coat: #914P Eterna-Sil at 1 gallon per 100 square feet.
 - c. Top Coat: #914P Eterna-Sil at 1 gallons per 100 square feet.
 - d. Total Silicone Thickness: 28 mil dry.
3. 20 Year Warranty System:
 - a. Primer: #960 Eternalastic.
 - b. Base Coat: #914P Eterna-Sil at 1.25 gallon per 100 square feet.
 - c. Top Coat: #914P Eterna-Sil at 1.3 gallons per 100 square feet.
 - d. Total Silicone Thickness: 36 mil dry.
4. 25 Year Warranty System:
 - a. Primer: #960 Eternalastic.
 - b. Base Coat: #914P Eterna-Sil at 1.5 gallon per 100 square feet.
 - c. Top Coat: #914P Eterna-Sil at 1.5 gallons per 100 square feet.
 - d. Total Silicone Thickness: 43 mil dry.

**** NOTE TO SPECIFIER ** Delete if not required.**

E. TPO or PVC Substrates: Tropical Roofing Products.

**** NOTE TO SPECIFIER ** Select warranty length required, delete warranty lengths not required.**

1. 10 Year Warranty System:
 - a. Base Coat: #914P Eterna-Sil at 1 gallon per 100 square feet.
 - b. Top Coat: #914P Eterna-Sil at 0.5 gallons per 100 square feet.
 - c. Total Silicone Thickness: 21 mil dry.
2. 15 Year Warranty System:
 - a. Base Coat: #914P Eterna-Sil at 1 gallon per 100 square feet.
 - b. Top Coat: #914P Eterna-Sil at 1 gallons per 100 square feet.
 - c. Total Silicone Thickness: 28 mil dry.
3. 20 Year Warranty System:
 - a. Base Coat: #914P Eterna-Sil at 1.25 gallon per 100 square feet.
 - b. Top Coat: #914P Eterna-Sil at 1.3 gallons per 100 square feet.
 - c. Total Silicone Thickness: 36 mil dry.
4. 25 Year Warranty System:
 - a. Base Coat: #914P Eterna-Sil at 1.5 gallon per 100 square feet.
 - b. Top Coat: #914P Eterna-Sil at 1.5 gallons per 100 square feet.
 - c. Total Silicone Thickness: 43 mil dry.

**** NOTE TO SPECIFIER ** Delete if not required.**

F. Foam Substrates: Tropical Roofing Products.

**** NOTE TO SPECIFIER ** Select warranty length required, delete warranty lengths not required.**

1. 10 Year Warranty System:
 - a. Base Coat: #914P Eterna-Sil at 1 gallon per 100 square feet.
 - b. Top Coat: #914P Eterna-Sil at 0.5 gallons per 100 square feet.
 - c. Total Silicone Thickness: 21 mil dry.
2. 15 Year Warranty System:
 - a. Base Coat: #914P Eterna-Sil at 1 gallon per 100 square feet.
 - b. Top Coat: #914P Eterna-Sil at 1 gallons per 100 square feet.
 - c. Total Silicone Thickness: 28 mil dry.
3. 20 Year Warranty System:

- a. Base Coat: #914P Eterna-Sil at 1.25 gallon per 100 square feet.
 - b. Top Coat: #914P Eterna-Sil at 1.3 gallons per 100 square feet.
 - c. Total Silicone Thickness: 36 mil dry.
4. 25 Year Warranty System:
- a. Base Coat: #914P Eterna-Sil at 1.5 gallon per 100 square feet.
 - b. Top Coat: #914P Eterna-Sil at 1.5 gallons per 100 square feet.
 - c. Total Silicone Thickness: 43 mil dry.

**** NOTE TO SPECIFIER ** #914P Silicone is an elastomeric yet vapor permeable membrane exhibiting outstanding weathering water resistance for application over itself and other silicone roof coatings on architectural surfaces such as vertical walls, masonry, concrete, metal, single-ply membranes and sprayed-in-place urethane foam (SPUF) systems.**

- G. Silicone Roof Coating: Tropical Roof Products #914P Eterna-Sil: Solvent free, high solids, single component, moisture cure liquid applied silicone coating.
- 1. Compliant with UL 790, Energy Star, CRRC, NSF International P151, California Title 24, and Miami-Dade County requirements.
 - 2. Total Solids, By Weight (ASTM D 1644): 88-92 percent.
 - 3. Tack Free Time (ASTM D 3960): 20-30 minutes.
 - 4. Skin-Over Time (WPSTM C-560): 10-15 minutes.
 - 5. Viscosity (ASTM D 2196): 15,000 centipoises.
 - 6. Elongation (ASTM D 2370): 542 percent.
 - 7. Tensile Strength (ASTM D 2370): 204 psi.
 - 8. Durometer Hardness, Shore A (ASTM D 2240): 36.
 - 9. VOC Content (EPA Method 24): Less than 24 g/L.
 - 10. Solar Reflectance (ASTM C 1569): 88 percent.
 - 11. Emittance (ASTM C 1371): 0.90.
 - 12. SRI Value (ASTM E 1980): 111.
 - 13. Permeance (ASTM E 96): 9.3 perms.
 - 14. Tear Resistance (ASTM D 624): 32 lbf/in.
 - 15. Low Temperature Flexibility (ASTM D 522): Pass.
 - 16. Resistance to Wind Driven Rain (TT-C-555B): Pass.

**** NOTE TO SPECIFIER ** #930 4", 6" or 12" webbing must be used in conjunction with #951 Eternamastic at all seams, roof penetrations, joints or changes in plane that are subjected to high shear.**

- H. Polyester Fabric: Tropical Roof Products #930: Non-woven, spun bonded 100 percent polyester fabric.
- 1. Weight per square yard: 2.75 ounces.
 - 2. Bursting Strength (ASTM D3786): 99.6 pounds.
 - 3. Tensile Strength (ASTM D1682): 31.6 psi.
 - 4. Tear Strength (ASTM D1117): 13.2 pounds.
 - 5. Elongation (ASTM D1682): 40.6 percent.
 - 6. Conformability: Excellent.
 - 7. Ease of Saturation: Excellent.

**** NOTE TO SPECIFIER ** #960 is designed for use only on rusted metal surfaces. For spot rusted areas, clean with wire brush before application of primer. If rusting is prevalent throughout the roof surface, this product should be applied with an airless sprayer. #960 Eternalastic Metal Primer promotes coating adhesion, is water based, is easily applied, and is environmentally friendly. Delete if not required.**

- I. Metal Primer: Tropical Roof Products #960 Eternalastic. Water-based.
- 1. Application Rate, 100 square feet: 1 gallon.
 - 2. Total Solids (by weight): 45-49 percent.
 - 3. Weight per gallon: 7.8-8.8.
 - 4. Application: Compressive air sprayer.

5. Viscosity: 80-90 KU.
6. Maximum VOC Content: 207 g/L.
7. Appearance: White.
8. Application Temperature: 50 - 120 degrees F.
9. Drying Time: 2 hours.
10. Clean Up: Mineral spirits, paint thinner, or water in wet stage.

**** NOTE TO SPECIFIER ** #990 is used as a pre-treatment of black EPDM rubber roof membrane prior to power washing and application of Eternalastic coating. The unique chemistry of #990 Eternalastic EPDM Primer is designed for use with Eternalastic Coating, and pre-treatment with #990 EPDM Primer significantly improves the adhesion of Eternalastic to EPDM rubber. Delete if not required.**

- J. Rinseable Primer: Tropical Roof Products #990 Eternalastic. Rinseable low viscosity, sprayable liquid.
 1. Application Rate, 500 square feet: 1 gallon.
 2. Total Solids (by weight): 14-18 percent.
 3. Weight per gallon: 7.8-8.8.
 4. Application: Compressive air sprayer.
 5. Viscosity: Same as water.
 6. Application Temperature: 32 - 120 degrees F.
 7. Drying Time: 30 minutes.
 8. Clean Up: Mineral spirits or paint thinner.

PART 3 EXECUTION

3.1 EXAMINATION AND PREPARATION

- A. Prepare substrates and openings using the methods recommended by the manufacturer for achieving best result for the substrates under project conditions.
 1. Verify that surfaces and site conditions are ready to receive work.
 2. Verify deck/substrate openings, curbs, and protrusions through deck/substrate, roof cant strips and reglets are in place and solidly set.
 3. Verify deck/substrate is structurally supported secure, and sound.
 4. The contractor shall determine the condition of the existing structural deck/substrate. Defects in the deck or substrate shall be corrected before new waterproofing work commences. Areas of deteriorated deck/substrate, porous or other affected materials must be removed and replaced with new to match existing.
 5. Verify that roof substrate is securely attached and watertight before starting with the application of the restoration/coating system.
 6. Remove unused pipes and vent stacks, fill holes with similar roofing assembly to existing.
 7. Prepare flashing substrates as required for application of new waterproofing membrane flashings.
 8. Inspect substrates, and correct defects before application of new waterproofing. Fill surface voids greater than 1/8 inch (3.2 mm) wide with an acceptable fill material.
 9. Remove all loose aggregate, dirt, dust and foreign debris by vacuum, washing, sweeping or power blower in order for the applied materials to adhere positively to the substrate in an acceptable manner. Areas of heavier dirt, dried mud or contamination may require washing. Use appropriate cleaning method necessary to achieve clean surface.
 10. Remove ponded water, snow, frost and/or ice from the work substrate prior to installing new waterproofing materials.
 11. The final substrate for waterproofing shall be clean, dry, free of loose, spalled or weak material including coatings, mineral aggregate and flood coat/gravel surfacing, oil, grease, contaminants, abrupt changes in level, waterproofing agents, curing compounds and free of projections which could damage membrane materials.

12. Verify that weather conditions meet manufacturer requirements.

**** NOTE TO SPECIFIER ** Delete methods for preparing substrates not required.**

- B. Substrate: Existing EPDM, TPO, PVC, or Metal.
 - 1. Apply a 12" x 12" test patch of the acrylic coating system prior to full roof surface installation to ensure adequate adhesion.

- C. Substrate: Concrete.
 - 1. New concrete shall have cured a minimum of 28 days in accordance with ACI-308, or as approved by Waterproofing Manufacturer's Technical Department.
 - 2. New or existing concrete shall be free of oil, grease, curing compounds, loose particles, moss, algae growth, laitance, friable matter, dirt, bituminous products and previous waterproofing materials.

**** NOTE TO SPECIFIER ** Article below is for acrylic based systems. Delete for silicone system.**

3.2 FLASHING INSTALLATION

- A. 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.

- B. Apply per manufacturers recommendations. Areas to receive flashing include:
 - 1. Base flashing.
 - 2. Wall flashing.
 - 3. Edge flashing.
 - 4. Roof drains.
 - 5. Curb flashing.
 - 6. Fasteners.
 - 7. Penetrations.
 - 8. Skylights and curbed AC units.
 - 9. Seams.
 - 10. Horizontal laps of metal roofs.
 - 11. Screws on metal roofs.
 - 12. Pitch pans.
 - 13. Condensation lines.
 - 14. Blisters and splits.
 - 15. Holes in existing membrane.

**** NOTE TO SPECIFIER ** Article below is for silicone system. Delete for acrylic based systems.**

3.3 FLASHING INSTALLATION

- A. After completion of substrate preparation, all flashing details, penetrations and curbs shall be flashed with #914P seam sealer and shall be feathered at the edges in order for the water to flow over the various flashing details.

- B. Apply per manufacturers recommendations. Areas to receive flashing include:
 - 1. Base flashing.
 - 2. Wall flashing.
 - 3. Edge flashing.
 - 4. Roof drains.
 - 5. Curb flashing.
 - 6. Fasteners.
 - 7. Penetrations.
 - 8. Skylights and curbed AC units.
 - 9. Seams.
 - 10. Horizontal laps of metal roofs.

11. Screws on metal roofs.
12. Pitch pans.
13. Condensation lines.
14. Blisters and splits.
15. Vertical seams.
16. Holes in existing membrane.

**** NOTE TO SPECIFIER ** Delete primers not required.**

3.4 PRIMER APPLICATION

- A. General:
 1. Apply primer in strict accordance with written instructions of Membrane Manufacturer. Use only proprietary materials, as supplied by the membrane manufacturer.
 2. The substrate surface must be dry, with any remaining dust or loose particles removed using clean, dry, oil-free compressed air, industrial vacuum cloth wipe or a combination of methods.
- B. #990 Rinseable EPDM, TPO, and PVC Primer:
 1. Apply at a rate of 1 gallon per 500 square feet.
 2. Apply with conventional compressive air sprayer/ Hudson sprayer.
 3. Pressure wash surface with water, two times, at a maximum of 2500 psi to remove remaining dust and dirt.
- C. #960 Eternalastic Metal Primer:
 1. For spot rusted areas, clean with wire brush before application.
 2. Apply primer using a roller or sprayer at a ratio of 1 gallon per 100 square feet only on rusted metal surfaces.
 3. If rusting is prevalent throughout the roof surface, apply with an airless sprayer.
 4. Allow for proper curing time of 2-4 hours dependent on temperature and humidity.
- D. #970 Concrete Primer:
 1. Apply using a roller or sprayer at a ratio of 0.5 gallon per 100 square feet to cover the entire roof.
 2. Coverage shall include laps, cracks, seams, directional wall changes, roof intrusions.
 3. Allow for proper curing time of 2-4 hours dependent on temperature and humidity.
- E. #995 Primer:
 1. Apply primer at the rate indicated for substrate by manufacturer.
 2. May be sprayed, brushed, or rolled.
 3. When using as block filler for porous concrete, use long nap rollers.
 4. For application on smooth surfaces, add up to one quart of water per 5 gallon pail. Use a 1/4 or 3/8 inch nap roller or nylon brush.
 5. Most coatings can be applied when primer is thoroughly set within 2 to 3 hours.
 6. Coatings may be applied up to one week after primer application, provided the surface is clean and free of chalk.

3.5 MEMBRANE APPLICATION

- A. General:
 1. Install in strict accordance with manufacturer recommendations.
 2. Use only equipment meeting recommendation of membrane manufacturer.
 3. Do not apply coating when moisture is present on the substrate or if rain is expected before coating will properly cure.
 4. Use wind barriers when wind conditions could affect the quality of the material being applied.
 5. Coating shall cover all surfaces completely. An extra pass of coating material may be required at all edges, penetrations, and vertical surfaces.

6. Coating shall be evenly applied and pinhole-free.
7. Extend coating beyond the substrate to create a self-terminating flashing.
8. If any contamination of a thoroughly cured surface occurs, it must be washed with a chemical cleaner before applying subsequent coats.
9. Apply at rate recommended by manufacturer for substrate, at minimum, more coating may be required to achieve required mil thickness.

**** NOTE TO SPECIFIER ** Paragraph below is for Reinforced All Acrylic system. Delete if not required.**

- B. Base Coat #911 Application:
1. Spray base coat and immediately back-roll the coating into the substrate to achieve full saturation into the existing roof substrate. Additional coating may be required to achieve the required 25 mils Dry Film Thickness or 48 mils wet.
 2. Place the thicker edge of the #932 polyester fabric underneath the #932 overlapping it. Do not overlap with the thicker edge on top of another #932 polyester fabric layer.
 3. Immediately following and starting at the low edge of the roof, embed a full width of #932 polyester fabric (ensure the thin edge of the polyester is placed on the starting point of the roof).
 4. Apply light pressure to the surface of the #932 polyester fabric to ensure full saturation of the #932 polyester fabric into the wet base coat while working out any wrinkles and/or voids.
 5. Terminate polyester 4 inches above cant.
 6. Do not walk on the polyester during application or while base coat is still wet.
 7. Allow a minimum of 24 hours drying time prior to any foot traffic or inspections.
 8. Allow the entire base coat surface to dry completely before applying additional coats.

**** NOTE TO SPECIFIER ** Paragraph below is for Emulsion Based Acrylic system. Delete if not required.**

- C. Base Coat #360 Application:
1. Immediately following base coat application and starting at the low edge of the roof, embed a full width of #930 polyester fabric continuing up the roof with full width sheets stopping 6" above the cant.

**** NOTE TO SPECIFIER ** The following two paragraphs are for two coat base. Delete if not required.**

2. Apply a second coat of #360 asphalt emulsion.
3. Immediately following and starting at the low edge of the roof, embed a full width of #930 polyester fabric continuing up the roof with full width sheets stopping 8" above the cant. Overlap each ply a minimum of 3 inches. Overlap ends a minimum of 4 inches.
4. Lightly broom each ply of polyester fabric to achieve full saturation having no wrinkles or voids.
5. Do not walk on the polyester during application or while emulsion is still wet.
6. Do not apply or submerge the #930 polyester fabric into the #360 emulsion.
7. Allow for proper curing time 24-72 hours.
8. Rinse the #360 emulsion, removing any light oils.
9. Allow the entire base coat surface to dry completely before applying additional coats.

**** NOTE TO SPECIFIER ** Paragraph below is for Silicone system. Delete if not required.**

- D. Base and Top Coat #914P Application, Poured-in-Place Option:
1. Use brushes or rollers designed for oil based paint.
 2. After the #995 Primer is cured, pour base coat onto roof in a narrow pass for approximately 30 feet and spread with the 3/16th notched squeegee or 18 inch applicator brush at an application rate designed to achieve the required 21 Total Dry Mil for the project.
 3. Immediately back-roll the area with a 18 inch x 3/4 inch nap roller, perpendicular to

the squeegee pattern. (Back-roll before coating begins to dry.)

4. Allow the base coat surface to dry completely prior to proceeding with the top coat.
5. Repair any deficiencies in base coat before application of the top coat.
6. The top coat(s) shall completely cover the base or intermediate coat(s) including expansion joint covers, parapets and flashings applied at an application rate designed to achieve the required TDM for the project same as above, at right angles to the previous coat.

**** NOTE TO SPECIFIER ** Walkways are optional. Delete if not required.**

7. In high-traffic areas and around mechanical equipment, install walkways to protect the coating system from damage

**** NOTE TO SPECIFIER ** Paragraph below is for Silicone system. Delete if not required.**

- E. Base and Top Coat #914P Application, Spray Application Option:
1. Use only equipment as recommended by coating manufacturer.
 2. Spray base coat at an application rate designed to achieve the required Total Dry Mil for the project.
 3. The top coat(s) shall completely cover the base or intermediate coat(s) including expansion joint covers, parapets and flashings.
 4. Repair any deficiencies in base coat before application of the top coat.
 5. Spray additional coats when required at an application rate designed to achieve the required Total Dry Mil for the project, the same as above, at right angles to the previous coat.
 6. Pay special attention to overspray, which can texture or discolor adjoining finished sections. Wind direction should conduct overspray away from finished roofing surfaces.

**** NOTE TO SPECIFIER ** Walkways are optional. Delete if not required.**

7. In high-traffic areas and around mechanical equipment, install walkways to protect the coating system from damage.

**** NOTE TO SPECIFIER ** Paragraph below is for Acrylic systems. Delete if not required.**

- F. Pipe Flashings and Penetrations:
1. After the base coat is cured and prior to the application of the top coat:
 - a. Apply #951 fibered Eternamastic and polyester fabric in a three course fashion to all pipe flashings, cones, exposed metal joints and flanges.
 - b. Apply #951 fibered Eternamastic to all corners and curbs and skylight flashings or any area that has been previously repaired with roofing mastic.

**** NOTE TO SPECIFIER ** Paragraph below is for Acrylic systems. Delete if not required.**

- G. Poned Areas and Drains:
1. After the base coat is cured and prior to the application of the top coat:
 - a. All areas around drains and scuppers shall be treated with a second layer of polyester fabric saturated in the coating recommended by manufacturer.
 - b. Waterways and any locations where water ponds for more than 48 hours shall be treated with a second layer of polyester fabric embedded in the coating recommended by manufacturer. The polyester fabric shall extend 12" beyond the designated ponding area or as necessary to extend beyond the drain sump. In this area, saturate the polyester fabric into a 3 gallon per 100 square feet application of coating and brush lightly to achieve full saturation without wrinkles or voids.

**** NOTE TO SPECIFIER ** Paragraph below is for Reinforced All Acrylic system. Delete if not required.**

- H. Top Coat #911 Application:
1. Repair any deficiencies in base coat before application of the top coat.
 2. The top coat shall completely cover the base coat including expansion joint covers,

parapets and flashings.

3. Allow a minimum of 12 hours drying time prior to any foot traffic or inspections.
4. Apply second layer of top coat with #911 Eternalastic coating perpendicular to the first in a "cross hatch" manner.

**** NOTE TO SPECIFIER ** Next two paragraphs are for three top coats. Delete if not required.**

5. Allow a minimum of 12 hours drying time prior to any foot traffic or inspections.
6. Apply third layer of top coat with #911 Eternalastic coating perpendicular to the second in a "cross hatch" manner.
7. Do not walk on the polyester during application or while base coat is still wet.
8. Allow a minimum of 12-24 hours drying time prior to any foot traffic or inspections.
9. After curing, inspect for defects and repair as necessary.
10. Pay special attention not to overspray, which can texture or discolor adjoining finished sections.

**** NOTE TO SPECIFIER ** Walkways are optional. Delete if not required.**

11. In high-traffic areas and around mechanical equipment, install walkways to protect the coating system from damage.

**** NOTE TO SPECIFIER ** Paragraph below is for Emulsion Based Acrylic system. Delete if not required.**

I. Top Coat Application:

1. Repair any deficiencies in base coat before application of the top coat.

**** NOTE TO SPECIFIER ** Two paragraphs below are for #921 top coat. Delete if not required.**

2. Apply the first layer of top coat with #921 Reflex coating.
3. Apply second layer of top coat with #921 Reflex coating perpendicular to the first in a "cross hatch" manner.

**** NOTE TO SPECIFIER ** Three paragraphs below are for #911 top coat. Third paragraph below is for three top coats system. Delete if not required.**

4. Apply the first layer of top coat with #911 Eternalastic coating.
5. Apply second layer of top coat with #911 Eternalastic coating perpendicular to the first in a "cross hatch" manner.
6. Apply third layer of top coat with #911 Eternalastic coating perpendicular to the second in a "cross hatch" manner.
7. The top coat shall completely cover the base coat including expansion joint covers, parapets and flashings.
8. Allow a minimum of 12-24 hours drying time before allowing any foot traffic or inspections.
9. After curing, inspect for defects and repair as necessary.
10. Pay special attention not to overspray, which can texture or discolor adjoining finished sections.

**** NOTE TO SPECIFIER ** Walkways are optional. Delete if not required.**

11. In high-traffic areas and around mechanical equipment, install walkways to protect the coating system from damage.

3.6 FIELD QUALITY CONTROL

- A. 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.
- B. Inspect completed coating system and correct all defects to meet the specification and/or warranty requirements.
- C. Arrange manufacturer inspection of the completed coating system and repair any defects identified.

- D. 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 coating membrane.

3.7 REPAIRS

- A. 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 Mil.
- B. Delamination:
 - 1. 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.
 - 2. 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.
- C. 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.
- D. Texture Finish: Heavy patterns, blistering, "skinning," etc. may appear in the final finish. These may be indicators 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.
- E. Damaged or punctured membrane: Cut, clean, and dry damaged area. Repair per manufacturer instructions.

3.8 CLOSEOUT

- A. Correction of Work:
 - 1. Work that does not conform to specified requirements including tolerances, slopes, and finishes shall be corrected and/or replaced. Any deficiencies of membrane application, termination and/or protection as noted during the Membrane Manufacturer's inspections shall be corrected and/or replaced at Contractor's expense.
- B. Clean-Up:
 - 1. Remove masking and protection tapes.
 - 2. Remove all roof related trash and debris from jobsite.
 - 3. Dispose of containers in accordance with local regulations.

3.9 PROTECTION

- A. 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.

END OF SECTION