

## **SECTION 07 56 00**

### **TOPSHIELD GUIDE SPECIFICATION SMOOTH AND GRANULE SURFACE ROOF RESTORATION TS-BU-85-1.5 10yr**

#### **PART I – GENERAL**

##### **1.01 RELATED DOCUMENTS**

- A. Requirements of Division 1 General Requirements and manufacturers guide specifications.
- B. Related sections – Sheet metal, Carpentry, Insulation and Demolition

##### **1.02 DESCRIPTION**

- A. Restoration of existing smooth surface built-up or granule surfaced modified bitumen roof membrane using a high solids, silicone roof coating and polyester reinforcement over seams.
- B. System provides a durable waterproof membrane over existing roof surfaces that have retained structural integrity but have become weathered and deteriorated.

##### **1.03 SUBMITTALS**

- A. Sample of polyester material.
- B. Applicator approval letter from the manufacturer
- C. Product literature and flashing details
- D. Manufacturer's warranty as required

##### **1.04 QUALITY CONTROL**

- A. Comply with manufacturer's installation instructions and manufacturer's published specifications for all phases of work including substrate preparation, application of materials and protection of adjacent surfaces.
- B. All substrates must be peel tested for adhesion strength and those results provided to TOPSHIELD for analysis.
- C. Insulated roofs must have an infra-red scan and wet areas marked and removed.

##### **1.05 PRODUCT DELIVERY, STORAGE AND HANDLING**

- A. Package labels must be clearly visible on pallets
- B. Store all roll goods in a dry, protected environment
- C. Store coatings and mastics at recommended temperatures appropriate for time of year materials are being installed. Product must be stored at temperatures as stated on the product label. Polyester must be kept dry.

**1.06 PROJECT CONDITIONS**

- A. Ambient air temperature must be between 55°F and 110°F for application of TS #83 base and between 40°F and 110°F for TS #85 silicone coating. See individual label instructions.
- B. Roof surface must be dry with no precipitation in the forecast for the next 8 hours.
- C. Contractor must follow local, state and federal codes and safety requirements

**1.07 WARRANTY**

- A. Warranty issued shall be for coating application only. This warranty does not cover the existing roof, structural deck or any labor associated with this project.
- B. Warranties will be issued for completed projects on entire building.

**PART II – PRODUCTS**

**2.01 ACCEPTABLE MANUFACTURERS**

- A. TOPSHIELD Roofing Systems

**2.02 MATERIALS**

- A. Roof Coating System: TS-BU-85-1.5 10yr
- B. Material quantities:
  - TS #83 base 1-2 gals per sq
  - TS #85 silicone coating 1.5 gals per sq
- C. #11 granules
- D. #483 polyester for seams and flashing reinforcement
- E. TS #81 Armor Flash silicone sealant for flashing and details
- F. TOPSHIELD Tape for flashing and details
- G. Silicone sealant
- H. TS #85 silicone roof coating applied at the total rate of 1.5 gallons per square in one coat.
  - Weight 10.7 lbs/gallon
  - Reflectivity .87
  - Solids by weight 96 + or - 3%
  - Solids by volume 96 + or - 3%
  - Elongation 200%
  - Tensile Strength 300 psi
  - Permeability 5 perms
  - Cure time (50% Relative Humidity, 70°F) 2-8 hours (approx)
  - Ambient air application temp 40°F - 110°F

**PART III – EXECUTION**

**3.01 INSPECTION**

- A. Evaluate condition of existing smooth BUR or Mod Bit membrane system. Perform total inspection of all roof areas.
- B. Nondestructive testing (Infra-red photography and onsite inspection) shall be performed and verified with actual roof cores. A roof plan shall be made to show all wet areas, which require replacement of wet insulation and damaged membrane.
- C. Deck replacement – as the restoration progresses deteriorated deck shall be removed and replaced with like kind and quality material.
- D. All roofs must maintain positive drainage. Ponding water is defined by the NRCA as “water that remains more than 48 hours after precipitation has stopped.” Drainage can sometimes be improved by adding drains, changing the slope of the structural deck or removing existing insulation and roof membrane and reinstalling a tapered insulation and new roof membrane.

### **3.02 WEATHER CONDITIONS & TEMPERATURE REQUIREMENTS**

- A. Ambient air temperature must be between 55°F and 110°F for application of TS #83 base and between 40°F and 110°F for TS #85 silicone coating. See individual label instructions. Do not apply materials when roof surface temperature is over 180°F.
- B. When installing the silicone coating, roof surface must be dry with no precipitation in the forecast for the next 8 hours. Start calculation of 8-hour dry time after all work is completed. Conditions with a relative humidity lower than 55% will require additional drying time. Low humidity, low temperatures, cloud cover and calm air will all slow the curing process. High humidity, high temperatures, direct sun and wind will speed the curing process. Installation of TS #83 requires no precipitation in the forecast for the next 24 hours. Low humidity, high temperatures, direct sun and wind will speed the curing process.
- C. Extra caution is needed when applying material in windy conditions. Never apply material with excessive wind. Contractor should constantly monitor wind direction to prevent coating of cars and adjacent surfaces. If winds become excessive, application should stop. TS #85 silicone and TS #83 base can be applied by squeegee and roller, brush or spray application.

### **3.03 SURFACE PREPARATION & REPAIRS**

- A. Surface shall be swept clean of all debris and power washed before making repairs. Surface must be completely dry before applying repair products or coatings.
- B. Seams: On all cap sheet and flashing seams, install a 3 course application of #483 polyester minimum 6” wide in TS #83 base applied at a rate of 4 gal per square. Brush in polyester to ensure complete embedment in TS #83 base. (Optional depending on substrate and warranty requirements).
- C. Splits and blisters in membrane: Install a 5 course application of #483 polyester and TS #83 base. Apply a minimum of 1/8” thick, per ply, per layer.
- D. Wrinkles, ridges & fish mouths in membrane: Install a 3 course application of #483 polyester and TS #83 base. Apply a minimum of 1/8” thick, per ply, per layer.

- E. Abandoned pipes and vent stacks should be removed and holes filled in and roofed with like decking, insulation and membrane.
- F. Deteriorated pipe and vent flashing should be replaced with new 24-gauge galvanized flashings or appropriate metal flashing boots.
- G. Existing pipes and vents shall be cleaned and 5 coursed with TS #81 silicone patch using a wrap and target reinforcement of #483 polyester or TOPSHIELD Tape. 60 lbs of #11 ceramic granules may be embedded into a surface coat of TS #85 coating or TS #81 silicone patch to match the color of adjacent structures and coatings. 5 course application MUST be installed AFTER application of TS #83 Armor Base.
- H. Curbs, base flashing, and wall flashing up to 12" high (Including Skylights, HVAC, fan, evaporator, equipment and pipe support curbs): Install a 3 course application of #483 polyester in 4 gallons per square of TS #83 base and allow to completely cure. Polyester (min. 6" width) shall extend a minimum of 2" past the cant or corner. Brush in the polyester to assure no voids, wrinkles or fish mouths.
- I. Metal edge: Re-secure loose metal, clean and allow to completely dry. Apply six inch wide TOPSHIELD Tape and coat with TS #83 base.
- J. Scuppers: Clean, let dry and install a 3 course application of 6" #483 polyester reinforcement and TS #81 silicone sealant. Three course application MUST be installed AFTER application of TS #83 base.
- K. Josam Type Cast Iron Drains: Remove flashing ring, clean 4'X4' area and allow to completely dry. Apply and roll in a layer of TOPSHIELD Tape over the joint at the drain bowl. Extend tape a minimum of 1" on to the cast iron drain bowl and 3" on to the existing membrane. Embed a 2'X2' piece of #483 Polyester Reinforcement in a 3-4 gallon application of TS #83 base and extend past drain ring down into the drain bowl. Reinstall flashing ring after application of field system is complete. Work with owner's rep to arrange for water testing of drains and drain pipes.
- L. Pitch pans: clean all exposed metal inside and out, fill and trowel to create a slight slope with TS #81 silicone patch. New or replacement pitch pans may be filled with quick drying concrete grout to two inches from the top, then fill with TS #81 silicone patch.
- M. Wood blocking: remove and replace existing wood blocking with redwood or pressure treated 2X4 lumber for small pipes and 4X4 blocking for small HVAC units. Install blocks in TS #81 silicone patch on top of ½" Dek-Top Walkway Pads. Install new restoration membrane before installing roof walkway pads. For large horizontal gas lines and electrical conduit (2" diameter and larger), satellite dishes over 3' in diameter and HVAC units over 200 lbs. consult a structural engineer to design appropriate support system. Flash new steel supports with TS #81 silicone patch and #483 polyester reinforcement using a wrap and target method to assure a 5 course reinforcement at the base of the penetration.
- N. Valleys and Waterways: Embed one ply of #483 polyester in a 3-4 gal/sq application of TS #83 base and allow to fully cure.
- O. Gutters: Re-secure gutter joints and clean. Seal joints by applying TOPSHIELD Tape. Coat tape and seal tape edges with TS #81 silicone patch. Deteriorated sections of metal gutter must be replaced. Rotted concealed wood gutters must be repaired and relined with a multi ply modified bitumen membrane. Water test gutters after all repairs have been completed.

- P. Metal Counter Flashing: Raise or remove existing metal counter flashing. Install specified base flashing. Reinstall metal so that base flashing is counter flashed. On masonry walls, rake out the reglet joint and re-caulk with an approved non staining sealant. On structural concrete, reseal between metal and concrete wall using a TS approved sealant. On curbed HVAC units, reinstall metal counter flashing and seal between the unit and the counter flashing metal with a self-adhering, compressible foam tape.
- Q. Expansion Joints and Control Joints: use curb flashing repair methods on the joint curbs only. Do not coat expansion or control joints with curb flashing materials. If existing expansion joint materials are repairable use materials and methods recommended by the original manufacturer of the joint. Replace the joint if deteriorated with a new expansion joint system, which will counter flash the TS base flashing.

### **3.04 MEMBRANE APPLICATION**

- A. Protection and start-up procedures
  - 1. Prior to application, post notices a minimum of 48 hours around building and parking lots. Protect adjacent surfaces where product is not to be applied using masking tape, plastic / paper sheets, stretch wrap, tarps or plywood, whichever is appropriate.
  - 2. Owner should be notified of start times so that fresh air intakes may be sealed off and or HVAC units shut down.
  - 3. Contractor must remove drain screens and seal the drainpipe to prevent plugging of drain during the coating operation. Unplug drains and reinstall screens after application operation has been completed.
- B. Base Coat: Apply TS #83 base at the rate of 1-2 gallons per square
- C. Finish Coat: After TS #83 base has cured (a minimum of 72 hours), apply TS #85 silicone roof coating at the rate of 1.5 gallons per square in one coat.
- D. Skim Coat with granules (Optional): Wait a minimum of 4 hours depending on drying conditions and then apply a skim coat of TS #85 silicone roof coating at the rate of 1.0 gallons per square and broadcast #11 ceramic granules at the minimum rate of 40 lbs per square.
- E. Skid resistant surface (Optional): Let the TS #85 silicone roof coating cure till walkable. Mix 3-5 lbs of crushed walnut shells into a 5 gal pail of coating and stir till uniform. Apply using a roller at a minimum rate of 1 gallon per square. Skid resistance can be increased or decreased by adding varying amounts of crushed walnut shells. For source of crushed shells contact:
  - Composition Materials Co., Inc.
  - 249 Pepes Farm Road
  - Milford, CT
  - 203-874-6500

Note: NEVER apply to wet or damp or rusted surfaces. Surfaces should be completely cleaned before application. Low humidity may extend curing periods. All repairs must use compatible products.

### **3.05 JOB SITE CLEAN UP**

- A. Remove masking and protection
- B. Notify owner application is complete so HVAC vents can be opened and units restarted.
- C. Remove all roofing related trash and debris from jobsite.
- D. Dispose of containers in accordance with local regulations.

Note: TOPSHIELD does not practice Engineering or Architecture. Any review of the buildings construction or inspection of roof plans or inspection of the building's structural roof deck by TOPSHIELD representatives shall not constitute any warranty by TOPSHIELD of such plans, specifications or construction. Any roof inspections are solely for the benefit of TOPSHIELD. TOPSHIELD is not responsible for the failure of previously applied coatings.