SILICONE ROOF COATING RESTORATION (RCR) SYSTEM OVER EPDM MEMBRANES

Part 1. General Conditions

1.1 Description

A. Scope of Work

Provide all materials, labor and equipment required for the installation of the RCR System over the existing weathered EPDM single ply membrane including all ancillary products.

B. Related Work

1. Perform Moisture Survey
2. Replace Wet Insulation
3. Repair All Sheet Metal Defects
4. Repair All Flashing Defects
5. Surface Preparation
6. Perform Adhesion Tests
7. Install Silicone RCR Membrane
8. Install Walkway Systems

1.2 Performance Requirements

A. All silicone products must be domestically produced. Products produced outside of the US will not be accepted.

B. Coating manufacturer must produce its own product. Private labeled silicone coating products will not be accepted.

1.3 Submittals

A. Product Data: Product data on silicone coating, physical and chemical properties, preparation of substrate required, product limitations, and cautionary requirements.

B. Safety Data Sheets (SDS)

C. Shop Drawings: Roof plan and details showing extent of roofing, intersections with adjacent surfaces, and details of expansion joints, counterflashing, and other items for a complete roofing system.

D. Manufacturer's Installation Instructions: Indicate installation requirements and procedures.

E. Certificates:

1. Product certificates signed by the manufacturer certifying material is in compliance with the specified performance characteristics and criteria, and physical requirements.
2. Provide a copy of Certified Licensed Applicator (CLA) certificate.

F. Sample copy of PM warranty

G. Maintenance Data: For RCR System to include in maintenance manuals.

H. Final Inspection Report: Copy of roofing system manufacturer's inspection report of completed roofing installation.

1.4 Quality Assurance

A. Manufacturer:

1. Company specializing in the manufacturing of the system specified in this Section.
2. A minimum of 10,000,000 square feet of a similar system installed.
3. A minimum of 10 years manufacturing experience.

B. Installer:

1. Installer must be a Certified Licensed Applicator (CLA) by the Manufacturer providing the warranty and is capable of receiving the specified warranty.
2. CLA to ensure all personnel are properly trained and have a full understanding of all OSHA safety requirements.

1.5 Delivery, Storage, and Handling

A. Deliver and store liquid materials and other products in their original unopened containers or packaging until ready for installation.

B. Materials shall be clearly labeled with the manufacturer's name, product identification, safety information, and lot numbers.

C. Store materials indoors whenever possible.

D. Product should be stored in a range of 40-80 degrees Fahrenheit.

E. Comply with the manufacturer's instructions for handling and safety procedures.

F. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.6 Environmental Requirements

A. Maintain logs of environmental conditions (temperature, humidity, and wind speed) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside of manufacturer's limits.

B. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

C. Do not install silicone coating under the following conditions:

1. When ambient temperature is below 35° F.
2. At temperatures less than 5° F above dew point.

1.7 Warranty

A. Provide Manufacturer's (5, 10, 15 or 20 year) labor & material warranty covering leaks due to silicone material failure.

Part 2. Products

2.1 Acceptable Products

A. Insulation Board
   1. Match existing material

B. Cleaners and Primers
   1. Progressive Materials: Pro-Prime P-120 EPDM Rinseable Primer
   2. Progressive Materials: Pro-Prime P-110 EPDM Bleed Block Primer

C. Silicone Caulk Sealant
   1. Progressive Materials: SS 300 Series Silicone Sealant

D. Flashing Grade Sealant
   1. Progressive Materials: FG 400 Silicone Flashing Grade Sealant

E. Reinforcing Fabric
   1. Progressive Materials: PF 200 Polyester Fabric
      a. PF 206 – 6”
      b. PF 212 – 12”

F. Moisture Relief Vents
   1. Progressive Materials: MRV 600 One-Way Roof Vent

G. Walkway System
   1. Progressive Materials: Pro-Grip Walkway System
      a. PG 700 Pro-Grip Yellow Walkway Coating
      b. PG 750 Pro-Grip Yellow Walkway Granules

I. Skylight Sealer
   1. Progressive Materials: HS 3220 Clear Silicone Skylight Coating

J. Silicone Coating
   1. Progressive Materials: Pro-EcoSil HS 3200 Series

2.2 Silicone Coating Materials

A. Silicone base and top coat to be Pro-EcoSil HS 3200 Series Silicone Coating by Progressive Materials, LLC and complying with the following minimum properties:
   1. Tensile Strength: ASTM D412, 247.
   2. Elongation: ASTM D412, 237 percent minimum at break at 75° F.
   3. Water Vapor Permeance: ASTM D-96, 10.7 at 20 mils.
   4. Fire resistance: ASTM E108, UL 790 Class A.
   5. Color: Owner to select standard topcoat color.
   6. Solids Content: 92% ±3%
   7. VOC Content: < 50 grams/liter
   8. Initial Solar Reflectivity: .89
   9. Initial Thermal Emissivity: .90
   10. SRI Value: 113

Part 3. Execution

3.1 Examination

A. Verify roof slope prior to beginning installation. There is to be no single area of standing water on the roof 24 hours after a rain, greater than 100 sq. ft. and more than ½" deep.

B. Perform infra-red thermal, or other industry accepted method, to scan of roof to identify any wet insulation.

C. Identify all seam failures, flashings failures and inadequate sheet metal details.

D. Inspect all roof drains to ensure proper performance.

E. Inspect all roof system fasteners for back out.

3.2 Preparation

A. Membrane Cleaning:

1. Apply P-120 EPDM Rinseable Cleaner at a rate of 400 sq ft per gallon, let material stand for 15 minutes and then rinse off.
2. Thoroughly pressure wash roof surface and all other areas to receive new coating with a minimum of 2,000 psi water pressure. Be sure not to damage existing membrane during this process.
3. After the surface has dried, perform an adhesion test. If the coating does not properly adhere to the surface, repeat steps 1 and 2 above.
4. Any areas of grease contamination are to be cleaned with an industrial strength detergent or removed and replaced.

B. Existing Wet Insulation Areas:

1. Roof areas containing moisture below the roof surface shall either be replaced, or for areas less than 500 sq. ft. with moderate moisture content, a moisture relief vent shall be installed.

a. Wet Insulation Replacement (wet area is greater than 500 sq. ft.)

1) Remove EPDM membrane to expose wet insulation.

2) Replace insulation with identical insulation materials. Fasten new insulation at a rate determined by local code.

3) Patch the area of removed EPDM with new EPDM according to manufacturer's specification.

4) At the leading edges of roof patches, apply a 3-course coating and fabric utilizing the PF 200 Polyester Fabric and HS 3200 Silicone Coating.

a) Apply 12 to 15 mils of silicone coating over surface to receive fabric.

b) Embed fabric into silicone coating while still wet. Smooth out fabric and ensure there are no wrinkles or fish mouths.

c) After the base coating has cured, apply a minimum 20 mil coat of HS 3200 silicone coating over the fabric to ensure complete saturation.

b. Moisture Relief Vent Installation (wet area is less than 500 sq. ft.)

1) Locate center of moisture-containing insulation.

2) Cut a 4" diameter opening through the membrane and insulation material; remove material to vapor barrier or deck.

3) Lay the MRV 600 Roof Vent on top of roof membrane and attach vent to the roof deck

with the appropriate fastener. Install 4 fasteners per vent, evenly spaced.

1) Clean area of vent that is to receive flashing material with clean rag and solvent to remove oil film from vent.

2) Flash in vent with one of the two following procedures:

a) Apply a 3-course coating and fabric utilizing the PF 200 Polyester Fabric and HS 3200 Silicone Coating.

(1) Apply 12 to 15 mils of silicone coating over surface to receive fabric.

(2) Embed fabric into silicone coating while still wet. Fabric should extend at least 2" on to the flange of the vent and at least 4" on to the roof surface.

(3) After the base coating has cured, apply a generous coat of HS 3200 Silicone Coating or FG 401 Silicone Flashing Grade Sealant over the fabric to ensure complete saturation.

(4)

B. Flashings Details: Ensure all existing flashings provide a watertight condition. If necessary, re-flash any areas required utilizing apply a 3-course coating and fabric utilizing the PF 200 Polyester Fabric and HS 3200 Silicone Coating.

C. Membrane Seams: Repair all seam failures utilizing a 3-course coating and fabric utilizing the PF 200 Polyester Fabric and HS 3200 Silicone Coating. NOTE: On 15- or 20-year warranties, all seams must be reinforced with a 3-course method, unless the seams have been previously reinforced.

D. Sheet Metal: Ensure all sheet metal is in good condition and will provide watertight condition. If necessary, replace or repair any sheet metal required.

E. Fastener Back Out: Identify and replace all fasteners that are loose or backed out. Repair membrane cuts utilizing a 3-course coating and fabric utilizing the PF 200 Polyester Fabric and HS 3200 Silicone Coating.

3.3 Silicone Coating Installation

A. Ensure surface is completely dry.

B. Ensure subsequent coats of primer or silicone coating is completely cured.

C. Ensure adhesion tests have been completed and results are satisfactory with the manufacturer's requirements.

D. Install silicone coating in one pass over entire roof surface at a rate of:

1. 20 dry mils minimum for a 5-year warranty
2. 25 dry mils minimum for a 10-year warranty
3. 30 dry mils minimum for a 15-year warranty
4. 35 dry mils minimum for a 20-year warranty

E. While spraying or rolling the silicone coating, special effort should be made to have pass lines overlap on membrane seams as to provide additional coating thickness on the seams.

F. It is strongly recommended that the coating should be applied with a roller at all edges and penetrations to prevent overspray and provide a clean straight edge.

A. NOTES:

1. Over some asphalt based or EPDM based products, a slight bleed-through or "yellowing" may occur through the silicone coating. This is only a cosmetic issue and will not affect the performance of the system

2. Any subsequent membrane repairs after the coating installation should be done only with silicone products. If repairs are needed, they should be completed with a 3-course coating and fabric.

3.2 Walkway System

A. Install the Pro-Grip Walkway System at heavy traffic areas and at high impact areas as directed by the owner.

1. Walkway Areas

   a. Mask off area to receive walkway system to ensure clean, straight edges.

   b. Install PG 700 Pro-Grip Yellow Walkway Coating at a thickness of 25 mils.

   c. Immediately after the application of the PG 700, broadcast PG 750 Pro-Grip Walkway Granules into the coating at a rate of 40 lbs. per 100 square feet. The granules will settle into the coating. Inspect the surface within a few minutes and reapply as needed to obtain a continuous film of granules.

2. High Impact Areas (around mechanical equipment, etc)

   a. Mask off area to receive walkway system to ensure clean straight edges. Area should be 30" wide around all identified equipment.

   b. Install PG 700 Pro-Grip Yellow Walkway Coating at a thickness of 40 mils.

   c. Immediately after the application of the PG 700, broadcast PG 750 Pro-Grip Walkway Granules into the coating at a rate of 60 lbs. per 100 square feet. The granules will settle into the coating. Inspect the surface within a few minutes and reapply as needed to obtain a continuous film of granules.

B. After the coating has completely cured, remove all loose granules with a small hand blower and a soft bristle broom.

3.3 Field Quality Control

A. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation upon completion and submit report to Owner/Architect. There shall be no items on the roof that could inhibit the inspection process, such as, solar panels, decking systems, etc.

1. Notify Owner 48 hours in advance of date and time of inspection.

   a. Repair or remove and replace components of roofing system where inspection results indicate that they do not comply with specified requirements.

END OF SECTION