SILICONE ROOF COATING RESTORATION (RCR) SYSTEM OVER METAL ROOF PANEL

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 metal roof including all ancillary products.

B. Related Work

1. Repair All Sheet Metal Defects
2. Repair All Flashing Defects
3. Surface Preparation
4. Perform Adhesion Tests
5. Install Silicone RCR Membrane
6. Install Walkway Systems

1.2 Performance Requirements

A. Conform to applicable code for fire resistance ratings of roof system.

B. Underwriters Laboratories, Inc. - UL 790: Class A Fire Hazard Classification.

C. Factory Mutual (FM) – FM Standard 4470 approval

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

E. 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 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. Cleaners and Primers

1. Progressive Materials:
   a. P-130 Rust Inhibitive Primer
   b. P-151 (For Kynar finish metal roof panels)

B. Silicone Caulk Sealant

1. Progressive Materials: SS 300 Series Silicone Sealant

C. Flashing Grade Sealant

1. Progressive Materials: FG 400 Silicone Flashing Grade Sealant

D. Reinforcing Fabric

1. Progressive Materials: PF 200 Polyester Fabric

a. PF 206 – 6”

b. PF 212 – 12”

E. 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

F. Skylight Sealer

1. Progressive Materials: HS 3220 Clear Silicone Skylight Coating

H. Silicone Coating

1. Progressive Materials: Pro-EcoSil HS 3200 Series

2.2 Silicone Coating Materials

A. Silicone base and topcoat 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. Identify all seam failures, flashings failures and inadequate sheet metal details.

C. Inspect all roof drains to ensure proper performance.

D. Inspect all roof system fasteners for back out.

3.2 Preparation

A. Cleaning

1. 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 metal panels during this process.
2. After the surface has dried, perform an adhesion test. If the coating does not properly adhere to the surface, apply in non-rusted areas P-151 primer at a rate of ¼ - 1/3 gallon per 100 square.
3. Any areas of grease contamination are to be cleaned with an industrial strength detergent.
4. Any existing roofing or mastic materials must be removed as the warranty will not cover failure of underlying materials.
5. All loose coating or paint material must be removed by wire brush, power washing or scraping.

B. Rust Contamination

1. Any rust areas should be cleaned with a wire brush to remove scaling.
2. Apply P-130 Rust Inhibitive Primer at a rate of ½ gallon per square.

C. Flashing Details

1. Ensure all existing flashings provide a watertight condition. If necessary, re-flash any areas with Flashing grade or a 3-course coating and fabric method.

D. Sheet Metal

1. Ensure all sheet metal accessories are in good condition and will provide watertight condition. If necessary, replace or repair any sheet metal required to provide a watertight condition.

E. Fasteners

1. Identify and replace all fasteners that are loose or backed out and replace with oversized fastener.
2. Prior to coating the field of the roof, spot apply FG-400 or SS-300 to all fasteners. Generously apply coating to ensure complete encapsulation of fastener. Application may take 2 coats depending on fastener size.

F. Fiberglass Skylight Panels

1. Thoroughly clean skylight panels and apply 2 coats (30 mils) of HS 3220 Clear Skylight Coating.

G. Horizontal Laps:

1. Apply pressure to lower lap panel, if more than 1/8" gap appears at lap joint, install additional stitch fasteners.
2. Clean any residual roofing material from lap area.
3. Required options for sealing seams:
    A. FG-400 at a minimum of 25 mils on all horizontal seams in a 4" pass.
    B. 3 Course method - apply 12 to 15 mils of silicone over surface to receive fabric

    embed fabric into silicone coating while wet. Smooth out all wrinkles and fish mouths. After base coat dries apply a minimum of 20 mils of silicone coating.

1. Vertical Laps

1. Apply pressure to vertical lap joint, if more than 1/8" gap appears at lap joint, install additional fasteners, and treat fastener as outlined above.

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 over entire roof surface to achieve a final thickness of:

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

Note: Depending on roof slope, multiple passes may be required to ensure uniform coating thickness.

E. Care should be taken to ensure proper coverage of vertical rib surfaces.

F. NOTE

1. Any subsequent roof repairs after the coating installation should be done only with silicone

products. Repairs should be completed with a 3-course coating and fabric method if needed.

3.4 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. Walkways should be a minimum of 30" wide.

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

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

d. 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. Apply the granules generously, 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. Apply the granules generously, 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.

3.5 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