PROGRESSIVE MATERIALS

PREMIUM COATING SYSTEMS

SILICONE ROOF COATING RESTORATION (RCR) SYSTEM OVER MODIFIED BITUMEN, CAP SHEET, OR SMOOTH SURFACE BUR

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 modified bitumen or smooth surface built-up roof 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 Note:
    a. Note: all repairs done with asphaltic membranes must weather a minimum of 90 days before application of new silicone coating.
    b. Progressive Materials 3201, 2201 (white) silicone coating only. Nonwhite colors are not permitted.
    c. Depending on substrate condition, power brooming can take place of power washing. See section 3.2.

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.
F. Provide a copy of PM Certified Licensed Applicator (CLA) certificate.
G. Sample copy of PM warranty
H. Maintenance Data: For RCR System to include in maintenance manuals.
I. 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: P-160 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. Surface Leveling Coating
1. Progressive Materials: Pro-Level SL 800 (see TDS for application and rate)

F. Ponding Water Eliminator
1. Progressive Materials: Pro Slope SL 851 (see TDS for application and rate)

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

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

I. 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

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

K. Silicone Coating
1. Progressive Materials: Pro Eco Sil HS 3200 Series
2. Progressive Materials: Pro Poly Sil LS 2200 Series

2.2 Silicone Coating Materials

A. Silicone base and topcoat to be Pro-Eco Sil HS 3200 Series Silicone Coating by Progressive Materials, LLC and complying with the following minimum properties:
1. Tensile Strength: ASTM D412, 325.
2. Elongation: ASTM D412, 300 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

B. Silicone base and topcoat to be Pro-Poly Sil LS 2200 Series Silicone Coating by Progressive Materials, LLC and complying with the following minimum properties:
1. Tensile Strength: ASTM D412, 551
2. Elongation: ASTM D412, 186 percent minimum at break at 75° F.
3. Water Vapor Permeance: ASTM E-96, 7.9 at 20 mils.
4. Fire resistance: ASTM E108, UL 790 Class A.
5. Color: Owner to select standard topcoat color.
6. Solids Content by Weight: ASTM D-1644, 82% ±2%
7. VoC Content: < 250 grams/liter
8. Initial Solar Reflectivity: .87
9.Initial Thermal Emissivity: .90
10. SRI Value: 110

E. Surface Leveling Coating
1. Progressive Materials: Pro-Level SL 800 (see TDS for application and rate)
F. Ponding Water Eliminator
1. Progressive Materials: Pro Slope SL 851 (see TDS for application and rate)
G. Reinforcing Fabric
1. Progressive Materials: PF 200 Polyester Fabric
a. PF 206 – 6"
b. PF 212 – 12"
H. Moisture Relief Vents
1. Progressive Materials: MRV 600 One-Way Roof Vent
I. Walkway System
1. Progressive Materials: Pro-Grip Walkway System
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b. PG 750 Pro-Grip Yellow Walkway Granules
J. Skylight Sealer
1. Progressive Materials: HS 3220 Clear Silicone Skylight Coating
K. Silicone Coating
1. Progressive Materials: Pro Eco Sil HS 3200 Series
2. Progressive Materials: Pro Poly Sil LS 2200 Series

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 Cleaning

1. Substrate Condition:
Condition A (Stable): Existing substrate Coating is well-adhered with minor surface dirt or light biological growth.
Condition B (Degraded): Coating is flaking, "alligatoring," or shows significant silt buildup/heavy moss, aluminum coating
Ensure all roof drains are clear, and gutters are functional to prevent ponding during the process.
2. Cleaning Procedures:
A. Power Washing "Soft Wash":
Equipment: Pressure washer equipped with a wide-angle fan tip (minimum 40°) or rotating surface cleaner. Do not exceed 1,500 PSI.
Fan tip distance 12–18 inches from the surface. Surface cleaner should not exceed 1,500 PSI.
Always spray with the laps (downslope), never against the seams, to avoid forcing water under the membrane.
Use a biodegradable surfactant or a specialized roof cleaner if heavy oils are present.
B. Power Brooming (Mechanical Agitation)
Equipment: Walk-behind power broom with soft-to-medium nylon bristles.

Steel bristles are prohibited. Ex: ARIENS Power Brush. Model# 926088
Used primarily for "Condition B" areas where silt or heavy sediment has dried and bonded to the surface. Or existing coatings prone to delamination, peeling or cracking.
Technique: Operate at low RPMs to prevent "burning" the membrane through friction heat. Sweep debris toward a central collection point or toward the perimeter (if using a debris containment system).
Always follow power brooming with a blower or low-pressure rinse to remove the loosened fines.

3.3 Preparation

A. Membrane Cleaning:
1. Thoroughly power wash roof surface and all other areas to receive new coating with a minimum of 1,500 psi water pressure. Be sure not to damage existing membrane during this process.
2. After the surface has dried, perform an adhesion test. If the coating does not properly adhere to the surface, additional power washing/cleaning method or removal may be required.
3. Any areas of grease contamination are to be cleaned with industrial strength detergent 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 used.

C. Leading Edges: 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.
1. Apply 25 mils of silicone coating over surface to receive fabric.
2. Embed fabric into silicone coating while still wet. Smooth out fabric and ensure there are no wrinkles or fish mouths
3. After the base coating has cured, apply a minimum 25 mil coat of silicone coating over the fabric to ensure complete saturation.

D. 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 system and attach vent to the roof deck with the appropriate fastener. Install 4 fasteners per vent, evenly spaced.
4. Clean area of vent that is to receive flashing material with clean rag and solvent to remove oil film from vent.
5. Flash in vent with the following procedure:
    a. Apply a 3-course coating and fabric utilizing the PF 200 Polyester Fabric and silicone coating.
        1) Apply 25 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 minimum 25 mil coat over the fabric to ensure complete saturation.

E. Flashing Details: Ensure all existing flashings provide a watertight condition. If necessary, re-flash any areas required utilizing a 3-course method.

F. Lap Seam Treatment:

and fabric detail as outlined above.

1. Identify and repair all lap seam failures utilizing a 3-course coating fabric detail as outlined above.
2. To ensure complete encapsulation of the lap seams at the completion of the project, install 25 mils (app. 2" wide) of silicone coating over all lap seams prior to coating the field of the roof. Coverage rate to be approximately 400 lf. per gallon.
3. All seams should receive 25 mils of silicone coating prior to coating the field of the roof. (Seam Stripe)

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

H. Low laying areas less than 100 sq. ft. that would impede drainage of water should be filled in with Progressive Materials Pro Slope SL-851 to ensure positive drainage. (See TDS for application and rate.)

I. For heavily cracked areas (such as alligatoring) Progressive Materials SL 800 Surface Leveler should be used to ensure proper sealing of coating. (See TDS for application and rate).

3.4 Silicone Coating Installation

A. Ensure surface is completely dry.

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

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

D. Install silicone coating in one or two passes over entire roof surface to achieve a final thickness of:
1. 25 mils minimum for a 5-year warranty
2. 30 mils minimum for a 10-year warranty
3. 35 mils minimum for a 15-year warranty
4. 40 mils minimum for a 20-year warranty

Note: Progressive Materials 3201, 2201 (white) silicone coating only. Nonwhite colors are not permitted.

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.

NOTES:
1. Any subsequent membrane repairs after the coating installation should be done only with silicone products. Repairs should be completed with a 3-course coating and fabric if needed.
2. Over 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.

3.5 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
2. Walkways should be a minimum of 30" wide.
3. Mask off area to receive walkway system to ensure clean straight edges.
4. Install PG 700 Pro-Grip Yellow Walkway Coating at a thickness of 25 mils.
5. 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.

B. High Impact Areas (around mechanical equipment, etc.)
1. Mask off area to receive walkway system to ensure clean straight edges. Area should be 30" wide around all identified equipment.
2. Install PG 700 Pro-Grip Yellow Walkway Coating at a thickness of 40 mils.
3. 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.
4. After the coating has completely cured, remove all loose granules with a small hand blower and a soft bristle broom.

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

3.6 Protection of Finished Work

A. Ensure roof surface is free of traffic for minimum of 12 hours after silicone coating application or until coating is completely cured.

B. Ensure any subsequent work does not cause damage to finished roof system. If necessary, install protection over finished roof area.