Section 07 56 00 – Fluid Applied Roofing (SPF Foam) – Recoat of Existing Coated SPF

Part 1 – General

1.1 Summary

Spray polyurethane foam (SPF) roof systems that have been applied and maintained according to industry standards can be prepared for re-coat and/or renewal and qualify for an additional Labor and Material warranty.

The performance of an SPF roof system renewal can be affected by all the component parts of the roof structure, as well as by the atmospheric conditions inside and outside the structure. Structural design, code compliance, specification review, and contractor and material selection should be considered in the renewal of a polyurethane foam roofing system.

Specifiers should consult with the contractor to receive written confirmation of their agreement to all facets of the SPF roof system. This should include, but not be limited to, material selection, expansion joints, and flashing details.

1.2 Submittals

A. Product Data: Technical Data Sheet (TDS) and Safety Data Sheet (SDS) for all products used on project.

B. Shop Drawings: Drawings indicating scope of work and roofing details.

C. Sample Warranty (optional; see Section 1.6).

1.3 Quality Assurance

A. Manufacturer Qualifications: Enduris high solids, silicone roof coating supplied and manufactured by Momentive Performance Materials (MPM) are approved for and shall be used on this project. Upon request, MPM will provide certification that all MPM materials meet the physical properties required by the specification.

B. Moisture Survey: A moisture survey must be performed for every recoat of an existing polyurethane foam system to identify areas of wet insulation to be removed.

C. Adhesion Test: Prior to estimating coating restoration project, conduct an adhesion test in accordance with MPM adhesion testing procedures to determine if a primer or other specific surface preparation is required.

D. The silicone coating manufacturer shall have a minimum of 25 years' experience in the manufacture of silicone roof coatings and be ISO 9001 certified. The coating shall have an Underwriters Laboratories (UL) Listing, and Factory Mutual (FM) Class 1, 4470 Approval.

E. Contractor Qualifications: The contractor shall be approved by MPM and eligible to offer a Labor & Material Warranty.

F. Deviations: Any deviation from this specification must be approved in writing by MPM.

G. Field Quality Control: Upon completion of the roof coating project, an inspection by MPM's designated third-party inspection agency may be required. Consult with MPM for specific requirements.

1.4 Delivery, Storage and Protection of Materials

A. Delivery: All products shall be delivered in the original, factory- sealed drums, pails or other containers. All product containers shall be labeled with the manufacturer's name and address, product name and description, product date/ expiration date and batch/lot number.

B. Materials damaged during shipment, delivery or storage shall not be used on this project without approval of MPM.

C. Handling and Storage: Store Enduris silicone roof coating containers between 15°F and 109°F (-9°C to 43°C). Other materials shall be stored in accordance with the appropriate material's TDS. Keep all products out of direct sunlight and protected from extreme temperatures.

D. SDS and TDS for all materials used on this project will be kept on site and reviewed by appropriate personnel before use.

1.5 General Site Conditions

A. All mechanical units, skylights, vents and other rooftop accessories should be in place prior to surface preparation and coating application.

B. Mask or otherwise protect all surfaces not to be prepared and/or coated to prevent overspray damage. Use wind screens as appropriate.

C. Review existing and imminent weather conditions (including potential for extreme temperatures, relative humidity, frost, dew, and precipitation) to assure that coating and accessory material will have sufficient curing time.

D. Apply Enduris roof coatings only to clean, dry and secure surfaces.

E. Temperature at the time of application of the Enduris silicone roof coating application should be above 0°F (-18°C) to allow coating to cure properly. Contact manufacturer if applying to substrates over 120°F (49°C).

F. Protect Enduris roof coating from foot traffic or other potential abuse during the curing process. The coating is considered cured when it is tack free and sufficiently durable to withstand roof traffic.

G. All work performed under this specification must be in accordance with all appropriate local, state and federal regulations.

H. While cured Enduris roof coating is unaffected by ponding water conditions, various professional roofing associations (including NRCA) consider ponding water undesirable and recommend that roofs be designed for positive drainage. Ponding water must be corrected on spray polyurethane foam roofing prior to coating application.

1.6 Warranty Information

A. A manufacturer's limited labor & material warranty is available on eligible projects. Contact MPM Technical Support for details.

B. Limited warranties are not available for continuous immersion service; cryogenic, freezer or cold storage facilities; or over existing wet roofing materials. Other limitations may apply.

C. Inspections: Warranted projects are subject to:

1. Pre-job inspection and adhesion test.
2. Final quality control inspection.
3. Inspections may be performed by MPM or its designated third- party inspectors at MPM's discretion.

D. Warranty submittals

1. MPM Warranty Pre-Approval Application
2. Adhesion test results

Part 2 – Products

2.1 Silicone Coatings

A. Enduris 3500 or 3525 high solids, solvent-free, alkoxy-based, moisture-cured, silicone roof coating supplied and manufactured by Momentive Performance Materials, Inc., Waterford, NY.

B. Physical Properties shall be tested in accordance with ASTM D6694 as indicated in the table below.

Property	Value	Test Method
Tensile Strength	200 psi	D2370
Elongation at Break	500%	D2370
Volume Solids	90% min	D2697
Weight Solids	90% min	D1644

2.2 Seam Treatment Materials

A. Enduris Silicone Seam Sealant, Momentive Performance Materials, Waterford, NY. Refer to the Enduris Seam Sealant Technical Data Sheet for physical property information.

B. UltraSpanTM UST / USM pre-cured silicone transition sheets and molded corners, Momentive Performance Materials,

Waterford, NY. Refer to the UltraSpan Technical Data Sheet for physical property information (mandatory for cover board).

C. Reinforcement Fabric: RF100 series is a 100% polyester spun- laced textile reinforcing fabric that is available in 4", 6" or 12" widths. Refer to the RF100 Technical Data Sheet for physical property information.

2.3 Accessory Materials

A. Traffic Mats: Yellow Spaghetti (manufactured by Western Plastics, Inc. 800-325-3605), nominal thickness 5/16".

B. Yellow Walkway Coating Enduris Protection Yellow silicone coating.

2.4 Cover Board

A. Plywood, non-treated, at least .5" thick.

Part 3 – Execution

3.1 Surface Preparation

A. Inspection: The preparation for the renewal of an SPF roof system will vary according to the condition of the roof and its component parts, and the type of protective covering used over the polyurethane foam. Conduct a roof inspection to determine the repairs to perform and the type of materials to use.

B. Visual Inspection:

1. Look for blisters or delaminated areas in the original roof.
2. Check the condition of the roofing system at all flashing and termination points.
3. Look for splits or cracks in the polyurethane foam.
4. Look for damage from impact such as foot traffic, hail, dropped tools, etc.
5. Check for pinholes in the polyurethane foam and/or coating.
6. Check for exposed polyurethane foam and areas of eroded (thin) coating.
7. Check for areas of ponding water.

C. Physical Inspection:

1. Perform a non-destructive moisture survey. Follow-up suspected moisture laden areas with a moisture probe or core samples.
2. Probe to determine polyurethane foam thickness.
3. Take slit samples of the existing system as required by the manufacturer.
4. Take polyurethane foam core samples as required.

D. Analyze Inspection: Core and slit samples should be examined for the following characteristics:

1. Adhesion of polyurethane foam to the substrate.
2. Inter-laminar adhesion of polyurethane foam.
3. Presence of moisture.
4. Adhesion of base coat to polyurethane foam.
5. Adhesion of top coat to base coat.
6. Type and condition of protective coating.
7. Thickness of protective coating.

E. On a roof sketch indicate the following items and deficiencies:

1. Location of core and slit samples.
2. Areas of pinholes. Uncured coating.
3. Polyurethane foam or coating blisters.
4. Mechanical damage.
5. Poor drainage.
6. Repairs required for foam stops, parapet walls, gutters, scuppers, edge terminations, expansion joints, counter- flashing, and other perimeter items.

7. Repairs required to soil and vent pipes, drains, roof hatches, equipment curbs or supports, guy wires, hot stacks, skylights, mechanical units, walkways, sleepers, pitch-pans, and other penetration items.
8. Water saturated sub-roofs, insulation, or polyurethane foam.
9. Sub-roof damage or deterioration.
10. Areas of special consideration.

F. From the inspection, determine items that need to be corrected.

1. Replace or repair substrate that is unacceptable.
2. Remove and replace blistered polyurethane foam, using the following guidelines:
   a. Take test cuts (core or slit samples) in areas of blistered foam to determine the cause and extent of the problem. It may be necessary to remove foam beyond the actual area of an individual blister in order to prevent reoccurrence. The surface area adjacent to the cut should be prepared and cleaned. If a number of blisters are found clustered in one area, it is recommended that you remove the top pass or top two passes in the area rather than attempt to repair individual blisters.
   b. The sprayed polyurethane foam replacement shall be installed so as to have the originally specified density and compressive strength. Many commercial "froth packs" and pour foams will not give satisfactory results.
   c. After opening a blister or removing a foam layer, the lower layer should be inspected for degradation or moisture. No repair procedure should be attempted to a degraded or moist surface. Dry the surface and remove the degraded area before proceeding to repair it.
3. Remove unacceptable coating. Consult MPM Technical Support for definition and methods.
4. Apply Enduris 3500 Series Silicone Coating to proper thickness to repaired areas. (4) Small (less than 3 inches in diameter) blisters, cracks, breaks in the foam or coating, bird pecks, or hail damage can be repaired with Enduris Seam Sealant, using the following guidelines and procedures:
5. Install the sealant so that the final surface is higher than the surrounding area and water will not remain on the repair area
6. Ensure that the area to be repaired is clean and dry, and that the edges are beveled, to assure proper adhesion.
   a. In some cases, foam core plugs can be used with sealant to make small repairs.
   b. If weathering has caused the surface of the coating and the foam to degrade (pitting), such surface may be ground off or scarified to expose clean, dry polyurethane foam.
   c. Provide positive drainage by using one or more of the following procedures that are most suitable for the project:
   d. Install additional roof drains or scuppers.
   e. Build up low areas by applying polyurethane foam. (Follow the manufacturer's recommendation for surface preparation.)
   f. Repair or replace deteriorated flashings, roof jacks, metal work, curbs, supports, penetrations, drains, etc.
   g. Clean the existing coated roof surface of dust, dirt, oils, and other contaminants by power washing, brooming, and/or blowing as recommended by the coating manufacturer.

3.2 Application for Coating

A. Coating is to be applied at a rate of 1 gallon per 100 square feet.

B. Enduris silicone roof coating may be applied by brush, roller, or airless sprayer. Back-rolling should be kept to a minimum.

C. Enduris Seam Sealant may be applied by brush, trowel, or gloved hand.

3.3 Finished Coating Characteristics

A. The cured Enduris silicone roof coating shall be monolithic and seamless, encapsulating the entire roof surface.

B. Minimum cured dry film thickness (DFT) of new coating is 14 mils, and minimum DFT total coating thickness is 26 mils.

3.4 Safety Requirements

A. All OSHA guidelines are to be followed at all times.

B. In Recoat and Renewal projects the spray polyurethane foam is installed when repairs deck, parapet walls, rough openings, and curbs are completed. Plumbing vents, drains and electrical penetrations should all be in place. There should not be any

other trade worker spray zone when the spray polyurethane foam and protective coating is being installed.

C. Flammable materials must be stored on ground level, away from potential fire hazards.

D. A guide specification, Safety Data Sheet and Product Data Sheet must be kept in triplicate at the jobsite at all times

E. No skylights shall be coated the same color as the roof.

F. After discussion with building owner/occupant regarding odors or overspray, sources of air entry into the building may be sealed to prevent overspray or odor intrusion.

3.5 Cleanup

A. Keep all work areas clean, clear and free of debris at all times.

B. Do not allow trash, waste or debris to accumulate on the roof. Remove these items from the roof on a daily basis.

C. Collect and properly store all tools and unused materials at the end of each workday.

D. Dispose of or recycle all trash and excess material in a manner conforming to current EPA regulations and local laws.

E. Properly clean the finished roof surface after completion and make sure the drains and gutters are not clogged.

F. Clean and restore all damaged surfaces to their original condition.

3.6 Quality Control

A. Enduris silicone roof coating restoration projects are subject to pre-job, progress and final inspections by MPM, its designated third- party inspectors, or others subject to warranty requirements and contract documents.

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