SECTION 07 00.00

SESCO SPRAYED POLYURETHANE FOAM (SPF) ROOFING WITH SILICONE TOPCOAT

PART 1 - GENERAL

1.1 DESCRIPTION

This section establishes requirements for the installation of a Sprayed Polyurethane Foam (SPF) Roofing System, which consists of a seamless high density sprayed in place polyurethane foam insulation with a silicone topcoat used in both new construction and re-roofing construction.

The roof restoration system is intended to:

1. Extend the service life of existing roofing assemblies.
2. Provide additional insulation to existing construction.
3. Provide a seamless weather-resistant surface.
4. Improve solar reflectivity and reduce roof surface temperatures.
5. Prevent roof replacement when the existing roof remains structurally sound.

1.2 ROOF ELIGIBILITY

The SPF Roof System may be installed over:

1. Built-up-Roofing (gravel surfaced and cap sheet)
2. Metal Decks
3. Gypsum Board
4. Structural Plywood
5. Structural Concrete.

The system shall not be installed over:

1. Metal with Siliconized or Fluorocarbon Finishes
2. Roofs with loose ballast
3. Roofs with deflection
4. Roofs with structural deficiencies.

1.3 DESIGN CONSIDERATIONS

The SPF roofing system is intended for roofs exhibiting normal weathering and aging. Prior to restoration, the roofing assembly shall be evaluated to verify that:

1. The substrate is dry and stable.
2. Existing membranes remain securely attached.
3. Structural components remain serviceable.
4. Positive drainage is recommended. Roof areas exhibiting chronic standing water shall be reviewed before installation.

1.4 RELATED WORK

Coordinate work under this section with:

a) Roof insulation
b) Sheet metal flashings
c) Roof accessories

d) Mechanical curbs
e) Roof drains
f) Equipment supports
g) Penetrations and pipe flashings

1.6 SUBMITTALS

A. **Product Data:**
Submit manufacturer's standard submittal package including specification, installation instructions, and general information for each waterproofing material.

B. **Applicator Qualifications:**
Applicator Qualifications: The applicator shall be approved by **SESCO Roofing Products** with additional SPF certification. The manufacturer's written verification of applicator approval is required.

C. **Substrate Conditions:**
1. Applicator to present to owner a completed inspection report verifying substrate condition and any noted defects not specifically addressed regarding the installation of the coating.
2. Surface shall be free from loose dirt, stone, debris, moisture, and shall be in stable condition. Any work on the area to receive this application shall be completed prior to the installation of the coating.
3. Applicator shall complete a substrate inspection prior to the start of the installation of the coating. The architect/owner and applicator shall accept the substrate. Start of the work constitutes acceptance.

1.7 QUALIFICATIONS

A. Products shall be supplied by a single manufacturer and designed to function as a complete roof restoration system. Manufacturer shall have been in business for (20) years.

B. Applicators shall have a minimum of five (5) years' experience and 1 million square feet in the application of waterproofing materials of the type specified. The applicator shall possess a current Letter of Good Standing from the specified waterproofing manufacturer.

C. **Mandatory Pre-bid Conference:**
Ten (10) working days prior to the bid opening there is to be a mandatory Pre-Bid Conference. Those not attending the Pre-Bid Conference will not be allowed to bid the project. All products considered equal to the specified product or any changes in the scope of work, installation, or specifications must be presented at the Pre-Bid Conference. If a change in the specifications is accepted, it will be considered as an alternate and will be presented as a bid addendum issued five (5) working days prior to the bid opening. No other changes to the specification or bid documents will be accepted.

D. Materials other than those specified shall be submitted to the architect/owner for approval no later than ten (10) days prior to the bid date. In requesting prior approval, it shall be necessary to submit: 1. A letter of certification, signed by an officer of the manufacturer, stating that the alternate material is equal to or better than the specified product. 2. Independent laboratory test data giving physical property values in comparison to the specified material.

E. **Pre-Installation Conference:** Just prior to the commencement of the installation, meet at the jobsite with a representative of the coating manufacturer, applicator, general contractor, architect, and other parties affected by this section. Review the methods and procedures, substrate conditions, scheduling, and safety.

1.8 DELIVERY, STORAGE, AND HANDLING

1. Deliver materials in original unopened containers bearing manufacturer identification.
2. Store materials in accordance with published manufacturer requirements.

3. Protect products from freezing temperatures, excessive heat, moisture, and contamination.
4. Damaged materials: contaminated or damaged materials shall not be used in the installation and shall be removed from site immediately upon discovery.

1.9 ENVIROMENTAL REQUIREMENTS

1. Maintain logs of environmental conditions (temperature, humidity, and wind speed) within limits recommended by the manufacturer for optimum results. Do not install products under environmental conditions outside of manufacturer's limits.
2. 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.
3. Wind Velocity shall not exceed 10 miles per hour
4. Do not install SPF Roofing System under the following conditions:
    1. When ambient temperature is below 50° F.
    2. At temperatures less than 5° F above dew point.
5. Spray polyurethane foam is not to be applied over moist substrates or when rain or inclement weather is imminent.

1.10 WARRANTY

A. Manufacturer warrants that the material supplied will meet or exceed physical properties as published. The Applicator guarantees that workmanship will be free of defects in SPF application. Since performance of previously applied roofing is beyond the control of the Manufacturer and applicator, requests for additional warranty coverage shall be subject to prior approval by Manufacturer.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

ACCEPTABLE MANUFACTURERS- SESCO Roofing Products, SESCOROOF.COM

2.2 MATERIALS

A. **Spray Polyurethane Foam**

SESCO ROOF 3004 ROOFING FOAM 3lb DENSITY (Low GWP) PRODUCT

Minimum Physical Properties

Physical Property	Typical Value	Test Method
R-Value	6.2@1”	ASTM C518
Core Density lb/ft	3.0 pcf	ASTM D1622
Water Vapor Permeance	1.0 perms@1”	ASTM E96
Air Permeance at 1” (L/s.m2)	<.02	ASTME2178
Tensile Strength	55PSI	ASTM D1623
Closed Cell Content	>90%	

B. **SILICONE ROOF MEMBRANE**

SESCO ROOF Si750 ROOF MEMBRANE

Minimum Physical Properties

Physical Property	Typical Value	Test Method
Solids by Weight	98%	ASTM D 1644
Solids by Volume	96%	ASTM D 2697
Tensile Strength	220 PSI	ASTM D 2370
Elongation	275%	ASTM D 2370
SRI	110	ASTM E1980
VOC	<45 g/l	EPA Method 24
Permeance	6.0 Perms	ASTM E 96

C. **ROOFING GRANULES**

SESCO ROOFING GRANULES- Snow White, White, Buff, Brown, Rainbow

PART 3 - EXECUTION

3.1 EXAMINATION

A. Inspect surfaces that will receive the SPF system to make sure they are clean, sound, properly prepared, and free of moisture, dirt, debris, or other contamination.
B. Verify that all roof penetrations, mechanical equipment, cants, edge metal, and other on-roof items are in place and secure.
C. Verify that all critical areas around the immediate vicinity of the spray area are suitably protected.
D. Verify that all roof drains or leaders are clean and in working order by means of a water test.
E. Verify that all air conditioning and air intake vents are suitably protected or closed.

3.2 SURFACE PREPARATION

A. Verify that the substrate is ready to receive the work. Ensure the surface is clean, dry, and free of dust, debris, oil, grease, curing compounds, or any other contaminants that could impair adhesion or bond performance.
B. Clean the roof surface using power vacuum equipment, power sweepers, air blowers, power washing equipment, or other approved methods to remove dirt, dust, debris, and contaminants
C. Cleaning methods shall not damage the existing roofing membrane or inject water into existing system.
D. Remove or fasten lose roofing materials per manufacturers' recommendation.
E. Complete all related construction work, including installation of drains, edge flashings, roof penetrations, and rooftop mechanical equipment, before commencing application of the specified spray polyurethane foam and roof coating system.
F. Confirm that all related work performed under other sections of the Contract within the designated waterproofing area has been completed and approved by the Architect and General Contractor prior to the start of waterproofing operations.

3.3 Installation

The roofing system shall be installed in accordance with the manufacturer's published requirements and with support from the manufacturer's technical team. Contractors are encouraged to consult Technical Services for guidance on application procedures, substrate conditions, and project-specific recommendations.

A. SPRAYED POLYURETHANE FOAM APPLICATION

1. Fill roof depressions exceeding 100 square feet in area and 1/2 inch in depth with SPF to match the surrounding roof profile prior to applying the specified field thickness. Apply a minimum of 1 inch of SPF to all parapet walls and extend the specified protective coating system over the foam in accordance with the manufacturer's requirements.
2. Apply spray polyurethane foam (SPF) to the field of the roof in successive lifts of not less than 1/2 inch each to achieve a minimum total thickness of 1-1/2 inches, unless otherwise indicated. Foam may be tapered as required at edge metal, roof drains, and scuppers from a distance of up to 3 feet to provide positive drainage and proper transitions. Greater lift thicknesses may be permitted when application conditions and manufacturer requirements are satisfied.
3. The polyurethane foam spray application shall be limited to an area which can be completed to full foam thickness in one day.
4. The completed polyurethane foam surface shall be free of pinholes and “glass eyes” due to improper equipment calibration or climatic conditions.
5. The completed polyurethane foam surface shall be smooth to an orange peel texture; a popcorn texture is not acceptable.

F. Apply the protective coating to the polyurethane foam surface on the same day of application.

D. **SILICONE MEMBRANE APPLICATION**

1. Areas where the spray polyurethane foam has been ground, shaved, or otherwise mechanically altered shall receive an additional application of protective coating. These areas shall be back rolled and coated with **Si750 High Solids Silicone** to a minimum dry film thickness equal to 1.5 times the specified coating thickness to ensure complete encapsulation and protection of the foam surface. The applicator may also choose to seal these areas with **Si790 Mastic** instead.
2. Apply **Si750 High Solids Silicone** to the surface of the spray polyurethane foam in a uniform and continuous manner to achieve the specified coverage rate and film thickness. Base coat and finish coat applications shall be in contrasting colors to provide visual confirmation of complete and consistent coverage.
3. Basecoat shall be Grey or Tan in color with any color Topcoat being allowed
4. Coverage rate shall be sufficient to achieve a minimum finished dry film thickness of:

LABOR AND MATERIAL TERM	MINIMUM APPLICATION RATE
10 Years	2 Gallons/sq. (28 wmt/24dft)
15 Years	2.5 Gallons/sq (40wmt/35dft)
20 Years	3 Gallons/sq (45wmt/40dft)

5. The specified thickness of the coating shall be verified using an optical comparator.

Application shall not occur during precipitation, when moisture is present on the substrate, or when weather conditions may adversely affect curing.

D. **GRANULE SURFACE**

1. Apply a coat of **Si750 High Solids Silicone** at 10 mils and immediately broadcast **SESCO Roofing Granules manufactured by SESCO Roofing Products** at a rate of 30lbs/sq at a uniform rate sufficient to achieve full embedment and consistent appearance. Granules shall be distributed evenly while the coating remains wet.
2. Remove all loose granules after the roof coating has cured to prevent them from washing into gutters or onto the ground.

E. **WALKPAD (OPTIONAL)**

Where specified install walkpads as manufactured by **SESCO Roofing Products**

QUALITY CONTROL INSPECTION

Verify by field measurement that the completed roofing system achieves a minimum dry film thickness as specified, any variations shall be corrected by the applicator.

MINIMUM DRY FILM THICKNESS (DFT) REQUIREMENT: **SESCO ROOFING PRODUCTS** recommends adding a 10 % variance factor to meet the minimum Dry Film Thickness (DFT) mil requirement to qualify as a warrantable application. It is the applicator's responsibility to calculate the amount of coating needed to obtain the minimum Dry Film Thickness (DFT) mil thickness.

END OF SECTION 07 00 00.