SECTION 07 00.00

SESCO Si750 FULLY REINFORCED SILICONE ROOF MEMBRANE FOR NEW CONSTRUCTION.

PART 1 - GENERAL

1.1 DESCRIPTION

This section establishes requirements for installation of a 80 mil fully reinforced roofing system designed for new construction utilizing a high-solids silicone roof coating system.

The roof restoration system is intended to:

1. Environmentally friendly alternative to conventional systems.
2. Renewable with low lifecyle cost.
3. Provide a seamless weather-resistant surface.
4. Improve solar reflectivity and reduce roof surface temperatures.

1.2 ROOF ELIGIBILITY

The roof coating system may be installed over:

1. Mechanically Attached Approved Cover Board.
2. Fully Adhered Approved Cover Board.

The system shall not be installed over:

The silicone coatings discussed in this specification have a moderate rate of water vapor transmission. They are not recommended for use on cold storage or cryogenic structures. Such structures may have constant high water vapor drive causing long-term accumulation of moisture in the insulation/deck. Consult manufacturer for vapor retardant systems to use on refrigerated structures.

1.3 DESIGN CONSIDERATIONS

This specification is provided as a courtesy on an as-is basis and is not intended to substitute for specific design services provided by an architect, engineer, roof consultant, or other design professional. It is in the building owner's interest to consult with these professionals prior to executing the specified project. The building owner will ultimately assume the entire risk as to results, quality and performance of the roofing system specified.

1.5 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. 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.

1.9 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 coating application. Since performance of previously applied coatings is beyond the control of 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 ROOFING SYSTEM DESCRIPTION

A. Vapor Barrier over deck/deck cover: (Optional, not required. The use of a vapor barrier within the roofing system is strictly the decision of the design professional.)
   a. Membrane: High density polyethylene sheet with SBS modified bitumen adhesive.
   b. Attachment: Self-adhering

B. Roof Insulation:
   a. Total System R Value: Per local code.
   b. Maximum Board Thickness: 2 inches ; use as many layers as necessary to achieve desired R-value; stagger joints in adjacent layers.

***Long Term Thermal Resistance (LTTR) values provide a 15-Year time weighted average in accordance with ASTM 1289-13. Total Iso Insulation System Thickness, nominal R Value 3.5 inches 20R 4.5 inches 25R 5.25 inches 30R 6.25 inches 35R**

   c. Attachment: Mechanical fastening, Low-rise polyurethane adhesive.

C. Top Layer: ½" Dens Deck primed

   a. Attachment: Mechanical fastening, Low-rise polyurethane adhesive.

D. Roofing System:
   a. Membrane: SESCO Roofing Products REINFORSIL Fully Reinforced Silicone System.
   b. Thickness: As specified elsewhere.
   c. Membrane Attachment: Fully adhered.
   d. Slope: Deck is sloped but not enough; provide additional slope of 1/4 inch per foot (1:48) by means of tapered insulation.
   e. Comply with applicable local building code requirements.
   f. Provide assembly having Underwriters Laboratories, Inc. (UL) Class A Fire Hazard Classification.

E. Metal Accessories
   a. Metal Roof Edging and Fascia: Continuous metal edge member serving as termination of roof membrane and retainer for metal fascia; watertight with no exposed fasteners; mounted to roof edge Nailer
   b. Wind Performance:
      1. Membrane Pull-Off Resistance: 100 lbs./ft (1460 N/m), minimum, when tested in accordance with ANSI/SPRI ES-1 Test Method RE-1, current edition
      2. Fascia Pull-Off Resistance: At least the minimum required when tested in accordance with ANSI/SPRI ES-1 Test Method RE-2, current edition
      3. Provide product listed in current Factory Mutual Research Corporation Approval Guide with at least FM 1-270 rating
   c. Description: Two-piece, 45° sloped galvanized steel sheet edge member securing top and bottom edges of formed metal fascia
   d. Fascia Face Height: 5" (127 mm)
      a. Edge Member Height Above Nailer: 1 ¼" (31 mm)
   e. Fascia Material and Finish: 24-gage, 0.024" (0.06 mm) galvanized steel with Kynar 500 finish

in Manufacturer's standard color; matching concealed joint splice plates; factory-installed protective plastic film

f. Length: minimum of 120" (3.048 m)

g. Functional Characteristics: Fascia retainer supports while allowing for free thermal cycling of fascia

Acceptable Product: Appropriate Elevate pre-manufactured fascia system

h. Aluminum Bar: Continuous 6063-T6 alloy aluminum extrusion with pre-punched slotted holes; miters welded; injection molded EPDM splices to allow thermal expansion

i. Anchor Bar Cleat: 20-gage, 0.036" (0.9 mm) G90 coated commercial type galvanized steel with pre-punched holes

j. Curved Applications: Factory modified

k. Fasteners: Factory-provided corrosion resistant fasteners, with drivers; no exposed fasteners permitted

l. Special Shaped Components: Provide factory-fabricated pieces necessary for complete installation, including miters, scuppers, and end caps; minimum 14" (355 mm) long legs on corner pieces

m. Scuppers: Welded watertight

n. Accessories: Provide matching brick wall cap, downspout, extenders, and other special fabrications as shown on the drawings

O. Parapet Copings: Formed metal coping with galvanized steel anchor/support cleats for capping any parapet wall; watertight, maintenance free, without exposed fasteners; butt type joints with concealed splice plates; mechanically fastened as indicated

p. Wind Performance:

1. At least the minimum required when tested in accordance with ANSI/SPRI ES-1 Test Method RE-3, current edition.
2. Provide product listed in current Factory Mutual Research Corporation Approval Guide with at least FM 1-90 rating.

q. Description: Coping sections allowed to expand and contract freely while locked in place on anchor cleats by mechanical pressure from hardened stainless steel springs factory attached to anchor cleats; 8" wide splice plates with factory applied dual non-Curing sealant strips capable of providing watertight seal.

r. Material and Finish: 24-gage, 0.024" thick galvanized steel with Kynar 500 finish in Manufacturer's standard color; matching concealed joint splice plates; factory-installed protective plastic film.

s. Dimensions:

1. Wall Width: As indicated on the drawings.
2. Piece Length: Minimum 144".
3. Curved Application: Factory fabricated in true radius.

t. Anchor/Support Cleats: 20-gage, 0.036" thick pre-punched galvanized cleat with 12" wide stainless-steel spring mechanically locked to cleat at 72" on center.

u. Special Shaped Components: Provide factory-fabricated pieces necessary for complete installation, including miters, corners, intersections, curves, pier caps, and end caps; minimum 14" long legs on corner, intersection, and end pieces.

v. Fasteners: Factory-furnished; electrolytically compatible; minimum pull out resistance of 240 lbs. for actual substrate used; no exposed fasteners.

F. Accessory Materials

a. Wood Nailers: PS 20-dimension lumber, Structural Grade No. 2 or better Southern Pine,

Douglas Fir; or PS 1, APA Exterior Grade plywood; pressure preservative treated.

1. Width: 3 ½" inches, nominal minimum, or as wide as the nailing flange of the roof accessory to be attached to it
2. Thickness: Same as thickness of roof insulation

2.3 MATERIALS

A. **Roof Composition**
   1. **Vapor Barrier**
   2. **2" min Polyisocyanurate Insulation**
   3. **1/2" Dens Deck Primed**
   4. **Polyester Reinforcing Mesh**
   5. **.060 aluminum with Kynar 500 Finish**

A. **FLASHING**
   1. **SESCO ROOF Si790 Mastic**

B. **SILICONE ROOF MEMBRANE**
   1. **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

PART 3 - EXECUTION

3.1 EXAMINATION

A. Inspect surfaces that will receive the coating system to make sure they are clean, smooth, 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 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.

4.0 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. **GENERAL**

A. Install roofing, insulation, flashings, and accessories in accordance with roofing manufacturer's published instructions and recommendations for the specified roofing system. Where manufacturer provides no instructions or recommendations, follow good roofing practices and industry standards. Comply with federal, state, and local regulations.

B. Obtain all relevant instructions and maintain copies at project site for duration of installation period.

C. Do not start work until Pre-Installation Notice has been submitted to manufacturer as notification that this project requires a manufacturer's warranty.

D. Perform work using competent and properly equipped personnel.

E. Temporary closures, which ensure that moisture does not damage any completed section of the new roofing system, are the responsibility of the applicator. Completion of flashings, terminations, and temporary closures shall be completed as required to provide a watertight condition.

F. Install roofing membrane only when surfaces are clean, dry, smooth, and free of snow or ice; do not apply roofing membrane during inclement weather or when ambient conditions will not allow proper application; consult manufacturer for recommended procedures during cold weather. Do not work with sealants and adhesives when material temperature is outside the range of 60 to 80 degrees F

G. Protect adjacent construction, property, vehicles, and persons from damage related to roofing work; repair or restore damage caused by roofing work.
    a. Protect from spills and overspray adhesives, sealants, and coatings.
    b. Particularly protect metal, glass, plastic, and painted surfaces from adhesives, sealants and coatings within the range of wind-borne overspray.
    c. Protect finished areas of the roofing system from roofing related work traffic and traffic by other trades.

H. Until ready for use, keep materials in their original containers as labeled by the manufacturer.

I. Consult membrane manufacturer's instructions, container labels, and Safety Data Sheets (SDS)

B. **VAPOR BARRIER INSTALLATION – Only if recommended by design professional**

A. All deck/deck cover substrates (except metal decks) must be primed prior to application. Use only primer supplied by membrane manufacturer.

B. Expanded Polystyrene, Extruded Polystyrene, Common Polyisocyanurate, Fiberglass, Wood Fiber, Perlite, and existing single-ply roofs are not acceptable substrates for SBS bitumen adhesive.

C. Application can be made at ambient temperatures as low as 25 °F as long as membrane has been stored in a heated area so that it will be between 50 °F and 100 °F at the time of application.

D. Install with minimum 3" side laps and 6" end laps.

E. Roll in with a 75 lb roller to fully mate each roll to substrate, including all lap areas.

C. **INSULATION AND COVER BOARD INSTALLATION**

A. Install insulation in configuration and with attachment method(s) specified in PART 2, under Roofing System.

B. Install only as much insulation as can be covered with the completed roofing system before the end of the day's work or before the onset of inclement weather.
C. Lay roof insulation in courses parallel to roof edges.
D. Neatly and tightly fit insulation to all penetrations, projections, and nailers, with gaps not greater than 1/4 inch (6 mm). Fill gaps greater than 1/4 inch (6 mm) with acceptable insulation. Do not leave the roofing membrane unsupported over a space greater than 1/4 inch
E. Mechanical Fastening: Using specified fasteners and insulation plates engage fasteners through insulation into deck to depth and in pattern required by Factory Mutual for FM Class specified in PART 2 and membrane manufacturer, whichever is more stringent.

D. **REINFORSIL MEMBRANE INSTALLATION**

A. **Gaps/ Fastener plates:** Apply a layer of **Si750 High Solids Silicone** coating filling each gap greater than 1/8'and fully encapsulate each fastener plate if coverboard is mechanically attached.
B. **Base Coat Installation:** Apply **Si750 High Solids Silicone** roof coating at **1.5 gallons per square**, while coating is still wet immediately embed polyester fabric into wet coating. Polyester fabric to be fully saturated and free of wrinkles or fishmouths. Once confirmed polyester fabric has been installed to specification apply additional **1 gallon per square** on top of fabric to fully encapsulate base coat layer. It is acceptable to apply encapsulation layer if base coat has not fully cured.

> **Note:** The first row of base ply installation should start at the roofs lowest point working towards the high point to prevent backlaping.

E. **Additional Runs:** Install with minimum 3" side laps and 6" end laps.
C. **Top Coat:** Apply a layer of **Si750 High Solids Silicone** coating over the previously applied base coat installation. Additional thickness as follows per warranty term:

LABOR AND MATERIAL WARRANTY TERM	MINIMUM APPLICATION RATE
10 Years	**1.5 Gallons/sq. (24 wmt/21dft)**
15 Years	**2 Gallons/sq. (32 wmt/28dft)**
20 Years	**2.5 Gallons/sq. (40 wmt/35 dft)**

WALKPAD (OPTIONAL)

Where specified install walkpads as manufactured by SESCO Roofing Products

GRANULE SURFACE (OPTIONAL)

Where specified, apply an additional 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.

QUALTIY 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.