

ITEM 595.60---25 - PAVEMENT MEMBRANE WATERPROOFING SYSTEM

1. DESCRIPTION:

- 1.01 This work shall consist of furnishing and applying an SBS modified bituminous, polyester-reinforced membrane waterproofing system in the pavement where indicated on the Contract Plans. To ensure total system compatibility, all waterproofing products shall be purchased from a single-source manufacturer. The work shall also include the preparation of the underlying surfaces.

2. MATERIALS:

- 2.01 **Membrane Waterproofing System:** The membrane waterproofing system shall be composed of a non-woven polyester reinforcement and SBS modified bitumen. The top face is protected by colored granules, the under face is covered with a thermofusible plastic film specifically designed for heat-welded applications. Thickness is 7 inches.

- 2.02 **Membrane Waterproofing Materials:** The following membrane waterproofing materials shall be as manufactured by SOPREMA, INC., Wadsworth, Ohio 44281, Phone: 800-356-3521, or approved equivalent:

Waterproof Membrane	SOPRALENE FLAM ANTIROCK
Primer & Surface Conditioner	ELASTOCOL 500
Sheet Flashing Membrane	SOPRALENE FLAM 180
Liquid Flashing Membrane	ALSAN FLASHING
Sealant	SOPRAMASTIC

2.03 **Submittals:**

- A. Certification that all components of the membrane waterproofing system are being supplied and warranted by a single manufacturer.
- B. Certification that the primary waterproofing membrane is manufactured in the United States of America.
- C. Provide three (3) copies of the most current technical data sheets. These documents must describe the physical properties of the specified materials and explanations about product installation, including installation techniques, restrictions, limitations and any other manufacturer recommendations.
- D. Provide a specimen warranty from the manufacturer that includes all components of the membrane waterproofing system installation.

2.04 **Quality Assurance:**

- A. Contractor Qualifications:
1. The waterproofing Contractor shall be, during the bidding period as well as during installation, officially recognized as an approved Contractor by the waterproofing material manufacturer.
 2. Waterproofing work shall be performed only by skilled applicators, employed by a company operating all adequate and necessary equipment to execute such work.

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2. MATERIALS: (cont'd)

2.04 Quality Assurance: (cont'd)

B. Laboratory Testing:

1. Upon request from the owner, the elastomeric manufacturers shall supply a proof of their ISO 9002 Certifications.
2. In addition to the results published on the technical data sheets, the manufacturer will have to supply the results of the following tests:
 - Accelerated aging
 - Dimensional stability
 - Creepage resistance

C. Warranties: The product manufacturer shall supply a written and signed document issued in the name of the owner, certifying the performance of the products and the non-alteration of the properties of those products which could modify their performance for a ten (10) year period starting from the date of acceptance of the work and once the materials has been installed in accordance with the manufacturer's requirements.

D. Manufacturer's Representative:

1. The waterproofing materials manufacturer shall supply a technical representative to visit the work site at commencement of work.
2. At all times, the Contractor shall permit and facilitate the access to the work site to said manufacturer's representative.

3. CONSTRUCTION DETAILS:

3.01 Delivery, Storage and Handling:

- A. Deliver and store all materials in the manufacturer's original, unopened packaging; packaging must bear the manufacturer's name, related standards and any other specification or reference standard, ensuring that materials are in an undamaged condition.
- B. Store all materials elevated from contact with ground and moisture and protected from the weather.
- C. Store membrane rolls on end, one pallet high, selvage edge up; do not store in a leaning position.
- D. Store combustible materials away from heat and open flame.
- E. For ease of installation in colder weather, it is suggested that membrane rolls be stored in a heated area prior to application.

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3. CONSTRUCTION DETAILS: (cont'd)

3.02 Preparation:

- A. Prior to installation of any new membrane system materials, the waterproofing Contractor and Engineer shall inspect and approve the concrete and/or substrate surface. In general, the substrate to be covered by the membrane must possess a smooth surface with an even finish, free of excessive moisture, ridges, hollows and sharp corners.
- B. Condition of Concrete Surfaces:
 - 1. Milled surface grooves and ridges shall be no greater than a ½ inch deep or high with no sharp edges.
 - 2. Depressions greater than ½ inch deep and less than 6 inches wide running length parallel to traffic are to be filled with hot rubberized bitumen compatible with the membrane.
 - 3. Depressions greater than 6 inches in diameter and 2 inches or deeper shall be filled with rapid hardening concrete repair material (701-09) found on the NYSDOT Approved List. Prior to the membrane installation, the concrete repairs shall be abrasive blasted.
 - 4. All loose material, including dirt, gravel, and concrete laitance shall be removed by vacuuming or blowing with oil-free compressed air.
 - 5. Reference ASTM D5295 Standard Guide for Preparation of Concrete Surfaces for (Bonded) Waterproofing Systems.
- C. The heat-welded membrane can be installed at any temperature provided the surface is dry and free of frost, snow and ice and the weather is not inclement. Do not install materials in conditions of rain, snow or fog. The Engineer shall be the sole determiner of favorable atmospheric conditions.

3.03 Primer/Conditioner Application:

- A. All surfaces must be clean, smooth, dry and free of any debris that would adversely affect the installation and adhesion of the membrane.
- B. Apply the specified primer to all concrete surfaces the membrane will come in contact with in accordance with the manufacturer's recommendations. Primer not used over asphalt surfaces.
- C. Allow sufficient time for the primer to thoroughly dry prior to the membrane installation. The drying time is related to the ambient temperature.

3.04 Reinforcement Membrane Installation:

- A. Reinforcement membrane shall be used on cracks or non-moving joints exceeding 1/8 inch thickness.

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3. CONSTRUCTION DETAILS: (cont'd)

3.04 Reinforcement Membrane Installation: (cont'd)

- B. Heat weld reinforcement membrane directly onto the concrete or asphalt substrate. Torch welding shall soften the under side of the reinforcing stripping without overheating, resulting in a uniform adhesion of the entire surface. Use torch types recommended by the manufacturer.
- C. After installation of the membrane, check all lap seams by running a trowel along the edge of the seams.

3.05 Waterproofing Membrane Installation:

- A. The membrane shall be unrolled parallel to the direction of traffic. **NOTE: Avoid placing the membrane strips against the direction of traffic as this would cause the development of a "corrugated" effect in the membrane.**
- B. Waterproofing membrane shall be heat (torch) welded on to the concrete or asphalt substrate in accordance with the manufacturer's recommendations. During this application, the underside of the waterproofing membrane shall be melted, forming an asphalt bead that shall be pushed out in front of the roll.
- C. Waterproofing membrane shall have 3 inch side laps and 6 inch end laps. End laps shall be staggered a minimum of 12 inches from the adjacent strip and surface granules embedded prior to installation of following strips.
- D. After installation of the membrane, check all lap seams by running a trowel along the edge of the seams.

3.06 Asphalt Paving Base and/or Wearing Surface:

- A. Asphalt paving is to be applied as soon as possible after the installation of SOPRALENE FLAM ANTIROCK. The high thermal stability of SOPRALENE FLAM ANTIROCK and its mineral protection allow asphalt paving to be installed directly on the membrane. Install asphalt paving at the prescribed temperature of 300°F - 350°F. If a blister appears in the membrane during the paving process, it must be lanced at a 45° angle away from the direction of the rolling or compacting machine.
- B. SOPRALINE FLAM ANTIROCK can withstand temporary traffic, at slow speed, of site vehicles equipped with rubber tires and the caterpillar tracks of the road-surfacing machine. Protection must be provided in areas where tracked vehicles are maneuvering. Any other traffic requires the Engineer's approval.
- C. Recommended minimum thickness of asphalt topping after compaction: ½ inch.

4. METHOD OF MEASUREMENT:

- 4.01 The work shall be measured as the number of square yards of pavement surface area shown on the plans as requiring coverage by the complete membrane waterproofing system.

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5. BASIS OF PAYMENT:

- 5.01 The unit price bid per square yard for this item shall include the cost of furnishing all labor, materials, and equipment necessary to complete the work.
- 5.02 No payment will be made for any work necessitated by damage or defacement attributable to the Contractor's operations.
- 5.03 No additional payments will be made for any re-priming done in conformance with the requirements of the manufacturer's detail sheets.
- 5.04 Payment for repairs to the concrete substrate shall be made under a separate appropriate item.