

**ITEM 10595.62M - SPRAY-APPLIED WATERPROOFING SYSTEM FOR STRUCTURAL SLABS  
(ELIMINATOR) WITH MICRO-SURFACING OVERLAY**

**DESCRIPTION.**

This work shall consist of furnishing and applying a three part, spray-applied membrane waterproofing system where indicated on the Contract Plans. The work shall include the preparation of concrete surfaces. The Contractor shall furnish and apply the membrane waterproofing system required by this specification on each structure designated to receive SPRAY-APPLIED WATERPROOFING SYSTEM FOR STRUCTURAL SLABS WITH MICRO-SURFACING OVERLAY.

**MATERIAL REQUIREMENTS.**

The membrane waterproofing system shall be Eliminator, as manufactured by:

Stirling Lloyd Products, Inc.  
420 Sackett Point Road, Unit 4A  
North Haven, CT 06473  
TEL: (203) 230-9448  
FAX: (203) 230-1025

The Eliminator membrane waterproofing system shall consist of the following:

- A. Primer** – shall be a 100% solvent free, acrylic based, two component, spray-applied primer that will fully cure in under 30 minutes when applied at 20° C. Concrete decks shall be primed with PAR1 primer. Steel curbs shall also be primed with PAR1 primer.
- B. Membrane** – shall be a 100% solvent free, acrylic based, two component, spray-applied material. The membrane shall meet or exceed the following properties as related to laboratory prepared samples tested at 20° C and 24 hour cure where applicable:

<b><u>PROPERTIES</u></b>	<b><u>TEST METHOD</u></b>	<b><u>UNITS</u></b>
Gel Time	-----	6 – 12 minutes
Cure Time	-----	30 minutes @ 20° C
Tensile Strength	ASTM D638	6.48 MPa
Elongation @ Break	ASTM D638	80%

The cured membrane shall be capable of carrying the direct load of rubber tired equipment vehicles without need for any protective cover.

All materials shall be supplied to the job site in the manufacturer's unopened packaging and be clearly identified with the product name, date of manufacture and batch number. Opened or damaged containers shall be removed from the site. All components of the membrane system shall be stored in cool (maximum 32° C), dry conditions out of direct sunlight. Storage shall be in accordance with the manufacturer's recommendations and relevant health and safety regulations. Prior to membrane placement the Contractor shall supply the Engineer with copies of the Material Safety Data Sheets (MSDS) for all components of the membrane system.

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**CONSTRUCTION DETAILS.**

**General.** A manufacturer's representative shall be present during the installation of the membrane system. Work shall not begin on existing structural slabs until seven curing days have passed after placement of portland cement concrete or portland cement mortar for structural slab repair. When using rapid set materials for concrete repairs, work shall not begin on existing structural slabs until twelve hours have passed after concrete placement.

Work shall not be done during wet weather conditions, nor when atmospheric conditions are such that unsatisfactory results will be produced. The Engineer shall be the sole determiner of favorable atmospheric conditions. No work shall be done when the concrete structural slab surface temperature or ambient temperature is below 4° C without first consulting with Manufacturer's representative. The concrete structural slab shall be surface-dry at the time of application of the membrane waterproofing system.

If scarification is used to remove existing concrete deck surface, the requirements of §579 - Structural Slab Scarification shall apply, except that the final texture shall be free of gouges and ridges greater than 13mm in depth.

**Structural Slab Cleaning.** All structural slab surfaces, and any other surfaces against which the membrane waterproofing system is to be placed, shall be cleaned of all loose material and contaminants including, but not limited to dirt, gravel, concrete laitance, oil, and concrete curing compounds. Cleaning shall be done as follows:

1. Drainage outlets (scuppers) shall be plugged to prevent any material from clogging them. These plugs shall be removed when the work at these locations is completed.
2. Concrete surfaces and repaired areas shall be abrasive blast cleaned or shot blasted. All blasting equipment shall be equipped with vacuum recovery to eliminate dust. At no time during the blasting operation shall there be visible dust.
3. Immediately prior to application of the membrane system, surfaces to be coated shall be re-cleaned of dust and other loose material by vacuuming and/or blowing off with clean compress air, as directed by the Engineer.

Prior to application of the primer, random tests for adequate tensile bond strength shall be conducted on the deck by the manufacturer's representative using an Elcometer Adhesion Tester Model 106. The testing frequency shall be at least three tests per 500 m<sup>2</sup>, or how many and where directed by Engineer. Adequate surface preparation will be indicated by tensile bond strengths of primer to the deck, greater than or equal to 690 kPa or by failure in the concrete.

**Primer Application.** After cleaning, all surfaces to be waterproofed shall be primed with the appropriate primer. The primer shall consist of one coat with an overall coverage rate of 2.5 – 3.0 m<sup>2</sup>/L. The primer shall be thoroughly mixed prior to application and shall be spray applied. If required by site condition, brush or roller application shall be allowed. On vertical curb, concrete barrier and header surfaces the primer shall be applied and finished off in a neat line to a height that will be 25mm higher than the height of the completed overlay. The primer shall be applied in accordance with the manufacturer's recommendations. Drainage outlets (scuppers) shall be coated with primer to a depth of at least 25 mm. The primer shall cure to a tack free condition before application of the waterproofing membrane. The Engineer shall determine when the cure is adequate to continue.

After the primer has cured and prior to placing the membrane, the Engineer may require additional tensile bond tests to determine the adequacy of the surface preparation.

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Primed surfaces which the Engineer determines to have become contaminated by dust or dirt shall be reprimed. Primed areas which have not been covered with membrane within 24 hours of the primer application shall be cleaned or reprimed as directed by the Engineer. All such repriming work shall be done at no additional cost to the State.

**Membrane Application.** The waterproofing membrane shall consist of two coats of membrane with a nominal wet film thickness of 2mm for the first coat and 1mm for the second coat. There shall be a minimum coverage of 3mm on any peaks. Immediately after the application of the second coat, a coarse washed and dried aggregate (#6 - #8 mesh size) shall be broadcast into the wet material. Broadcast aggregate shall achieve a minimum of 90% -100% coverage. The aggregate shall be compatible with the Asphalt Emulsion used in the Micro-Surfacing Overlay. All excess unbonded aggregate shall be removed by vacuuming and/or brooming, as directed by the Engineer.

The membrane shall be a two-component spray applied system comprised of two liquid components, A and B, and a hardener powder (50% benzoyl peroxide). The hardener powder shall be added to component B and thoroughly dispersed by mechanical means recommended by the manufacturer.

Part A and mixed part B shall be sprayed using the multi-component airless spray unit supplied by the membrane manufacturer. The spray unit shall automatically meter the components on a 1:1 ratio and mix in line. Spraying pressure and tip size shall be as recommended by the membrane manufacturer. Reversible tips shall be used to facilitate rapid clearance of blockages.

The deck shall be coated in a methodical manner. On vertical curb, concrete barrier and header surfaces the membrane shall be applied and finished off in a neat line to a height that will be 25mm higher than the height of the completed overlay. The inside surfaces of drainage outlets (scuppers) shall be coated with membrane to a depth of at least 25mm below the deck surface. The Contractor shall protect adjacent areas from overspray. If overspraying should occur the Contractor shall clean the area to the satisfaction of the Engineer at no cost to the state.

The Engineer shall take a 1-liter sample of each component of the membrane system including each component of the primer and membrane. The Engineer shall also take approximately 1 liter of each component of the overlay system, including the tack coat. All samples shall be sent to the materials Bureau for informational testing.

The wet film thickness shall be verified by the Contractor at least once every 10 m<sup>2</sup>. The Engineer, at his discretion, shall randomly verify the Contractor's wet film thickness measurements.

Where the membrane is to be joined to existing cured material, at day joints and longitudinal joints, the new application shall overlap the existing membrane by at least 100mm. All existing exposed membrane is to be clean, dry, free from contaminants and micro-surfacing droppings and shall be solvent wiped with acetone just prior to the overlap installation.

Untreated and damaged areas of the membrane shall be repaired. The damaged area shall be cut back to sound material and wiped with solvent (e.g. acetone) up to a width of at least 100mm beyond the perimeter to remove any contaminants. The deck shall be primed if necessary and the membrane applied. No primer shall be applied to the existing exposed membrane. The membrane shall be applied in continuous 100mm overlap onto the existing membrane.

**Quality Control.** The Contractor shall supply the Engineer with a record of the following:

1. Temperature – ambient air temperature, substrate temperature and the dew point shall be recorded at the time of the primer, membrane and tack coat placement. Dew point shall be calculated from temperature and humidity using standard tables.
2. Adhesion Test Results.

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3. Membrane Thickness – wet film thickness measurements taken every 10 m<sup>2</sup> using a gauge pin or standard comb type thickness gauge.
4. Coverage Rates – coverage rates for primer, membrane and tack coat shall be calculated by dividing the area covered, square meters, by the quantity of material used, liters.

**METHOD OF MEASUREMENT.**

The work shall be measured as the number of square meters of surface area of the structural slab, as shown on the plans, covered with all three components of the membrane waterproofing system. No separate measurement of the vertical faces of curbs, joints, concrete barriers, headers, scuppers, or subdrainage outlets shall be made. Measurement will be taken as the horizontal plane projection of the completed membrane waterproofing system.

**BASIS OF PAYMENT.**

The unit price bid per square meter for this item shall include the cost of furnishing all labor, materials and equipment necessary to complete the work.

No payment will be made for any work to repair damaged areas or defacement attributable to the Contractor's operations. No additional payment will be made for any repriming or any retack coating done where surfaces have become contaminated by dust or dirt, or where primed surfaces have not been covered with membrane within 28 hours of primer placement.

This specification is  
DisApproved