

Section 07700 - Traffic Topping

100 DESCRIPTION

This specification describes installation of traffic membrane systems, including crack repair and detailing.

101 GENERAL

1. Whenever the words approved by, equivalent, or similar phrases are used in this specification, they shall be understood to mean that the material, process or item referred to shall require the written approval of the Engineer and the topping manufacturer.
2. This specification shall be read in conjunction with project specifications and/or drawings indicating the precise extent of work and the use and location of specific materials.

102 WORK INCLUDED

1. Provide all labor, materials, equipment and services necessary to complete the following traffic topping work:
 - (a) Preparation of all surfaces to receive traffic topping.
 - (b) Mixing and transportation of traffic topping materials.
 - (c) Repairs of cracks in existing concrete.
 - (d) Application of membrane system.
 - (e) Curing of membrane system.

103 RELATED WORK

Refer to specifications covering the following related work items:

- (a) Repairs to delaminated and scaled areas of existing concrete surfaces.
(Reference: Concrete Repair specifications.)
- (b) Repairs to expansion joints and application of joint sealants.
(Reference: Expansion Joint Sealant specifications.)

104 WEATHER CONDITIONS

1. The installation of, as well as the subsequent curing of all traffic topping work shall be governed by the following:
 - (a) No work shall commence if precipitation is expected. In case of unexpected precipitation, work shall cease and all uncured work shall

be covered with polyethylene tarps.

(b) Normal traffic topping work and curing as outlined in this specification shall be carried out when ambient and subsurface temperatures during application and ultimate cure fall between 45 degrees F (8 degrees C) and 95 degrees F (35 degrees C).

(c) If either ambient or subsurface temperature is expected to fall between 50 degrees F (10 degrees C) and 40 degrees F (4 degrees C), then the cold weather precautions outline in item 2 of this specification shall be followed.

(d) If ambient or subsurface temperature is expected to rise above 85 degrees F (30 degrees C) during application and curing, the hot weather precautions outlined in item 3 of this section shall be followed.

2. Cold Weather Precautions

(a) Only systems designed for low temperature application may be installed. Add accelerator if recommended by manufacturer, at the level instructed by manufacturer.

(b) Store all materials in heated area or vehicle at 65 degrees F min. (15 C) until just prior to use, and extend induction times after mixing, as recommended by manufacturer.

3. Hot Weather Precautions

(a) Store all materials in cool area, 75 degrees F max. (24 C) until just before use.

(b) After mixing and induction, pour mixtures out of containers onto surface and spread immediately. Do not work in direct sun at temperatures above 85 degrees F (30 C).

4. Since hot and cold weather behavior of topping materials is not only a function of temperature, but also of humidity and mass, judgement shall be exercised by the applicator to assess to what extent precautionary procedures should be carried out.

105 SUPERVISION

1. Applicator must present certification from the Manufacturer that he is a Licensed Applicator for the traffic topping system specified. Supervision of the execution of all work under this specification, to the extent deemed necessary by the topping manufacturer, shall

be arranged and paid for by the Applicator in order to ensure that all work is carried out in strict accordance with this specification and is eligible for coverage under the Manufacturer's 3-Year Single Source Limited Warranty Program.

106 Limited Warranty

1. Applicator shall be required to present a validated Certificate of Limited Warranty from the topping manufacturer, covering all defects in materials and materials performance for the three year period following installation. Applicator shall be required to execute the workmanship section of the warranty, providing three years free replacement of defective workmanship.
2. Warranty shall not include damages due to abuse, snowplowing, construction traffic or abrasive equipment. Warranty shall include repair or replacement at no charge to Owner of any toppings which wear-through, tear-through or lose adhesion during the three year limited warranty period.

TRAFFIC TOPPINGS MATERIALS

200 DESCRIPTION

This specification describes the materials used in, and in conjunction with traffic membranes.

201 SYSTEM SELECTION

1. All materials shall be produced by a single manufacturer, and shall be eligible for coverage under the Manufacturer's 3-Year Single Source Limited Warranty program. All materials shall be delivered to job site in unopened containers bearing manufacturers' original labels and markings.
2. Traffic topping system shall consist of:
 - (a) One coat emulsion or 100% solids primer.
 - (b) One crack and joint detail coat.
 - (c) One elastomeric membrane base coat.
 - (d) Two flexible hardcoats, with broadcast between the coats.
 - (e) TOTAL BUILD: 90 - 120 mils
 - (f) ACCEPTABLE MANUFACTURERS:
Edison Coatings, Inc., FLEXI-DECK 500
3. Traffic topping components shall conform to the following performance

criteria:

Property	Primer	Base Coat	Top Coat
Solids %	30% min.	85% min.	95% min.
Tensile Strength -ASTM D412	500 psi min.	750 psi min.	900 psi min.
% Elongation, ASTM D412	4% min.	350% min.	100% min.
Bond Strength, Elcometer	350 psi min.	350 psi min.	350 psi min.
VOC, Calculated	Complies with all applicable local regulations		
UV Stability, ASTM G53	N/A	N/A	1000 hrs., no change

4 Aggregates used for texturing shall be 12-30 mesh silica, aluminum oxide, silicon carbide or quartz. All aggregate shall be clean, dust free, washed and graded, bagged material, minimum 99% pure, dry. All main drive aisles and ramps shall be broadcast with aluminum oxide.

5. CRACK FILLER

(a) Crack filler for cracks less than 1/16" wide shall be odorless, 100% solids elastomeric epoxy or high-solids urethane sealant compatible with traffic membrane system.

(b) ACCEPTABLE MANUFACTURERS:
Edison Coatings, FLEXI-SEAL 510

6. JOINT SEALANTS

(a) Joint sealant and crack sealant for cracks wider than 1/16" shall be a pourable, 2-part, self-leveling polyurethane sealant complying with Federal Specification TT-S-00227E Type I Class A. Sealant shall be certified as compatible with traffic topping by both sealant and topping manufacturers.

(b) ACCEPTABLE MANUFACTURERS
Edison Coatings, HYDROSPAN ES-400

202 STORAGE & HANDLING

1. Store all components at room temperature, off the floor, dry.
2. Observe all safety and handling information as shown on the Material Safety Data Sheets supplied by the Manufacturer.

SPECIFICATION FOR PREPARATION OF SURFACES TO RECEIVE TRAFFIC TOPPING

300 DESCRIPTION

This specification describes the preparation required for various surfaces which are to receive traffic membrane.

301 GENERAL

1. Prior to the application of topping all surfaces must be prepared in accordance with this section of the specifications.
2. The result of this preparation shall render a surface clean, meaning having complete exposure of sound, rough surface without any deposits of contaminants, coatings, compounds, laitance, foreign matter or loose material which could affect the bond between the surface and topping materials.
3. Scaled or delaminated surfaces shall be repaired or resurfaced in accordance with specifications for Concrete Repair.
4. Deck surfaces shall be rendered uniformly even in surface contour and texture prior to coating. No sharp projections or ridges or other defects are permissible.
5. Surfaces to receive emulsion primer may be slightly damp prior to coating. Surfaces to receive 100% solids primers shall be thoroughly dry. New concrete shall be cured a minimum of 28 days. Curing compound shall be as specified under Section 3100, Concrete.
6. Concrete shall be prepared by shotblasting, to remove all traffic striping, rubber deposits, dirt, oil, curing compounds and other contaminants which could adversely affect bond.

302 CRACK REPAIRS

1. All surface cracks wider than .008" (0.2mm) shall be repaired in accordance with this section of the specifications.
2. Cracks less than 1/16" wide shall be sealed after shotblasting or other cleaning has been performed. Epoxy crack sealant to be proportioned and mixed in accordance with manufacturer's instructions, and surface

- applied to the open crack face. Reapply as necessary to fill crack cavity completely. Urethane crack sealant shall be installed only after routing to a 1/2" x 1/2" groove and priming as required. Tool excess sealant level with deck surface to avoid formation of ridges alongside repaired cracks.

3. Cracks 1/16" to 1/8" wide shall be routed to a 1/2" by 1/2" groove, primed with sealant primer and caulked with 2-part polyurethane sealant. Fill grooves flush with adjacent deck surfaces. Allow sufficient curing time for the sealant to dry-through before proceeding with topping application. At least 24 hours are required.

SPECIFICATION FOR INSTALLATION OF TRAFFIC MEMBRANE

400 DESCRIPTION

This specification describes the installation of traffic membranes.

401 GENERAL

1. All equipment, footwear and other items which are required to carry out topping work shall be continuously kept clean in order to avoid depositing dirt, excess materials, or other contaminants on surfaces to receive the topping.

2. Strictly observe all mix ratios. Wherever practicable, use full, pre-measured units as factory-supplied.

Field mixes from drums or bulk must be consistently measured using containers calibrated in standard volume units.

402 INSTALLATION OF TOPPING

1. Caulk all wall/floor joints around deck perimeters, curbs, columns, and any other deck penetrations using a 1/2" by 1/2" tooled bead of non-sag 2-part polyurethane sealant. See detail drawing.

2. Apply masking tape at 4 -8 inches above floor level on all perimeter walls, columns, railings, piping, lighting towers and deck penetrations. All coatings will be carried up vertical surfaces accordingly.

3. PRIMING

(a) Primer selection is based on substrate and topping compositions, condition and working environment. Consult topping manufacturer's Technical Representative with regard to primer selection.

(b) Emulsion primer shall be mixed and applied to damp or dry surfaces by phenolic core roller or airless spray at a rate of 150-200 sq. ft. per gallon. Allow to dry from a milky emulsion to a clean film

before proceeding further. Do not apply over saturated surfaces or standing water. Minimum application temperature is 50 F.

(c) 100% solids primer shall be mixed and applied by medium nap roller or plural component airless spray. Surfaces must be dry. Coverage rate is 125-185 sq. ft./gallon.

4. INSTALLATION

(a) After priming apply elastomeric detail coat by short-nap roller, squeegee, brush or knife over all cracks, cold joints, caulk joints and grooves. Extend at least 3" to each side of the detail being treated. Allow to dry and then apply membrane, as described below.

(b) Proportion, mix and apply elastomeric membrane base coat using squeegee, short-nap roller or multi-component metering pump/sprayer with static mixer. Coverage rate: 60-80 sq. ft. per gallon or less, as required to obtain minimum 20 mils dry film thickness.

(b) Proportion, mix and apply first flexible hardcoat, once base coat has cured to a tough film. Coverage rate: 100-125 sq. ft./gallon. Immediately broadcast with aggregate, appropriate loading of 0.2 - 0.3 lb/sq. ft.

(c) Allow hardcoat to cure to a tack-free state, and then proportion and mix second flexible hardcoat. Squeegee out and backroll, at coverage rate of 80-100 sq. ft./gallon.

403 CURING & PROTECTION

1. Protect all uncured surfaces from rain, dirt, traffic and wind-blown debris for at least 24 hours after application. Coating should be tack-free and through-cured before subjecting to traffic. Cure rate is affected by temperature and other application parameters.

2. Do not subject membranes to water or chemical submersion for at least 5-7 days following application. Temperatures below 70 F extend required interval before submersion.

3. Do not subject traffic toppings to construction traffic, snowplowing or other excessive abrasion. Do not allow use of studded snow tires on membrane surfaces. All blades on snow removal equipment must be plastic and guarded with a ski device at each end of the blade to protect the surface from contact damage.

5. LEVEL 2 SYSTEM INSTALLATION

(a) After priming, mix, proportion and apply 500U membrane using medium-nap roller. Coverage rate: 60-80 sq. ft. per gallon. Immediately broadcast 12-30 mesh aggregate into wet film at 0.2 lbs per sq. ft.

(b) Apply selected top coat(s) following through-cure of membrane, at specified rate of 80-120 sq. ft. per gallon per coat.

6. LEVEL 3 SYSTEM INSTALLATION

(a) After priming, mix, proportion and apply 500U/505 topcoat using medium-nap roller. Coverage rate: 60-80 sq. ft. per gallon. Light broadcast and backroll is optional, and recommended on steep ramps and sharp turns.

(b) Apply second 500U/505 coating following overnight drying, at rate of 60-80 sq. ft. per gallon.

(c) Immediately broadcast 12-30 mesh aggregate into wet film at 0.2 lbs per sq. ft. and back-roll.

403 CURING & PROTECTION

1. Protect all uncured surfaces from rain, dirt, traffic and wind-blown debris for at least 24 hours after application. Coating should be tack-free and through-cured before subjecting to traffic. Cure rate is affected by temperature and other application parameters.

2. Do not subject membranes to standing water or chemical submersion for at least 5 - 7 days following application. Temperatures below 70 F extend required interval before submersion.

SECTION 5:

MAINTENANCE

1. Do not subject traffic toppings to construction traffic, snowplowing or other excessive abrasion. Do not allow use of studded snow tires on membrane surfaces. All blades on snow removal equipment must be plastic and guarded with a ski device at each end of the blade to protect the surface from contact damage.

2. At least once each year, generally in the Spring, all membrane surfaces should be washed with detergent and water to remove any built up salts, oil, grease, contaminants and dirt. (Note: NPA recommends

twice/year washings.)

3. At the same time cleaning is performed, inspect all surfaces for damage. Damages may result from snowplowing, a car dragging its muffler/sharp clamps along the surface, or other such abuse.
4. Repair any such damages as soon as they are discovered. This assures that areas affected will not become enlarged as a result of membrane penetration.
5. High traffic areas will eventually exhibit wear. Reseal areas exhibiting excessive wear to assure uninterrupted protection of all surfaces.
6. Extended Maintenance Warranty Programs are available in most areas from Edison Coatings, Inc. and/or its installers. Routine inspection, maintenance and resealing services are provided at low annual cost, and Warranty extension may also be available in conjunction with such programs. For more information, contact Edison Coatings, Inc.