SECTION 071800 - TRAFFIC COATINGS

1. GENERAL
	* + 1. RELATED DOCUMENTS

Retain or delete this article in all Sections of Project Manual.

* + - * 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
			1. SUMMARY
				1. Section includes traffic coatings for the following applications:

Pedestrian traffic.

* + - 1. PREINSTALLATION MEETINGS

Retain "Preinstallation Conference" paragraph below if Work of this Section is extensive or complex enough to justify a conference.

* + - * 1. Preinstallation Conference: Conduct conference at [**Project site**] <**Insert location**>.

If needed, insert list of conference participants.

* + - 1. SUBMITTALS
				1. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
				2. Manufacturer’s installation instructions shall be provided along with product data.
				3. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
				4. Product Data: For each type of product.

Include installation instructions and details, material descriptions, dry or wet film thickness requirements, and finish.

* + - * 1. Sustainable Design Submittals:
				2. Shop Drawings: For traffic coatings.

Include details for treating substrate joints and cracks, flashings, deck penetrations, and other termination conditions that are not included in manufacturer's product data.

Retain "Samples for Initial Selection" and "Samples for Verification" paragraphs below for two-stage Samples.

* + - * 1. Samples for Initial Selection: For each type of exposed finish.
				2. Samples for Verification: For each type of exposed finish, prepared on rigid backing.

Provide stepped Samples on backing to illustrate buildup of traffic coatings.

* + - * 1. Quality Control Submittals

Qualification Data: For Installer.

Retain "Product Certificates" paragraph below to require submittal of product certificates from manufacturers.

Product Certificates: For each type of traffic coating.

Retain "Field quality-control reports" paragraph below if Contractor is responsible for field quality-control testing and inspecting.

Field quality-control reports.

* + - * 1. Contract Closeout Submittals

Maintenance Data: For traffic coatings to include in maintenance manuals.

Warranty.

* + - 1. QUALITY ASSURANCE
				1. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

Minimum experience required, with experience of comparable installations: 5 years.

* + - 1. FIELD CONDITIONS
				1. Environmental Limitations: Apply traffic coatings within the range of ambient and substrate temperatures recommended in writing by manufacturer. Do not apply traffic coatings to damp or wet substrates, when temperatures are below 40 deg F, when relative humidity exceeds 85 percent, or when temperatures are less than 5 deg F above dew point.

Do not apply traffic coatings in snow, rain, fog, or mist, or when such weather conditions are imminent during the application and curing period. Apply only when frost-free conditions occur throughout the depth of substrate.

* + - * 1. Do not install traffic coating until items that penetrate membrane have been installed.
			1. WARRANTY
				1. Manufacturer's Warranty: Manufacturer agrees to repair or replace traffic coating that fails in materials or workmanship within specified warranty period.

Failures include, but are not limited to, the following:

Adhesive or cohesive failures.

Abrasion or tearing failures.

Surface crazing or spalling.

Intrusion of water, oils, gasoline, grease, salt, deicer chemicals, or acids into deck substrate.

Verify available warranties and warranty periods.

Warranty Period: Five years from date of Substantial Completion.

1. PRODUCTS
	* + 1. MANUFACTURERS
				1. Source Limitations:

Retain one of first two subparagraphs below. Several coating systems from a single manufacturer are often used adjacent to each other to form a single, seamless membrane with variations in durability such as vehicle entrances, drive lanes, turning lanes, and parking spaces.

Obtain traffic coatings from single source from single manufacturer.

Obtain primary traffic-coating materials, including primers, from traffic-coating manufacturer. Obtain accessory materials including aggregates, sheet flashings, joint sealants, and substrate repair materials of types and from sources recommended in writing by primary material manufacturer.

Obtain pavement-marking paint from single source from single manufacturer.

* + - 1. PERFORMANCE REQUIREMENTS
				1. Material Compatibility: Provide primers; base coat, intermediate coat, and topcoat; and accessory materials that are compatible with one another and with substrate under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.

Retain Article 2.3 Traffic Coating if neoprene/acrylic type deck coating is required. Retain Article 2.4 Traffic Coating if polyurethane deck coating is required.

* + - 1. TRAFFIC COATING **<Insert drawing designation>**

Insert drawing designation. Use these designations on Drawings to identify each product.

Revise "Traffic Coating" paragraph below to suit Project.

* + - * 1. Traffic Coating:

Review manufacturer’s specifications to ensure full system compatibility with project and design. Optional decorative finishes are available. This system requires venting if area is over a certain size.

Basis-of-Design Product: Subject to compliance with requirements.

Dex-O-Tex

WEATHERWEAR.

Approved equivalent.

System Overall Thickness: 3/16 inch thick.

* + - * 1. Slip Sheet: Asphalt-saturated glass fiber matting, containing no organic fibers.

Weight: not less than 20 lbs. per 100 square feet and no more than 30 lbs. per 100 square feet.

* + - * 1. Preparatory and Base Coats: Waterproof latex membrane by manufacturer.

Thicknesses: Minimum film thickness as recommended in writing by manufacturer for substrate and service conditions indicated.

* + - * 1. Traffic Surfacing: Acrylic latex emulsion, water-based.

Thicknesses: Minimum film thickness as recommended in writing by manufacturer for substrate and service conditions indicated, measured excluding aggregate.

Aggregate Content: As recommended in writing by traffic-coating manufacturer for substrate and service conditions indicated required to achieve slip-resistant finish.

Retain “Color” if not identified on Drawings.

Color: As selected by Director’s Representative from manufacturer's full range.

Retain “Topcoat” paragraph below if clear sealer is required.

* + - * 1. Topcoat (Finish Coat): Clear sealer, compatible with traffic coating.

Retain "Fire-Test-Response Characteristics" paragraph below for traffic coatings that are roof coverings; revise to suit Project. Indicate class for each traffic coating when tested according to ASTM E108. Verify requirements of authorities having jurisdiction and of Director’s Representative's insurer.

* + - * 1. Fire-Test-Response Characteristics: Provide traffic-coating materials with the fire-test-response characteristics as determined by testing identical products according to test method below for deck type and slopes indicated by an independent testing and inspecting agency that is acceptable to authorities having jurisdiction.

Class A roof covering according to ASTM E108.

Retain "Solar Reflectance Index," "ENERGY STAR Listing," or "Energy Performance" paragraph below if "cool-roof" performance is required. Verify availability of products that comply before retaining.

Retain first "ENERGY STAR Listing" paragraph below for cool-roof coverings that must comply with the DOE's ENERGY STAR requirements. The DOE's ENERGY STAR "Roof Products Qualified Product List" is available in PDF at www.energystar.gov.

* + - * 1. ENERGY STAR Listing: Provide traffic coating that is listed on the DOE's ENERGY STAR "Roof Products Qualified Product List" for low-slope roof products.

Retain "Energy Performance" paragraph below for cool-roof coverings that must comply with the CEC's Title 24. Options are values required for low-slope roofs by prescriptive approach; revise if other values are required for building-envelope, trade-off approach or whole-building performance approach. A list of products tested according to CRRC-1, along with their test values, is available in PDF at www.coolroofs.org.

* + - * 1. Energy Performance: Provide traffic coating with an initial Solar Reflectance Index of [not less than 0.70] **<Insert value>** and emissivity of **[not less than 0.75] <Insert value>** when tested according to CRRC-1.
			1. TRAFFIC COATING **<Insert drawing designation>**

Insert drawing designation. Use these designations on Drawings to identify each product.

Revise "Traffic Coating" paragraph below to suit Project.

* + - * 1. Traffic Coating: Manufacturer's standard, traffic-bearing, seamless, high-solids-content, cold liquid-applied, elastomeric, water-resistant membrane system with integral wearing surface for pedestrian traffic service condition; according to ASTM C957.

Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

Advanced Polymer Technology Corporation.

Euclid Chemical Company (The); an RPM company.

Gaco Western LLC.

GCP Applied Technologies Inc.

Master Builders Solutions.

Sherwin-Williams Company (The).

Approved equivalent.

* + - * 1. Primer: Liquid primer as recommended in writing for substrate and conditions by traffic-coating manufacturer.

Material: Polyurethane.

Retain "Preparatory and Base Coats," "Intermediate Coat," and "Topcoat" paragraphs below if required; revise to suit Project. Insert additional types of intermediate coat and topcoat to suit Project; coat terminologies vary among manufacturers and products. Coordinate materials for each coat with products and manufacturers specified. Insert physical testing requirements if required.

* + - * 1. Preparatory and Base Coats: Polyurethane or epoxy.

Retain "Thicknesses" subparagraph below if required. If retaining, verify coat's dry- or wet-film thickness requirements based on manufacturer's product data.

Thicknesses: Minimum dry- film thickness, 30 mil.

* + - * 1. Intermediate Coat: Polyurethane.

Retain "Thicknesses" subparagraph below if required. If retaining, verify coat's dry- or wet-film thickness requirements based on manufacturer's product data.

Thicknesses: Minimum dry- film thickness 12 mil, measured excluding aggregate.

Retain "Aggregate Content" subparagraph below to suit Project.

Aggregate Content: Not less than 6 to 8 lb./100 sq. ft.

* + - * 1. Topcoat: Polyurethane.

Retain "Thicknesses" subparagraph below if required. If retaining, verify coat's dry- or wet-film thickness requirements based on manufacturer's product data.

Thicknesses: Minimum dry- film thickness 12 mil, measured excluding aggregate.

Retain "Aggregate Content" subparagraph below to suit Project.

Color: As selected by Director’s Representative from manufacturer's full range.

Generally, retain "Aggregate" paragraph below for durability and slip-resistance properties; revise based on traffic-coating manufacturer's product data. See "Materials" Article in the Evaluations for a discussion of aggregate types.

* + - * 1. Aggregate: Manufacturer's standard aggregate for each use indicated or Walnut shell granules of particle sizes, shape, and minimum hardness recommended in writing by traffic-coating manufacturer.

Retain "Fire-Test-Response Characteristics" paragraph below for traffic coatings that are roof coverings; revise to suit Project. Indicate class for each traffic coating when tested according to ASTM E108. Verify requirements of authorities having jurisdiction and of the State’s insurer.

* + - * 1. Fire-Test-Response Characteristics: Provide traffic-coating materials with the fire-test-response characteristics as determined by testing identical products according to test method below for deck type and slopes indicated by an independent testing and inspecting agency that is acceptable to authorities having jurisdiction.

Class A roof covering according to ASTM E108.

Retain "Solar Reflectance Index," "ENERGY STAR Listing," or "Energy Performance" paragraph below if "cool-roof" performance is required. Verify availability of products that comply before retaining.

Retain first "ENERGY STAR Listing" paragraph below for cool-roof coverings that must comply with the DOE's ENERGY STAR requirements. The DOE's ENERGY STAR "Roof Products Qualified Product List" is available in PDF at www.energystar.gov.

* + - * 1. ENERGY STAR Listing: Provide traffic coating that is listed on the DOE's ENERGY STAR "Roof Products Qualified Product List" for low-slope roof products.

Retain "Energy Performance" paragraph below for cool-roof coverings that must comply with the CEC's Title 24. Options are values required for low-slope roofs by prescriptive approach; revise if other values are required for building-envelope, trade-off approach or whole-building performance approach. A list of products tested according to CRRC-1, along with their test values, is available in PDF at www.coolroofs.org.

* + - * 1. Energy Performance: Provide traffic coating with an initial Solar Reflectance Index of [not less than 0.70] <Insert value> and emissivity of [not less than 0.75] <Insert value> when tested according to CRRC-1.
			1. ACCESSORY MATERIALS

Retain first option in “Joint Sealants” paragraph below if Section 079200 is included in the Project. Retain second option if Section 079200 is not included, insert joint sealant requirements.

* + - * 1. Joint Sealants: **[As specified in Section 079200 "Joint Sealants."] [ASTM C920.] <Insert requirement.>**
				2. Sheet Flashing: Nonstaining sheet material recommended in writing by traffic-coating manufacturer.
				3. Adhesive: Contact adhesive recommended in writing by traffic-coating manufacturer.
				4. Reinforcing Strip: Fiberglass mesh recommended in writing by traffic-coating manufacturer.
1. EXECUTION
	* + 1. EXAMINATION
				1. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for maximum moisture content, surface smoothness, and other conditions affecting performance of traffic-coating work.
				2. Verify that substrates are visibly dry and free of moisture.

Requirements for concrete dryness after curing vary among manufacturers. Comply with manufacturer's individual requirements for moisture testing. Retain one or both subparagraphs below. ASTM D4263 test method in first subparagraph takes 16 hours.

Test for moisture according to ASTM D4263.

Test for moisture content by method recommended in writing by traffic-coating manufacturer.

* + - * 1. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of traffic-coating work.
				2. Proceed with installation only after unsatisfactory conditions have been corrected.

Begin coating application only after substrate construction and penetrating work have been completed.

Begin coating application only after minimum concrete-curing and -drying period recommended in writing by traffic-coating manufacturer has passed and after substrates are dry.

Application of coating indicates acceptance of surfaces and conditions.

* + - 1. PREPARATION
				1. Clean and prepare substrates according to ASTM C1127 and manufacturer's written instructions to produce clean, dust-free, dry substrate for traffic-coating application. Remove projections, fill voids, and seal joints if any, as recommended in writing by traffic-coating manufacturer.

Retain "Priming" paragraph below to suit Project. See discussion on primers in the Evaluations.

* + - * 1. Priming: Unless manufacturer recommends in writing against priming, prime substrates according to manufacturer's written instructions.

Limit priming to areas that will be covered by traffic-coating material on same day. Reprime areas exposed for more time than recommended by manufacturer.

* + - * 1. Schedule preparation work so dust and other contaminants from process do not fall on wet, newly coated surfaces.
				2. Mask adjoining surfaces not receiving traffic coatings to prevent overspray, spillage, leaking, and migration of coatings. Prevent traffic-coating materials from entering deck substrate penetrations and clogging weep holes and drains.

Retain "Concrete Substrates" paragraph below if required. This procedure provides a uniform substrate that is generally in acceptable condition to receive coatings. Retain option only if concrete surface texture may not meet traffic-coating manufacturer's requirements; revise option if only part of concrete surface finish is inadequate. See "ASTM C1127 Requirements" Article in the Evaluations.

* + - * 1. Concrete Substrates: **[Mechanically abrade surface to a uniform profile acceptable to manufacturer, according to ASTM D4259. ]**Do not acid etch.

Remove grease, oil, paints, and other penetrating contaminants from concrete.

Remove concrete fins, ridges, and other projections.

Remove laitance, glaze, efflorescence, curing compounds, concrete hardeners, form-release agents, and other incompatible materials that might affect coating adhesion.

Remove remaining loose material to provide a sound surface, and clean surfaces according to ASTM D4258.

* + - 1. TERMINATIONS AND PENETRATIONS
				1. Prepare vertical and horizontal surfaces at terminations and penetrations through traffic coatings and at expansion joints, drains, and sleeves according to ASTM C1127 and manufacturer's written instructions.
				2. Provide sealant cants at penetrations and at reinforced and nonreinforced, deck-to-wall butt joints.
				3. Terminate edges of deck-to-deck expansion joints with preparatory base-coat strip.

Retain paragraph below for sheet flashings.

* + - * 1. Install sheet flashings at deck-to-wall expansion and dynamic joints, and bond to deck and wall substrates according to manufacturer's written recommendations.
			1. JOINT AND CRACK TREATMENT
				1. Prepare, treat, rout, and fill joints and cracks in substrates according to ASTM C1127 and manufacturer's written recommendations. Before coating surfaces, remove dust and dirt from joints and cracks according to ASTM D4258.

Comply with recommendations in ASTM C1193 for joint-sealant installation.

* + - * 1. Apply reinforcing strip in traffic-coating system where recommended in writing by traffic-coating manufacturer.
			1. TRAFFIC-COATING APPLICATION
				1. Apply traffic coating according to ASTM C1127 and manufacturer's written instructions.
				2. Apply coats of specified compositions for each type of traffic coating at locations as indicated on Drawings.

Retain first paragraph below if applicable.

* + - * 1. Start traffic-coating application in presence of manufacturer's technical representative.
				2. Verify that wet-film thickness of each coat complies with requirements every **[100 sq. ft.] <Insert dimension>**.
				3. Uniformly broadcast and embed aggregate in each coat indicated to receive aggregate according to manufacturer's written instructions. After coat dries, sweep away excess aggregate.
				4. Apply traffic coatings to prepared wall terminations and vertical surfaces to height indicated; omit aggregate on vertical surfaces.
				5. Cure traffic coatings. Prevent contamination and damage during coating application and curing.
			1. FIELD QUALITY CONTROL

Retain "Testing Agency" paragraph below to identify who shall perform tests and inspections. If retaining second option in paragraph, retain "Field quality-control reports" paragraph in "Informational Submittals" Article.

* + - * 1. Testing Agency: **[Director’s Representative will engage] [Engage]** a qualified testing agency to perform the following field tests and inspections:

Materials Testing:

Samples of material delivered to Project site shall be taken, identified, sealed, and certified in presence of **[Director’s Representative and ]**Contractor.

Testing agency shall perform tests for characteristics specified, using applicable referenced testing procedures.

Testing agency shall verify thickness of coatings during traffic-coating application for each **[600 sq. ft.] <Insert dimension>** of installed traffic coating or part thereof.

Retain "Electronic Leak-Detection Testing" subparagraph below, if required. The language in subparagraph accommodates both low-voltage and high-voltage testing. However, some traffic coatings contain the pigment carbon black, which is a poor electrical insulator, and these coatings may be sufficiently conductive to make electronic leak detection inconclusive.

Electronic Leak-Detection Testing:

Testing agency shall test **[each deck area] [each deck area indicated for testing on Drawings] <Insert area to be tested>** for leaks using an electronic leak-detection method that locates discontinuities in the traffic-coating membrane.

Testing agency shall perform tests on abutting or overlapping smaller areas as necessary to cover entire test area.

Testing agency shall create a conductive electronic field over the area of traffic coating to be tested and electronically determine locations of discontinuities or leaks, if any, in the traffic coating.

Testing agency shall provide survey report indicating locations of discontinuities, if any.

Traffic-coating inspection may be required by manufacturer before issuing warranty.

* + - * 1. Final Traffic-Coating Inspection: Arrange for traffic-coating manufacturer's technical personnel to inspect membrane installation on completion.

Retain subparagraph below if Director’s Representative wants to be present during manufacturer's final inspection.

Notify Director’s Representative 48 hours in advance of date and time of inspection.

* + - * 1. Waterproofing will be considered defective if it does not pass tests and inspections.
				2. Prepare test and inspection reports.
			1. PROTECTING AND CLEANING
				1. Protect traffic coatings from damage and wear during remainder of construction period.
				2. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 071800