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Standard Terminology Relating to Bridge Deck and Substructure Protection¹

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1. Scope

This standard defines terminology commonly used in the discussion of bridge deck protective systems and waterproofing membranes.

2. Terminology

abrasive blast cleaning—the removal from a concrete surface of all laitance, oil, grease, curing compounds, or coatings by the action of a high-velocity stream of abrasive in air or water followed by a blast of air to provide a concrete surface free of abrasive dust and other particles. The abrasive may be clean silica sand, mineral grit, steel shot, steel grit, or mineral slag.

anodes, impressed current—inactive materials such as high-silicon cast iron and graphite. These anodes provide the electrical connection to the conductive overlay, but require use of an outside source for protective energy, that is, an impressed current. At the current densities recommended by the manufacturers, these anodes are highly resistant to electrolytic attack but deteriorate at known rates.

anodes, sacrificial—chemically active metals such as zinc, aluminum, and magnesium which, when electrically connected to the reinforcing bar, will provide the energy needed to cathodically protect the reinforcing bar. Sacrificial anodes deteriorate in service at a rate proportional to the energy needed to protect the reinforcing bar plus whatever may deteriorate by local-action corrosion.

bitumen, polymer-modified—a black or dark-colored cementitious, high-molecular weight hydrocarbon such as asphalt, tar, or pitch in which polymer has been dispersed to modify the properties of the bitumen.

bitumen, rubberized—a special form of polymer-modified bitumen where an asphalt, tar, or pitch has been combined with natural or synthetic rubber to modify its properties.

bleeders—holes or pipes through bridge decks to provide for drainage.

blisters—gas- or water vapor-filled bubbles or cavities in the waterproofing membrane caused by entrapped air, the volatilization of liquids applied to the concrete, or the vaporization of water on or in the concrete.

cathodic protection—the control of corrosion by the application of a cathodic current to the reinforcing steel by means of impressed current or a sacrificial anode.

conductive bituminous overlay—a first course bituminous overlay using aggregate or high-crystalline structure carbon, or equivalent, which is capable of distributing impressed current from the anodes to all parts of the bridge deck roadway surface.

conductive polymer mortar—a rigid material formulated by polymerization of a select resin system and conductive calcined petroleum coke which is capable of distributing impressed anodic current. The material is used to fill cut slots, as strips or ribbons in grid-fashion on a bridge deck or structure, or applied as a thin overlay to substructure concrete members for stopping the corrosion of reinforcing steel.

continuous spun bonded polypropylene mat—a sheet material, resembling paper or felt, made from polypropylene plastic fibers, used in the manufacture of preformed membrane sheet for waterproofing.

curing—the development of hardness, strength, or other desired properties by evaporation, polymerization, or chemical and physical change in a material that is initially liquid or plastic in consistency.

curing agent—anything such as heat, a catalyst, or a protective coating that assures, enhances, or accelerates curing.

half cell—a standard reference electrode used to measure the electrical potential between it and the reinforcing steel. Most commonly used on bridge decks is the saturated copper-copper sulfate half cell (CSE).

impregnation—filling the void structure of hardened concrete by saturating it with a liquid system.

impressed current protection—application of cathodic protection by means of an external dc power source.

latex-modified portland cement concrete—concrete that includes polymer emulsion, resulting in a dense hardened concrete resisting the movement of moisture and chloride ions. Usually used as a relatively thin overlay (1 to 1½ in. (25 to 38 mm)) on conventional concrete bridge decks.

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