

SPECIFICATION SECTION 07700 – WATERPROOFING

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SPECIFICATION SECTION 07700 - WATERPROOFING

1. DESCRIPTION

This Specification Section prescribes the supply, transport and installation of Waterproofing membranes in accordance with the information, procedures and details set out in this Specification Section and in conformance with the Drawings and as required by the Engineer.

The Contractor shall apply bituminous membranes and deck waterproofing membranes to all surfaces as indicated on the Drawings, including but not limited to wing walls, retaining walls, abutment walls and similar foundations and to the bridge decks.

2. MATERIAL REQUIREMENTS

2.1 Reference Standards

The most recent edition of the following Standards shall be applied to the Works covered by this Specification Section.

AASHTO M243	Field Applied Coating of Corrugated Metal Structural Plate for Pipe, Pipe Arches, and Arches
ASTM D41-05	Asphalt Primer Used in Roofing, Damp proofing, and Waterproofing
ASTM D173-03	Bitumen Saturated Cotton Fabrics Used in Roofing and Waterproofing
ASTM D449-03	(Type III) Standard Specification for Asphalt Used in Damp proofing and Waterproofing
ASTM D517-98 (2003)	Standard Specification for Asphalt Plank

2.2 Deck Waterproofing Membrane

All the materials to be used for furnishing and installing the deck waterproofing membrane shall be certified by the manufacturer and shall be approved by the Engineer before they are used in the Works.

2.3 Bituminous Waterproofing Membrane

- a) The Contractor shall furnish to the Engineer certification from the manufacturer that the bituminous Waterproofing membrane system has been used successfully in similar applications during the preceding five years.
- b) The Contractor shall provide to the Engineer evidence that the applier of the material is a qualified, experienced applier and is approved by the manufacturer to apply his materials.

- c) The primer material shall be in accordance with ASTM D41, or as approved by the Engineer.
- d) The mastic shall be in accordance with AASHTO M243, as applicable and as approved by the Engineer.
- e) Asphalt for the mop coat shall be in accordance with ASTM D449, Type III.
- f) Asphalt saturated Waterproofing fabric shall be in accordance with ASTM D173.
- g) A asphalt plank shall be in accordance with ASTM D517 and subject to the approval of the Engineer.

2.4 Submittals

The Contractor shall submit three samples of the material that are expected to use for Engineer's approval; these samples shall be attached with their certificates and installation instructions from the manufacturers in accordance with pertinent requirements of this Specification Section

For bituminous mastic and primer, 500 ml samples shall be submitted.

2.5 Alternative System for Deck Waterproofing

The Contractor may use a biochemical system, which relies on capillary action and uses modified sodium silicate (liquid waterproofing system) for the provision of the concrete deck waterproofing system, providing that it complies with the current applicable regulations and Standards. If the Contractor wishes to avail himself of this option during the construction of the Works he shall make an application to the Engineer to do so. This application shall, inter alia, (1) contain a full specification for the deck waterproofing system that the Contractor intends to provide, (2) demonstrate that the system he has chosen is equal to or superior to that specified in this Specification Section and (3) contain an undertaking that the Contractor will not seek additional payment for the provision of a system using modified sodium silicate.

Notwithstanding the Contractor's compliance with the above provisions the Contractor shall not use a modified sodium silicate solution system for concrete deck waterproofing unless he has received the express written agreement of the Engineer. The Accepted Contract Amount is deemed to include the concrete deck waterproofing system foreseen in this Specification Section and on the Drawings.

3. CONSTRUCTION REQUIREMENTS

3.1 Product Delivery, Storage and Handling

- a) The Contractor shall deliver products to the Site in their original

unopened containers, clearly labelled with; the manufacturer's name, brand designation, type and class as applicable.

- b) The Contractor shall store products in an approved dry area and shall protect them from contact with soil and from exposure to the elements. Products shall be kept dry at all times.
- c) Products shall be handled in a manner that will prevent breakage of containers and damage to products.

3.2 Preparation of Surface

- a) The surface to which the Waterproofing is to be applied shall be cleaned of all loose and foreign materials, dirt, grease or oil and shall be dry. When necessary the Engineer may require the surface to be scrubbed with water and a stiff brush, after which the surface shall be allowed to dry before application of the primer.
- b) Concrete to which the deck Waterproofing membrane is to be applied shall be prepared in accordance with the manufacturer's recommendations.

3.3 Application

3.3.1 Deck Waterproofing Membrane

The deck waterproofing membrane shall be a proprietary waterproofing system of the thickness indicated on the Drawings and as approved by the Engineer, and shall be applied in accordance with the manufacturer's recommendations.

3.3.2 Bituminous Waterproofing Membrane

The Contractor shall furnish and install the bituminous membrane as specified herein to all surfaces indicated on the Drawings including but not limited to; abutments, wing walls, retaining walls, and similar foundations and where directed by the Engineer. The work shall include the supply and application of bituminous membranes on all surfaces specified to receive waterproof membrane.

Concrete or other surfaces, which are to be protected by bituminous membrane, shall be thoroughly cleaned before the primer is applied.

They shall then be brush or spray painted with two coats of tar or asphalt primer for absorptive treatment. Below ground not less than two coats shall be applied at a rate of 0.56 liters per square meter of surface.

On the well primed surface one application of tar or asphalt seal coat shall be applied by brush at a rate of 0.45 liters per square meter. Care shall be taken to confine all paints to the areas to be waterproofed and to prevent disfigurement of any other parts of the structure by dripping or spreading of the

tar or asphalt.

4. MEASUREMENT AND PAYMENT

4.1 Method of Measurement

- a) The deck waterproofing membrane to the bridge decks shall be measured according to the number of square meters installed in accordance with the Drawings and to the satisfaction of the Engineer.
- b) The Waterproofing provisions, material requirements and construction requirements identified in this Specification Section shall be measured for payment in pay items 07700-01.
- c) Any Waterproofing Works not specifically identified in this Specification Section but which are necessary for the performance of the Works shall be deemed to be included in pay items 07700-01.
- c) No measurement and payment shall be made for bituminous membranes applied on other concrete structures. All costs associated with this work shall be considered Indirectly Paid Work and under the applicable concrete unit prices in the Bill of Quantities.

4.2 Basis of Payment

The work under this Specification Section shall be paid for in accordance with the applicable unit prices as indicated in the Bill of Quantities and given below. Payment shall constitute full compensation for performing the requirements of the Contract for the item of work as specified including furnishing all necessary labor, materials, tools, equipment, incidentals and tests.

<u>Pay Item</u>	<u>Description</u>	<u>Unit</u>
07700	Waterproofing	
07700 - 01	Deck Waterproofing Membrane	m ²