

SECTION 07 12 16

BUILT-UP COAL TAR WATERPROOFING

PART 1 – GENERAL

1.01 SECTION INCLUDES

- A. Concrete Primer.
- B. Coal Tar Waterproofing Bitumen.
- C. Coal Tar Saturated Felt.
- D. Cotton Fabric.
- E. Glass Fabric.
- F. Flashing Cement.
- G. Protective Sheathing Board.
- H. Protective Paper.

1.02 MEASUREMENT AND PAYMENT

- A. General: Measurement and payment for built-up coal tar membrane waterproofing will be either by the lump-sum method or by the unit-price method as determined by the listing of the bid item for built-up coal tar membrane waterproofing indicated in the Bid Schedule of the Bid Form.
- B. Lump Sum: If the Bid Schedule indicates a lump sum for built-up coal tar membrane waterproofing, the lump-sum method of measurement and payment will be in accordance with Section 01 20 00, Price and Payment Procedures, Article 1.03.
- C. Unit Prices: If the Bid Schedule indicates a unit price for built-up coal tar membrane waterproofing, the unit-price method of measurement and payment will be as follows:
 - 1. Measurement:
 - a. Built-up coal tar membrane waterproofing will be measured for payment by the square yard (square) or square foot complete in place.
 - b. No deductions will be made for penetration less than one square yard in area.
 - c. Adhesives, fasteners, expansion joints, protection board and paper, and accessories will not be measured separately for payment; such items will be considered incidental to the bituminous membrane waterproofing work and included in the measurement specified above.

2. Payment: Built-up coal tar membrane waterproofing will be paid for at the Contract unit price for the computed quantities as determined by the measurement method specified in Article 1.02.C.1.

1.03 REFERENCES

A. American Society for Testing and Materials (ASTM):

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| 1. | ASTM C208 | Standard Specification for Cellulosic Fiber Insulating Board |
| 2. | ASTM C981 | Standard Guide for Design of Built-Up Bituminous Membrane Waterproofing Systems for Building Decks |
| 3. | ASTM D43/D43M | Standard Specification for Coal Tar Primer Used in Roofing, Dampproofing, and Waterproofing |
| 4. | ASTM D173/D173M | Standard Specification for Bitumen-Saturated Cotton Fabrics Used in Roofing and Waterproofing |
| 5. | ASTM D227/D227M | Standard Specification for Coal-Tar-Saturated Organic Felt Used in Roofing and Waterproofing |
| 6. | ASTM D450/D450M | Standard Specification for Coal-Tar Pitch Used in Roofing, Dampproofing, and Waterproofing |
| 7. | ASTM D1668/D1668M | Standard Specification for Glass Fabrics (Woven and Treated) for Roofing and Waterproofing |
| 8. | ASTM D5643/D5643M | Standard Specification for Coal Tar Roof Cement, Asbestos Free |

B. Federal Specifications (FS):

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| 1. | UU-B-790 | Building Paper, Vegetable Fiber (Kraft, Waterproofed, Water Repellent and Fire Resistant) |
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1.04 SUBMITTALS

- A. General: Refer to Section 01 33 00, Submittal Procedures, and Section 01 33 23, Shop Drawings, Product Data, and Samples, for submittal requirements and procedures.
- B. Product Data: Submit product data and detailed installation instructions for both vertical and horizontal applications.
- C. Manufacturer's Certification: At completion of the installation, submit written certification, signed by the manufacturer or its authorized representative, that the materials used in the work were in accordance with these Specifications, and that they were installed in accordance with the material manufacturer's installation instructions and recommendations.

1.05 QUALITY ASSURANCE

- A. Membrane waterproofing system shall be installed by an applicator/installer skilled and experienced in the type of work involved. Applicator shall be licensed and approved by the manufacturer who furnishes the materials.
- B. The Contractor shall make necessary arrangements with the manufacturer of the materials to be installed to provide on-site consultation and inspection service to assure the correct installation of the membrane waterproofing.
- C. The manufacturer's representative shall be present at the time any phase of the work is performed. Membrane waterproofing shall be applied only over substrate surfaces previously approved by the manufacturer's representative.

1.06 GUARANTY

- A. In addition to the guaranty requirements specified in General Conditions Article GC4.9, membrane waterproofing work shall be guarantied against leakage, defective materials, and defective installation of the completed waterproofing work. Any such defects or leakage occurring during the period of the guaranty shall be promptly and completely corrected, including all affected work, excavation and backfill, at no additional cost to the District.
- B. Said guaranty shall be in effect for a period of five years from the date of the Certificate of Substantial Completion issued by the District. The guaranty shall be signed by the waterproofing applicator or installer and countersigned by the Contractor, and shall be submitted to the Engineer as specified in Section 01 77 00, Closeout Procedures.

PART 2 – PRODUCTS**2.01 MATERIALS**

- A. Concrete Primer: ASTM D43/D43M, creosote primer.
- B. Coal-Tar Waterproofing Bitumen: ASTM D450/D450M, Type II, membrane waterproofing type for hot application.
- C. Coal-Tar Saturated Felt: ASTM D227/D227M, nominal 15-lb. weight per 108 sq. ft. coal-tar saturated felt.
- D. Cotton Fabric: ASTM D173/D173M, bituminous-resin saturated cotton fabric; for use at corners and other sharp bends, and for flashing of penetrations.
- E. Glass Fabric: ASTM D1668/D1668M, Type II, woven glass fabric treated with bituminous resin; for bridging of cracks and for the glass-fabric reinforcing ply.
- F. Flashing Cement: ASTM D5643/D5643M, coal-tar flashing cement of troweling consistency.

- G. Protective Sheathing Board: ASTM C208, vegetable fiber structural insulating board, or other sheathing board acceptable to the Engineer, 1/2 inch thick. For protection of wall waterproofing (vertical surfaces) from backfill damage.
- H. Protective Paper: Fed. Spec. UU-B-790, reinforced duplex laminated kraft paper, sealed with heavy-duty cloth masking tape or duct tape. For protection of slab membrane waterproofing (horizontal surfaces) from subsequent construction operations and traffic and from concrete protection slab as applicable.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Inspection of Substrates: Before starting the installation of any waterproofing work, there shall be a preconstruction walk through the areas to receive the waterproofing. Present shall be the Engineer, the Contractor, the installer, and a manufacturer's representative. Together examine all surfaces on which the waterproofing and flashings are to be applied. Examination includes review of transition conditions to ensure a watertight installation.
- B. Verify that substrate surfaces are clean and dry, and that concrete is properly aged.
- C. Verify that substrate and backing surfaces are smooth and rigid where membrane turns up.

3.02 APPLICATION

- A. Apply concrete primer to substrate surfaces at rate recommended by the waterproofing materials manufacturer.
- B. Membrane waterproofing for vertical and horizontal surfaces shall be applied in accordance with the latest specifications and installation instructions for membrane waterproofing of the manufacturer who furnishes the materials. One ply of the 4-ply system shall be the glass fabric reinforcing sheet.
- C. Comply with the applicable requirements of ASTM C981.
- D. Reinforce membrane at inside and outside corners and edges and around penetrations and projections in the substrate. Clamp membrane properly into floor drains.

3.03 FIELD QUALITY CONTROL

- A. Verify that kettle temperature of bituminous materials for hot application meets the waterproofing materials manufacturer's recommendations.
- B. Verify that installed membrane is free from wrinkles, blisters, exposed laps, fishmouths, and exposed surfaces. Damaged or defective membrane shall be

- corrected before covering or concealing the membrane with subsequent construction and finishes.
- C. If water test of horizontal surfaces is required by the Contract Specifications, conduct such test by applying a flood coat of water along the high areas so that water at least 1/4-inch deep flows over the areas. Perform test under the observation of the Engineer. Should a leak or low spot appear, repair the area and retest as specified above until all work is watertight and acceptable.
 - D. Clean adjacent surfaces of spillage and splatterings of bituminous materials.

END OF SECTION 07 12 16