

**ITEM 18403.7507 M - FILLING SHOULDER JOINTS BETWEEN PORTLAND CEMENT  
CONCRETE PAVEMENT AND ASPHALT CONCRETE SHOULDERS USING  
FIBER REINFORCED ASPHALT CEMENT**

**DESCRIPTION**

This work shall consist of cleaning and filling the shoulder joint between portland cement concrete pavement and asphalt concrete shoulders with fiber reinforced asphalt cement.

**MATERIALS**

The materials used shall meet the following requirements:

**Asphalt Cement:** The asphalt cement shall be paving grade asphalt supplied by a primary source as defined in Section 702 and meeting the specification for Materials Designation 702-0500, Viscosity Grade AC-20.

**Fibers:** The fibers shall meet the following requirements:

Type of Fiber: Polyester  
Tensile Strength: 480 MPa min.  
Specific Gravity: 1.32-1.40  
Melt Temperature: 246°C min.  
Elongation: 33% ± 9%  
Length of Fiber: 6 mm ± 0.7 mm

Each container shall be legibly marked with the following information:

Manufacturer's Name  
Trade Name of Fiber  
Type of Fiber

**Composition of Sealant Mixture:** The asphalt cement shall meet the requirements of Grade AC-20, and when mixed, shall contain a minimum of 5.0%, by weight, of polyester fibers.

**Mixing Temperatures:** The filler shall be mixed at the temperatures recommended by the fiber manufacturer but shall in no case exceed 163°C.

Acceptance of the bituminous material is based on the name of the primary source appearing on the Department's Approved List of Asphalt Cement for Paving and is contingent upon certification of compliance to these specification requirements by the primary source and subsequent suppliers.

Acceptance of the polyester fibers is based on certification by the manufacturer that the fibers meet the material properties listed under the section "MATERIALS".

**CONSTRUCTION DETAILS**

**General.** The Contractor shall furnish all equipment necessary for cleaning and filling the shoulder joints. All equipment shall be approved by the Engineer before its use. Filling shall be done at locations shown on the Plans or as directed by the Engineer.

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All joints shall be thoroughly cleaned of all dust, dirt, moisture, foreign material, incompressibles or any other extraneous materials by high pressure air, hot air lance, wire brush or other suitable method or tool approved by the Engineer. Suitable traps or devices shall be installed on the compressed air equipment to prevent moisture and oil from contaminating the joint surfaces. The Contractor shall maintain these devices and see that they are functioning properly. The joints shall be cleaned a minimum of 19 mm deep. The material and debris removed from the joint shall be removed from the pavement and shoulder to prevent re-contamination of the joint.

Immediately prior to filling and after the joint has been prepared as specified above, both joint faces shall be thoroughly cleaned to a minimum depth of 13 mm using compressed air. The joint sides shall appear thoroughly clean and dry prior to filling. The Contractor may be ordered to reclean joints if in the opinion of the Engineer adequate cleaning and drying is not being obtained. Final cleaning or recleaning may be performed with the use of a hot air lance. When using a hot air lance, care shall be taken so as not to burn, scorch, or ignite the adjoining pavement. Any joints not filled the same day shall be recleaned prior to filling.

The Contractor shall be responsible for protecting traffic and property from hazard or damage during the joint cleaning operation. Materials and methods used for this purpose will be subject to the approval of the Engineer.

The filler shall be heated in a melter constructed either as a double boiler, with the space between inner and outer shells filled with heat-transfer medium; or with internal tubes or coils carrying the filler through a heated oil bath and into a heated double wall hopper. Direct heating shall not be used. Positive temperature control, mechanical agitation and recirculation pumps shall be used. The unit shall be provided with separate thermometers to indicate the temperature of the heat transfer medium and the filler material in the hopper. The mixing unit shall be capable of maintaining the specified mixing temperature, with an allowable variation of  $\pm 5^{\circ}\text{C}$ . Before any joint filling shall commence, the Engineer shall inspect the filling apparatus to ascertain the presence and working condition of the thermometers. Under no circumstances will the Engineer permit any joint filling if thermometers are found to be defective or missing.

The Contractor shall be responsible for a safe and efficient method by which the Engineer will be able to accurately measure the temperature of the filler as it is discharged from the applicator wand. The proposed method must be submitted to the Engineer for his approval before the commencement of joint filling operations. The Contractor shall provide the Engineer with two (457 mm stem) thermometers having a temperature range sufficient to meet the requirements of this specification.

The discharge hose shall be equipped with a controlled heating apparatus or shall be insulated sufficiently to maintain the proper filler temperature. The application wand shall be returned to the machine and the material recirculated as necessary to maintain the proper filler application temperature between individual joint filling operations. Reasonable care should be taken so as not to obliterate pavement markings.

If in the opinion of the Engineer, the Contractor displays an inconsistency in his ability to perform the joint cleaning or filling operation he shall order the Contractor to cease his operations until such time as he can comply with the required criteria in a consistent manner.

The contractor shall obtain the manufacturer's recommendations pertaining to the heating, mixing, and application of the filler, and shall supply a copy to the Engineer. These recommendations shall be adhered to and followed by the contractor with such exceptions as this specification may require.

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The filler shall not be placed when pavement or ambient temperatures fall below 5°C. The filler shall be pumped directly into the joint from the mixing unit. The filler shall slightly overfill the joint and be finished in a band 100 mm wide, 1.5 mm to 3 mm thick, centered over the joint.

Blotting with fine aggregate shall directly follow filler application if traffic results in tracking of the joint filling material.

**METHOD OF MEASUREMENT**

No payment will be made for waste material.

**For Fiber Reinforced Asphalt Cement Only**

The quantity to be paid for shall be the actual number of liters of asphalt cement (corrected to 15.5°C liters) used to complete the work. The quantity of polyester fiber used will not be incorporated into this measurement.

**BASIS OF PAYMENT**

The unit price bid shall include the cost of all labor, equipment and materials necessary to complete the work.