

400 FLEXIBLE PAVEMENT

ITEM 415 - ASPHALT CONCRETE WITH FIBERS

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415.01 Description. This work shall conform to Item 404 of these specifications. Deviations from these are as follows: The material shall be placed in a course thickness no greater than 1 1/2 inches (38 mm), or as specified on the plans.

415.02 Materials. The composition of material shall be as specified in Section 402.02 or 404.02, except that the Bituminous content shall be increased by 0.3 percent to account for the added surface area taken up by the fiber and no reclaimed materials may be used.

415.03 Fibers. The fiber shall be a short length polypropylene fiber developed especially for use as an additive for hot mix asphalt paving materials. The fibers shall meet the following requirements:

Material:	Polypropylene
Denier:	4 +/- 1
Length:	0.39 in.+/- 0.08 in. (10mm +/- 2 mm)
Color:	Black
Crimps:	None
Tensile Strength:	40,000 psi, min. (272 MPa)
Specific Gravity:	0.91 +/- 0.04
Moisture Regain at 70° F (21° C) and 65% Relative Humidity	Less than 0.1%
Asphalt Adhesion Test	Minimum 35 times the weight of fiber
U.V. Stability:	Minimum 50% greater than natural fiber
Salt Resistance:	Excellent

Anti-Static Coating	Yes	
Moisture Content		4% +/- 2%
Melting Point		320° F (160° C)
Glass Transition Temperature:*		0 °F (-18° C)

*Glass Transition Temperature is that temperature at which a fiber loses its flexibility and becomes brittle, it would tend to easily break, and as in the case of asphalt reinforcement, would lose its value.

The fiber concentration shall be 6 lbs./ton (3 kg/metric ton) of mix by weight in proportion to that of the total mix. The temperature of the completed mix shall not exceed 300° F (149 °C).

415.031 Manufacturer’s Responsibilities. The manufacturer of the fiber shall furnish certified test data annually to the City’s Testing Laboratory, or at the request of the City’s Testing Laboratory. A letter of certification stating that the material complies with specification requirements shall be furnished with each shipment.

At least 2 weeks prior to the start of asphalt concrete production, the fiber manufacturer shall furnish the following samples to the City’s Testing Laboratory:

1. A 10 foot (3.0 m) uncut sample of the fiber.
2. A random 0.5 pound (0.22 kg) sample of the finished fibers for each 25,000 pounds (11,340 kgs) of fiber to be used on the project.

The manufacturer’s technical representative of the polypropylene fiber shall be present during the initial phase of the plant mixing or as deemed necessary by the Engineer.

After the fibers have been accepted for use and prior to the start of full production, the Contractor shall produce a test section of fiberized asphalt concrete to demonstrate to the City’s Testing Laboratory how the fibers will be introduced and mixed into the asphalt concrete. The Laboratory will use this test section to determine the appropriate mixing time and the acceptability of the fiberized asphalt concrete mixture. A test section will be a minimum of 75 tons (68 metric ton).

415.04 Approval of Alternative Materials. Manufacturers or suppliers of materials other than those indicated by these specifications may request to be added as an approved equal through the Director. Each request shall be in writing and submitted to the Director for review and approval, in accordance with the current policy and procedure concerning such matters. If approved, the material will be added to a list which will be kept on file in the office of the Director, Owner Division, or City’s Testing Laboratory.

415.05 Mixing. When a batch type plant is used, the fibers shall be added as per the manufacturer’s recommendation to the heated aggregate prior to introduction of the asphalt cement.

When a drum mix type plant is used, the fibers shall be introduced with the aggregates by use of the reclaimed material feed system *or by an adjustable pipe near the bitumen feed pipe.*

415.06 Placement Dates. Asphalt concrete with fibers shall be placed only between May 15 and September 30 and only when air and existing pavement surface temperatures are stable and/or rising at or above a minimum temperature of 50° F. (10° C).

415.07 Compaction. The asphalt shall have a minimum temperature of 270° F (132° C) prior to placing in the paver. The project engineer may reject any material that is below 270° (132° C).

Initial rolling with the 3 wheeled roller shall be completed before the mat temperature drops to 245° F (180° C). The final rolling shall be completed before the pavement reaches a temperature of 180° F (82° C). The rate of placement of the material shall be monitored and controlled by the Contractor so that the mat can be compacted within the desired temperature range. When the initial compaction is not completed before the pavement temperature falls below 245° F (118° C) and/or the final compaction is not completed before the temperature of the pavement falls below 180° F (82° C), the Contractor will slow the paving speed and/or stop the paver until the rollers can comply with the above pavement temperatures.

415.08 Basis of Payment. Payment for accepted quantities, complete in place, will be made at the contract price for:

Item	Unit	Description
415	Ton (Metric Ton)	Asphalt Concrete with Fibers

