

**ITEM 405 BITUMINOUS COLD MIX**

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**405.01 Description.** This work consists of constructing 1 or more courses of aggregate and bituminous material mixed in a central or traveling plant, spread and compacted on a prepared surface.

The general plant mix specifications, 401, shall apply; deviations from these are as follows.

**405.02 Composition.** Use Nos. 57, 67 or 8 size aggregate for the mixture as specified. Use Nos. 8 or 9 size aggregate for choke as specified.

For material mixed by travel plant, the Engineer will adjust the estimated quantity of bituminous material to be added to the aggregate to produce a satisfactory mixture.

To adequately fill the surface voids without excess, the Engineer may adjust the estimated quantity of aggregate to be applied as choke on the surface of the compacted mixture.

The Engineer will base acceptance of the mixture on observed uniformity of mixing and coating of the aggregate particles.

**405.03 Materials.** Bituminous material of the type and grade specified shall meet the applicable requirements of 702. When 2 or more grades of one type of bituminous material are specified, the Engineer will determine the grade to be used.

The City may take pavement samples according to 106.02.

The Contractor may use coating agents conforming to AASHTO T 59 with the prior approval of the Engineer.

**405.04 Mixing Plants.** To prepare the bituminous mixture, the Contractor may use mixing plants of either the stationary batch or continuous type or the traveling continuous type. Obtain the Engineer's approval for the mixing plants prior to

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preparation of the mixtures. General requirements for bituminous concrete mixing plants are on file with the Laboratory.

**405.05 Weather Limitations.** Do not place bituminous cold mix under any of the following conditions: (a) when the surface is wet, (b) when the air temperature is below 40° F (4° C), or (c) when weather conditions otherwise prevent proper handling, finishing, or curing of the mixture.

**405.06 Bituminous Material Preparation.** Deliver bituminous material to the mixer at a uniform temperature within the range specified in 702.

**405.07 Aggregate Preparation.** Deliver aggregate to the mixer at a temperature of not less than 40° F (4° C) and in a surface dry condition, except as follows.

When asphalt emulsions are used in the mixture, maintain any aggregate surface moisture that may be present, uniformly within such limits so as to obtain an acceptable coating of bituminous material.

The Contractor may treat specified liquid grades of asphalt with a coating agent. When use of such an agent is approved by the Engineer, aggregate surface moisture may be present only to the extent that the treated bituminous material will form an acceptable coating during the mixing process.

**405.08 Mixing.** Proportion aggregate and bituminous material and mix for the directed time so as to produce a mixture having a uniform distribution of the bituminous material and coating of the aggregate.

**405.09 Hauling.** Haul the bituminous mixture using trucks conforming to 401.11.

**405.10 Bituminous Pavers.** Use bituminous pavers for placing central mixed material conforming to 401.12. Provide spreading, leveling and strike off equipment for the traveling plant conforming to 405.04.

**405.11 Rollers.** Use rollers conforming to 401.13. Use a minimum of 2 rollers of the types listed, except in small areas a single tandem roller may be used. The capacity of each roller shall be considered to be 30 tons (27 metric tons) of aggregate placed per hour for steel wheel rollers and 60 tons (54 metric tons) per hour for pneumatic tire rollers. For this work, pneumatic tire rollers shall have an average tire contact pressure of not less than 55 psi (380 kPa) and the tire contact area requirement does not apply.

**405.12 Conditioning Existing Surface.** Condition the existing surface according to 401.14, except that painting or coating of contact surfaces shall not be required.

**405.13 Spreading and Finishing.** Spread and finish the mixture according to 401.15, except place the aggregate at the weight per square yard (square meter) specified.

Immediately following the initial rolling, apply the choke aggregate uniformly with adjustable, hopper equipped, revolving drum type spreaders at the specified rate or as directed by the Engineer.

Should a delay in choke application occur that would prevent adequate bonding, the Engineer may require a light application of the bituminous material used in the mix prior to the application of the choke aggregate.

**405.14 Compaction.** Compact the mixture according to 401.16. The Engineer may delay rolling to avoid lateral displacement. Continue final rolling until the choke aggregate is thoroughly embedded and roller marks are eliminated.

**405.15 Joints.** Construct joints as specified in 401.17.

**405.16 Spreading and Surface Tolerances.** Meet the spreading and surface tolerances specified in 401.19. The variation of the surface from the testing edge of the 10 foot (3.0 m) straightedge shall not exceed 3/8 inch (9.5m).

**405.17 Method of Measurement.** The City will measure aggregate and bituminous material according to 109. The City will measure aggregate by weight in tons (metric tons).

When the mixture is prepared in a stationary plant, the City will use batch or truck weights of the mixture to compute the aggregate weight by deducting the weight of bituminous material in the mixture.

**405.18 Basis of Payment.** The City will pay for accepted quantities of bituminous cold mix, complete in place, at the contract prices as follows:

<b>Item</b>	<b>Unit</b>	<b>Description</b>
405	Ton (Metric Ton)	Mix Aggregate
405	Ton (Metric Ton)	Choke Aggregate
405	Gallon (Liter)	Mix Bituminous Material