

REVISION OF SECTIONS 401 AND 703  
STONE MATRIX ASPHALT PAVEMENT

Sections 401 and 703 of the Standard Specifications are hereby revised for this project as follows:

Subsection 401.02 shall include the following:

Recycled Asphalt Pavement (RAP) shall not be used in Stone Matrix Asphalt (SMA) mix.

Subsection 401.09 shall include the following:

Each SMA load shall be completely covered and securely fastened with a full tarp.

Subsection 401.16 shall include the following:

The SMA mixture shall be transported and placed on the roadway without drain-down or flushing. All flushed areas behind the paver shall be removed immediately upon discovery. If more than 50 square feet of flushed SMA pavement is ordered removed and replaced in any continuous 500 linear feet of paver width laydown, operations shall be discontinued until the source of the flushing has been found and corrected. The Engineer will designate the depth and area of all flushed areas requiring removal and replacement. All costs associated with the removal and replacement of the flushed areas shall be at the Contractor's expense.

Subsection 401.17 shall include the following:

Rollers shall not be used in a vibratory mode on SMA unless they are first used successfully in the demonstration control strip specified in subsection 403.03. Pneumatic wheel rollers shall not be used on SMA mix.

Stone Matrix Asphalt Pavement shall be placed and compacted in accordance with the temperatures listed in subsection 401.07 as revised for this project.

The relative compaction for all SMA mixtures will be measured from roadway cores in accordance with CP 44, Method B (Rapid Test) or Method C (CoreDry Test), unless the SMA mixture is being placed on a structure (bridge deck) in which case the Engineer may specify that nuclear gauge measurements be used.

When cores are used, the Contractor shall provide all labor and equipment for the coring operation and filling the core holes. When nuclear density gauges are used, the tests will be performed in accordance with CP 81 and CP 82.

◆ In-place density for SMA shall be 93 to 97 percent of the SMA daily maximum specific gravity as measured according to CP 51.

Subsection 401.22 shall include the following:

Acceptance, testing, and pay factors for SMA shall be in accordance with subsections 105.05 and 106.05 as revised for this project for Hot Mix Asphalt. The specifications for gradation acceptance shall be applied for all SMA placed on the project.

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Subsection 703.06 shall include the following:

▲ Mineral filler for the Stone Matrix Asphalt pavement shall be limestone dust and shall meet the requirements of this subsection and the following:

Plasticity Index (AASHTO T90)                      4% Maximum

The Contractor shall submit hydrometer analysis (AASHTO T88) for the mineral filler used in the SMA mix.

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**INSTRUCTIONS TO DESIGNERS (delete instructions and symbols from final draft):**

The Standard Special Provision, Revision of Section 703, Aggregate for Stone Matrix Asphalt, and the Project Special Provision Worksheet, Revision of Section 403, Stone Matrix Asphalt Pavement, must be used along with this specification.

◆ For thin lift SMA less than or equal to 1.5 inch thick. Delete existing paragraph as marked above and replace with the following:

In-place density shall be determined through the completion of a Roller Pass Study (RPS) to be conducted during placement of the required 1000 foot demonstration control strip. The RPS will determine the necessary roller compaction process needed to produce a minimum pavement density of 94 percent of daily theoretical maximum density (RICE). During the RPS, three sets of three 4-inch diameter cores shall be taken to measure SMA mat density for the various sections of the RPS. All coring shall be completed by the Contractor and submitted to the Engineer. The densities of the three QA cores will be averaged to produce the density for each RPS section tested.

Full production of the thin SMA shall not begin until density test results are determined and the project compaction process is established by the Contractor and approved by the Engineer. The approved compaction process established from the RPS shall be used for the duration of the thin SMA paving. Changes to the thin SMA mixture will be reviewed and a new RPS may be required.

Using the same method for determining density during the RPS, density will be determined daily for each day of full production and tested to confirm pavement density. If a daily density check shows density below 92 percent of daily RICE, the Contractor shall stop production and the Contractor will again complete a RPS to establish the necessary compaction process. The Contractor will be allowed two daily density checks below 92 percent of daily RICE to be addressed in this manner during the project. All subsequent daily checks that identify locations having density below 92 percent of daily RICE shall be removed and replaced and a new RPS shall be completed and approved prior to again beginning production. Thin SMA density requirements will be enforced when the SMA mix design gradation and specified lift thickness are in accordance with CDOT Pavement Design Manual requirements for the ratio of nominal maximum aggregate size to lift thickness.

In subsection 401.17, delete the ninth paragraph and all succeeding paragraphs in the subsection and replace with the following:

The Contractor shall submit a plan for a Roller Pass Study (RPS) to the Engineer for approval. Upon approval by the Engineer, the Contractor shall perform a RPS. The plan for the RPS shall include, but is not limited to the following:

- (1) Number, size, and type of rollers.
- (2) Amplitude, frequency, size and speed of vibratory rollers.
- (3) Temperature of mixture being compacted.
- (4) Roller patterns.

The method of measuring density will be by roller passes. If a density element is based on a RPS, the Pay Factor shall be 1.

If in the opinion of the Engineer, the roller pass study presented by the Contractor is inadequate, then the Contractor shall modify the compaction procedures as directed.

▲ Delete when other fillers are allowed by the Region Materials Engineer in accordance with the appropriate mineral filler specification (Revision of Section 703, Mineral Filler). Contact RME for specification.