

## SUPPLEMENTAL SPECIFICATION

### REVISIONS TO SPECIFICATION 703 - AGGREGATES

The following article is revised to read as follows:

#### **703-3            AGGREGATES FOR HOT PLANT-MIX BITUMINOUS PAVEMENT:**

##### **703-3.01        Aggregates, including mineral filler, shall meet the following requirements:**

a.        Grading of the coarse aggregates and fine aggregates shall be such that when it is blended in the proper proportion, the resultant aggregate mixture, at both the mix design process and during the production process, will be between the control points in Table 703-3 for the type and category of HMA specified in contract documents.

b.        Coarse aggregate fraction of the aggregate mixture (fraction not passing the Primary Control Sieve as defined in Table 401-2 for the applicable type of HMA) shall be crushed stone or crushed gravel meeting the following requirements:

- (1)       It shall have an Angularity, measured using the percent fractured faces procedure as stated in ASTM D 5821, that meets the following requirements for the type of mix specified in contract:

Minimum Percentage of Fractured Faces	Mix Type		
	S	L	B
One Face	75	50	50

- (2)       The maximum percentage of wear when tested as per AASHTO T 96 shall not exceed 40 percent.

- (3)       Maximum number of flat and elongated particles<sup>1</sup> shall not exceed 15 percent as per ASTM D 4791.

<sup>1</sup>*A flat and elongated particle is one where the ratio of the longest dimension to the shortest dimension exceeds 5.*

- (4)       It shall be of such gradation that when blended in the proper proportion with the other constituents, the resultant aggregate mixture will meet the gradation requirements of Table 703-3 for the type of HMA specified in the contract documents.

- (5)       It shall be free from soft and disintegrated pieces, clay, organic or other deleterious matter.

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- c. Coarse aggregate in surface mixes (fraction not passing the Primary Control Sieve defined in table 401-2 for the applicable type of HMA specified in contract documents) shall have a minimum polishing value of 48 as determined by ASTM D 3319.
- d. Fine aggregate fraction of the aggregate mixture (fraction passing the Primary Control Sieve defined as defined in Table 401-2 for the applicable type of HMA specified in the contract documents) shall consist of natural sand, stone screenings, or a combination thereof and shall conform to the following requirements:
- (1) It shall conform to the quality requirements of AASHTO M 29, except that the soundness test is not required.
  - (2) It shall be free from soft and disintegrated pieces, clay, and organic or other deleterious matter as determined by AASHTO T 267.
  - (3) It shall be of such gradation that when blended in the proper proportion with the other constituents, the resultant aggregate mixture will meet the gradation requirements of Table 703-3 for the type of HMA specified in the contract documents.
  - (4) Report Fine Aggregate Angularity, tested as per AASHTO T 304, Method A.
  - (5) Report Sand Equivalent (percent), as determined by AASHTO T 176.
- e. Mineral filler for bituminous paving mixtures, if required, shall conform to the requirements of AASHTO M 17.

**TABLE 703-3**  
**AGGREGATE GRADINGS FOR HOT PLANT-MIX BITUMINOUS PAVEMENTS**

Sieve Designation	Percentages by Weight Passing Square Mesh Sieve (AASHTO T-30/11B)			
	Nominal Maximum Aggregate Size (NMAS)			
	1-inch	3/4-inch	1/2 - inch	3/8 - inch
1 – 1/2"	100	-	-	-
1"	90 – 100	100	-	-
3/4"	-	90 – 100	100	-
1/2"	56 – 80	-	90 – 100	100

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<b>3/8"</b>		56 – 80	-	90 – 100
<b>No. 4</b>	29 – 59	35 – 65	44 – 74	55 – 85
<b>No. 8</b>	19 – 45	23 – 49	28 – 58	32 – 67
<b>No. 16</b>	-	-	-	-
<b>No. 30</b>	-	-	-	-
<b>No. 50</b>	5 – 17	5 – 19	5 – 21	7 – 23
<b>No. 200</b>	1 – 7	2 – 8	2 – 10	2 – 10
<b>PCS</b>	No.4	No.4	No.8	No.8

**703-3.02 Reclaimed Asphalt Pavement (RAP)** - The use of Reclaimed Asphalt Pavement (RAP) in the construction of hot plant-mix bituminous pavement courses will be allowed as a replacement material of aggregates subject to the following conditions and restrictions:

- a. The contractor shall submit a new mix design for mixes containing RAP following the regular procedures established by the Materials Testing Office. The percent (%) of RAP used shall be clearly stated in the mix design and it shall contain all of the data as a regular source of aggregates.
- b. All of the requirements and conditions established and all of the reference documents stated herein shall be met regardless of the use of RAP. All of the deductions and/or penalties called for in the contract documents will be applied to deficient materials or lots.
- c. It shall be the contractor's responsibility to design the new mix containing RAP in accordance with the Asphalt Institute's Manual MS-2 so that it meets all of the requirements of hot plant bituminous pavement mix indicated in the contract documents.
- d. The contractor shall submit for approval of the Materials Testing Office, prior to the production of RAP, the proposed method in which he intends to incorporate it into the mix.
- e. All of the sampling, testing and acceptance will be performed following the requirements indicated herein and in other contract documents.
- f. The maximum percentage of RAP allowed to be incorporated in surface courses shall be 10% by weight of total mix.
- g. The maximum percentage of RAP allowed to be incorporated in base and leveling courses shall be 15% by weight of total mix.

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h. The Highway Authority's personnel shall have access at all times to the plant's control tower to verify the actual percentages of RAP being produced at the time. At the request of the Authority the contractor shall submit a copy of the computer printouts containing the percentages of each of the materials being used.

i. The Highway and Transportation Authority reserves the right to prohibit immediately the use of RAP in this contract if contractor does not comply with any of the above conditions and restrictions. The removal and replacement of any tonnage of hot plant bituminous mix in non-compliance with all of the above shall be the contractor's responsibility and at no cost to the Authority.