Kentucky Method 64-426-15
Revised 4/28/15
Supersedes KM 64-426-12
Dated 8/16/12

REQUIREMENTS FOR PROCESS-CONTROL TESTING AND INSPECTION OF ASPHALT MIXTURES BY THE CONTRACTOR

1. SCOPE -

1.1. This method addresses the Contractor's process-control responsibilities for asphalt mixtures.

1.2. Perform all testing for process-control and informational purposes according to the applicable Kentucky Method (KM) or AASHTO standard.

1.3. According to Subsection 402.02 of the Department's *Standard Specifications for Road and Bridge Construction*, provide a Superpave Plant Technologist (SPT) to perform the initial plant setup for each mixture, set the job-mix formula (JMF) at the mixing plant, and conduct all tests to verify that the plant is producing a mixture within the specified tolerances.

1.4. According to Subsection 402.02 of the Department's *Standard Specifications*, provide a Superpave Mix Design Technologist (SMDT) to adjust mix designs as needed. The SPT may perform these changes under the direction of the SMDT. If deemed appropriate by the Department, repeat any inspection, process-control testing, sampling or sample preparation, etc., necessary to ensure that the mixture supplied meets the applicable requirements.

2. EQUIPMENT AND PROCEDURES - The equipment and procedures necessary to fulfill the requirements of this method are described in the following KM's and AASHTO standards:

KM 64-401 *Calibrating and Checking Cold-Feed Flow on Asphalt Mixing Plants*

KM 64-404 *Sampling Liquid Asphalt Materials*

KM 64-405 *Extraction of Binder From Asphalt Paving Mixtures*

KM 64-407 *Sieve Analysis of Aggregate From Asphalt Mixing Plants*

KM 64-411 *Preparing Ingredient Materials for, and Performing, a Laboratory Mix Design of an Asphalt Mixture*

KM 64-421 *Establishing the Job-Mix Formula of Asphalt Mixtures by the Contractor*

KM 64-425 *Sampling Asphalt Mixtures*

KM 64-433 *Wet-Sieve Analysis of Aggregates Used in Asphalt Mixtures*

KM 64-434 *Determination of Moisture Content in Asphalt Mixtures (Rapid Field Test)*

KM 64-435 *Method for Acceptance of Asphalt Mixtures by Mixture Property Analysis*

KM 64-436 *Asphalt Binder Content Determination of Asphalt Mixtures by Plant Recordation*

KM 64-437 *Determination of Asphalt Binder Content of Asphalt Mixtures Using the Nuclear Asphalt Content Gauge*

KM 64-438 *Asphalt Binder Content Determination of Asphalt Mixtures Based on the Maximum Specific Gravity*

KM 64-439 *Sampling Asphalt Mixtures From the Paving Site*

KM 64-442 *Method for Coring and Determining Percent of Solid Density of In-Place, Compacted, Asphalt Mixture Courses*

KM 64-620 *Wet Sieve Analysis of Fine and Coarse Aggregate*

AASHTO R 35 *Superpave Volumetric Design for Hot Mix Asphalt (HMA)*

AASHTO T 2 *Sampling of Aggregates*

AASHTO T 27 *Sieve Analysis of Fine and Coarse Aggregates*

AASHTO T 166 *Bulk Specific Gravity (G_{mb}) of Compacted Hot Mix Asphalt (HMA) Using Saturated Surface-Dry Specimens*

AASHTO T 209 *Theoretical Maximum Specific Gravity (G_{mm}) and Density of Hot Mix Asphalt (HMA)*

AASHTO T 308 *Determining the Asphalt Binder Content of Hot Mix Asphalt (HMA) by the Ignition Method*

AASHTO T 312 *Preparing and Determining the Density of Hot Mix Asphalt (HMA) Specimens by Means of the Superpave Gyratory Compactor*

3. PROCESS-CONTROL TESTING -

3.1. At the beginning of the construction season, submit a Quality Control Plan (QCP) to the appropriate District Materials Section Supervisor (DME) for approval for each plant using the TC 64-418 form, *Contractor's Quality Control Plan/Checklist*. The TC 64-418 form is

available on the Division of Materials website (transportation.ky.gov/materials/asphaltmixtures.htm). This document details sampling, process-control testing, inspection, and the anticipated frequencies for each activity.

3.2. If changes in an approved QCP become necessary or desirable, submit a revised plan for approval.

3.3. Furnish all necessary resources (equipment, personnel, etc.) to comply with the Department's *Standard Specifications*, other contract requirements, and approved QCP.

3.4. See Addendum 1 for a list of the SPT's duties that are to be performed routinely.

3.5. For all projects, perform the following tests and checks at the minimum frequencies listed below:

3.5.1. All Superpave mixtures	Minimum frequencies
Cold-feed checks (when polish-resistant aggregate is required)	Two daily (a. m./p. m.)
Wet-sieve analysis	One during first sublot (setup period); one per lot thereafter

3.5.2. Specialty mixtures	Minimum frequencies
Open-Graded Friction Course (OGFC), Scratch Course, Sand Asphalt, Sand Seal Surface	
Cold-feed checks (when polish-resistant aggregate is required)	Two daily (a. m./p. m.)

3.5.3. All Mixtures	Minimum frequencies
Temperature checks of asphalt mixture	Hourly
Temperature checks of performance-graded (PG) binder	Four daily (two in a. m./two in p. m.)

3.5.4. Mixtures With Reclaimed Materials

Perform and document the results from one asphalt binder content and extracted gradation determination on the reclaimed materials for every two lots of mixture produced. Submit documented results to DME for review, upon completion of testing.

4. RECOMMENDED PRACTICES -

4.1. Develop a process-control testing program in keeping with the specific considerations at each plant site.

4.2. In addition to the acceptance tests required in Subsection 402.03.02 of the Department's *Standard Specifications*, the Department recommends, but does not require, the following minimum process-control tests and frequencies:

4.2.1. Perform one gradation determination, corresponding to the volumetric analysis for acceptance, per sublot.

4.2.2. During the setup period of Compaction Option A projects, determine the correlation between core density and the density meter reading. Perform one density determination for every 1200 yd^2 of surface area of mainline pavement thereafter using a density meter.

5. INSPECTION AND DOCUMENTATION -

5.1. In addition to process-control testing, perform the required plant and site inspection during production.

5.2. Document, and maintain a file of, all process-control tests and inspections. Document daily general observations, adjustments made to the mixture, and the results of all other inspections completed.

5.3. Keep, and update daily, control charts for all process-control, acceptance, and verification test results using the appropriate features of the *Asphalt Mixtures Acceptance Workbook* (AMAW).

ADDENDUM 1

DUTIES OF CONTRACTOR'S SPT

1. Check with the DME to ensure the plant has been calibrated (if required), inspected, and approved.

2. Check the laboratory for the necessary equipment and proper accreditation records as required by the applicable specifications.

3. Check the contract documents for the correct grade of PG binder and specifications pertaining to the asphalt mixtures involved.

4. Provide an approved copy of the JMF on an "Asphalt-Mixture-Design Results" form, or "MixPack" spreadsheet (including the random sampling tonnages for acceptance testing), from the Department at the asphalt plant field laboratory.

5. Provide an approved QCP (TC 64-418) on file at the field laboratory.

6. During production perform visual inspection of all stockpiles to ensure no contamination from other aggregates, dirt, and debris exists (for the duration of production run).

7. Check the bill-of-lading that accompanies each transport of PG binder for the type of material, approval number ("lot number"), county, project number, and signature of the certifying agency and supplier.

8. Maintain a file of all bills-of-lading for PG binder and tack material for a minimum of one year.

9. Check the use and rate of silicone, anti-stripping additive, fibers, or other specialty products when utilized in the asphalt mixture.

10. When requested and witnessed by Department personnel, obtain acceptance samples of the PG binder.

11. Furnish two "hand-mixed" maximum specific gravity samples upon completion of the setup period according to KM 64-438.

12. Perform visual inspection of the plant settings to ensure conformance with the JMF.

13. Check all truck beds to ensure all trucks have tarps and contain no contaminating material or unapproved release agent prior to loading them with asphalt mixture.

14. Inspect the loading of trucks to ensure that the asphalt mixture is being loaded in multiple drops using the "front-back-middle of the bed" sequence in order to minimize segregation. Do not allow trucks to be loaded by "dribbling" the asphalt mixture into the bed or by "topping off" the bed.

15. Fill out the AMAW completely (example copy attached), and submit the spreadsheet to the Department within five working days of the completion of each lot.

16. Complete all control charts documenting process-control, acceptance, and verification testing results daily using the appropriate features of the AMAW.

17. Record the time, truck or ticket numbers, and temperature of the asphalt mixture from which the test samples are taken on the AMAW.

18. Maintain familiarity with the KM's and AASHTO standards that pertain to asphalt quality control and asphalt mixture testing.

19. Maintain familiarity with all applicable specifications that pertain to acceptance, process-control, or quality-control testing responsibilities.

20. Provide current copies of the applicable KM's; AASHTO *Standard Specifications for Transportation Materials and Methods of Sampling and Testing* (Part 1, Specifications, and Part 2, Tests); and the Department's *Standard Specifications* at the plant site at all times.

APPROVED _____

DIRECTOR

DIVISION OF MATERIALS

DATE 8/16/12

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Attachments

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