

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT
SPECIAL PROVISION

JOB XXXXXX

ASPHALT CONCRETE HOT MIX SURFACE COURSE SURFACE TOLERANCE
AND
INCENTIVE PAYMENTS

Division 400 of the Standard Specifications for Highway Construction, Edition of 1996, and Supplemental Specification 400-1 are hereby amended as follows:

Subsection 410.09(b)(2), Pavement Smoothness, is hereby deleted and the following substituted therefore:

(2) Pavement Smoothness. (a) Binder and Intermediate Surface Courses. For full payment, the finished surface of binder and intermediate surface courses, when checked with a 3 m (10') straight-edge parallel to the centerline, shall show no variation more than 5 mm (3/16") for binder courses and not more than 3 mm (1/8") for surface courses. When surface tests indicate surface tolerances do not meet these requirements, changes to the paving operations shall be made before beginning the next day's operations.

All transverse joints shall be straightedged immediately following rolling of the joint. Paving will not continue until the transverse joint meets the applicable surface tolerances shown above.

Areas not meeting the above surface test requirements shall be corrected by skin patching, featheredging, or other methods that would provide the required smoothness. All corrective work and material necessary to correct surface tolerance deficiencies shall be at no cost to the Department.

(b) Final Surface Courses on Mainlanes and Ramps. The finished pavement surface shall have a maximum profile index of 75 mm/km (5" per mile) (± 2.5 mm [0.1"] blanking band) for each 200 m (0.1 mile) section, or portion thereof, for mainlane pavement and 125 mm/km (8" per mile) for each 200 m (0.1 mile) section, or portion thereof, for ramps and acceleration/deceleration lanes (if any).

The Contractor shall furnish a California-style profilograph complying with ASTM E 1274 or an automated lightweight profilometer complying with ASTM E 950, Class 1 and calibrated to the California-style profilograph scale.

The Contractor will take all profiles required by this Special Provision, under the observation of the Engineer. The Engineer will verify the profiles by testing approximately 10% of the pavement. This testing will be performed by the Engineer, using either the profilograph equipment furnished and operated by the Contractor or one provided by the Department, at the option of the Engineer.

A profile will be taken near the center of each traffic lane or ramp using the profilograph equipment. The profiles shall begin 7.5 m (25') from an existing structure or 7.5 m (25') back onto the previous day's run or an existing structure, or at the end of the pavement. The finished surface

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of the 7.5 m (25') sections adjacent to an existing structure or the end of pavement shall not show surface deviations in excess of 3 mm (1/8") in 3 m (10') when tested with a 3 m (10') straight edge.

As soon as the first day's run is available for proper testing, profiles will be taken utilizing the profilograph equipment. Smoothness profiles of the first day's run will be analyzed before the second day's run commences. Should the first day's run not meet an average profile index of 75 mm/km (5" per mile) or less (125 mm/km [8" per mile] for ramps and acceleration/deceleration lanes), the paving operations shall be discontinued until better methods and equipment are obtained or until the present equipment is properly adjusted. If adjustments are necessary from the first day's run, the second day's run will be profiled to determine the ability of the equipment to finish the pavement within the specified tolerance. If the second day's operation fails to produce a finished surface having an average profile index of 75 mm/km (5" per mile) or less (125 mm/km [8" per mile] for ramps and acceleration/deceleration lanes), the Contractor shall produce new methods and/or equipment that will obtain the specified results. The new methods and/or equipment will be given trial runs as indicated above for the original equipment.

For the duration of the work every reasonable effort shall be made to test smoothness within 5 working days after each day's run. All data obtained from the profiling operations will be furnished to the Engineer at the end of each day's profiling operations. Scheduling and testing shall be coordinated with the Engineer. The Contractor shall be responsible for traffic control associated with their own testing and the Department's verification testing.

Areas not meeting the above surface test requirements for the final surface course shall be corrected in such a manner as to maintain a quality pavement having the same uniform texture and appearance as the adjoining surface. Skin patching the final surface course will not be permitted. Featheredging will be permitted only at the beginning and the end of the job. When the corrective action involves removing and replacing a section of the final surface, the minimum area to be removed shall be 15 m (50 linear feet) of length for the full width of the course placed. Replacement of the final surface shall be accomplished using a paver.

Grinding will be allowed, if necessary, to reduce the profile index as determined by the profilograph, as appropriate, in any 200 m (0.1 mile) section on all profiles, including the trial run. The grinding equipment shall be power driven and specifically designed to smooth and uniformly texture the pavement by means of diamond blades.

Continual production of a final surface not qualifying for full payment will not be allowed.

All corrective work and material necessary to correct surface tolerance deficiencies for surface courses shall be at no cost to the Department.

In addition to the above requirements for profile indices, areas representing high points having deviations in excess of 7.5 mm (0.3") in 7.5 m (25') as determined by the profilograph or

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3 mm (1/8") in 3 m (10') as determined by the straightedge, shall be reduced by grinding until such deviations as indicated by retest do not exceed the above limits.

Areas showing low spots of more than 6 mm (1/4") in 3 m (10') in the longitudinal direction shall be corrected by grinding or shall be removed and replaced to an elevation that will not show surface deviations in excess of 3 mm (1/8") in 3 m (10').

Furnishing the profilograph, taking all required profiles, and performing all necessary computations will not be measured and paid for separately, but will be considered as part of quality control and acceptance sampling and testing included in the bid items for the ACHM items.

Subsection 410.10 is hereby deleted and the following substituted:

410.10 Incentives. It is the intent of this specification to produce a pavement that is durable and consistently exceeds the minimum test values established in these specifications. Incentive payments will be according to the following guidelines.

When either 5 or more consecutive lots of ACHM Binder Course or 5 or more consecutive lots of ACHM Surface Course meet the criteria shown below in Subsections (a) and (b), an incentive of the percentage designated will be applied to the dollar amount for all the components of the designated mix for the five or more consecutive lots. Incentive payments will be determined by using the average test results from each lot. Incentive payments will be accomplished by Change Order and will be shown on the final estimate as a separate item increase.

Incentive payments available are as follows:

(a) An incentive payment of 2.0% will be added if:

- the asphalt binder content is within ± 0.2 percentage point of the mix design value, and
- the total variation, low to high, in air voids is no more than 0.6%, with none outside of the compliance limits, and
- the VMA acceptance values are within the compliance limits, and
- there are no areas of segregation outside of the compliance limits as verified by testing according to subsection 410.09(b)(3), and
- the density acceptance values are within the compliance limits.

(b) An additional incentive payment of 1.0% will be added if the requirements of (a) above are met and if:

- the density acceptance values fall between 93.0% and 96.0%

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(c) Price Adjustments for Ride Smoothness. (1) Ride Smoothness Lot: Upon completion of the final surface of the main lanes of a project, the Contractor shall provide documentation of eligibility for price adjustments as defined in this subsection. The Department reserves the right to verify information provided by the Contractor. In the case of dispute regarding price adjustments, the Department decision shall govern.

The Project shall be divided into Ride Smoothness Lots consisting of 200 meter (0.1 mile) sections of each travel lane starting at the beginning of the ACHM noted on the plans or as constructed. Partial lots will not be considered for ride smoothness price adjustments. Travel lanes shall consist of traffic lanes, turning lanes, or painted paved medians. Ramps, acceleration/deceleration lanes, crossovers, turnouts, shoulders, driveways, islands, patching, tapers, or other incidentals shall not be considered as part of a Ride Smoothness lot for price adjustments. Exceptions, including bridges and approach slabs, shall not be considered a part of a Ride Smoothness Lot.

(2) Price Adjustments. The Contractor shall determine the Profile Index (using a ± 2.5 mm [± 0.1 "] blanking band) of the finished surface for each Ride Smoothness Lot utilizing a California-style profilograph complying with ASTM E 1274 or an automated lightweight profilometer complying with ASTM E 950, Class 1 and adjusted to provide data in accordance with the California-style profilograph scale.

No incentive payment for smoothness will be considered for a Ride Smoothness Lot if any portion of that Ride Smoothness Lot contains patched areas less than 60 m (200') in length or has been ground to obtain the required smoothness.

Price adjustments shall be made as follows:

| PRICE ADJUSTMENTS FOR RIDE SMOOTHNESS | | |
|---|---|-----------------------------|
| PROFILE INDEX mm per km / 1.0 km section | PROFILE INDEX In/Mi./0.1 Mi. section | PRICE ADJUSTMENT |
| 15 or less | 1 or less | + 3.0% |
| Over 15 to 30 | Over 1 to 2 | + 2.0% |
| Over 30 to 45 | Over 2 to 3 | + 1.0% |
| Over 45 to 75 | Over 3 to 5 | 0 |
| Over 75 to 90 | Over 5 to 6 | - 2.0% |
| Over 90 to 110 | Over 6 to 7 | - 4.0% |
| Over 110 | Over 7 | CORRECTIVE WORK REQUIRED |

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Price adjustments for each ride smoothness lot will be calculated as follows:

$$\begin{array}{l} \text{(\% Price} \\ \text{Adjustment)} \end{array} \quad \times \quad \begin{array}{l} \text{(Composite Unit Price} \\ \text{of ACHM Surface} \\ \text{Course} \\ \text{Per Metric Ton [Ton])} \end{array} \quad \times \quad \begin{array}{l} \text{(Metric Tons [Tons] of ACHM in Ride} \\ \text{Smoothness Lot)} \end{array}$$

Where:

$$\text{Metric Tons of ACHM in Ride Smoothness Lot} = \frac{(\text{Lane Width}) \times (200 \text{ m Length}) \times (240 \text{ kg/sq m}^*)}{1000 \text{ kg/metric ton}}$$

$$\text{Tons of ACHM in Ride Smoothness Lot} = \frac{(\text{Lane Width}) \times (528' \text{ Length}) \times (440 \text{ lbs/SY}^*)}{9 \text{ SF/SY} \times 2000 \text{ lbs/Ton}}$$

*Note: This is a constant rate for calculating incentives/disincentives for all projects.