

Provide a positive bond, density, and a finish surface to the new mixture at longitudinal joints that is equal to the mixture against which it is placed. The Engineer may take density tests at longitudinal joints to ensure the integrity of material in the joint area.

Locate the longitudinal joint in the top course at the centerline of the traveled way if the roadway is two lanes wide or at the lane lines if the roadway is more than 2 lanes wide. On the lower courses, stagger the longitudinal joint and offset it 6 inches to 1 foot from the centerline of the traveled way if the roadway is 2 lanes wide or from the lane lines if the roadway is more than 2 lanes wide. Match the pavement surface across a longitudinal joint with the transverse slope shown on typical sections.

Test joints, except crowns, for smoothness in accordance with Idaho IR 87. Use an approved 10-foot straightedge. Complete the test and necessary corrections before the material temperature drops below 175 °F.

Place longitudinal joints straight and true. Use approved methods to bring back to straight and true unacceptable deviations. Make adjustments as needed to achieve the specified results.

Obtain approval for Superpave HMA mix design(s) before the start of milling operations.

**N. Miscellaneous Pavement.** Place miscellaneous Superpave HMA pavement in irregular areas (e.g., raised or depressed medians, gores, tapers, radii (excluding approach radii), tapered paving for guardrail terminal widening). Include areas that taper from 0 to 8 feet maximum width and gore areas from roadway shoulders to termini in this work. Do not include pavement widening for installation of guardrail in this work.

**O. Leveling Course.** Construct the leveling course of Superpave HMA, with a compacted thickness greater than 0.2 foot, in multiple courses.

Place the leveling course on the existing surface in quantities as approved. Use pavers and/or motor graders and a sufficient number of pneumatic tire rollers to adequately place and compact the leveling course to the required cross-section and grade. Use a steel-wheel roller for final rolling if the leveling course is to be used as a wearing course or if a seal coat is to be applied.

When blade laid leveling course is specified, place Superpave HMA in wheel ruts and other surface irregularities. Blade Superpave HMA into the low areas using a motor grader. Normally, 2 passes are required to fill depressions. Follow each pass of the motor grader with a pneumatic tired roller to provide compaction. Position the blade of the motor grader so light contact with the existing pavement surface is maintained. The Contractor may dispose of excess coarse aggregate resulting from placing the blade laid leveling course along the edge of the roadway.

When machine laid leveling course is specified, place Superpave HMA on the roadway with a paver to restore crown, super elevation, or rideability. Operate the screed close to the existing pavement surface. The Engineer will accept minor surface tears from this operation. Use pneumatic and vibratory rolling for compaction.

**P. Surface Smoothness.** Place pavement complying with Schedule II.

For Schedule III only, perform pre-paving, quality control, and acceptance surface smoothness testing, analyze the results of this testing, and submit the results. Submit pre-paving results. Before paving, submit a plan showing how Schedule III smoothness will be achieved.

Submit quality control results by the next working day following placement.

If the quality control testing results show surface smoothness is not within the acceptable specification limits, suspend paving operations until it can be shown the steps taken to modify operations will result in acceptable smoothness.

Perform acceptance testing on the final lift and submit the results before corrective action. Complete acceptance testing within 1 week of paving completion.

Perform quality control testing in international roughness index (IRI). Request to use quality control testing for acceptance before the start of paving.

Acceptance surface smoothness testing must be verified by the Engineer. The profile run must be witnessed by the Engineer and a preliminary copy of the report submitted immediately after the end of the run. The Engineer will not accept the testing, unless witnessed. Submit the profile data in a format suitable for evaluation using ProVAL or other industry standard software. Do not perform corrective action until approved.

The Engineer may elect to perform additional testing for verification. If the results vary from the Contractor's IRI results by more than 10 percent, the Engineer will use the Department's IRI results for acceptance.

Use Class 1 or Class 2 profilers as defined in ASTM E950. Operate profilers in accordance with the manufacturer's instructions and AASHTO R 57. Set the profiler as follows:

1. High pass or pre-filter: off or at least 200 feet.
2. Bump detection: on
3. Dip detection: on
4. Resolution: 0.01 inch
5. Low pass filter: off
6. Other filters: off

Measure the finished pavement as follows:

1. Test the surface with a 10-foot straightedge at locations determined by the Engineer. Identify the locations that vary more than  $\frac{1}{4}$  inch from the lower edge when the straightedge is laid on finished pavement in a direction parallel with centerline or perpendicular to centerline. Remove the high points that cause the surface to exceed the  $\frac{1}{4}$  inch tolerance by grinding.
2. Profile the surface 3 feet from and parallel to each edge of each traffic lane. The Engineer will use the average of the results for each 0.1 mile section to calculate incentive payments and determine sections requiring corrective action.

The Department requires the pavement to comply with the following surface smoothness schedule requirements:

- a. Where longitudinal grade is 6.5 percent or less, pavement on tangent alignment and pavement on horizontal curves having centerline radius of curve 1,000 feet or more must meet the surface smoothness requirements for the smoothness schedule specified. The Engineer will add consecutive 0.1 mile sections of roadway tested together to obtain the mile section. There will be no overlapping of the 0.1 mile or 1 mile sections to change cumulative test results.

(1) Smoothness Schedule using IRI:

- (a) Schedule I Projects: Target IRI values range from 60.0 to 70.0 inches per mile per 0.1 mile. Corrective action required above 9.5 inches per 0.1 mile.
- (b) Schedule II Projects: Target IRI values range from 71.0 to 80.0 inches per mile per 0.1 mile. Corrective action required above 95.0 inches per mile per 0.1 mile.
- (c) Schedule III Projects: Target IRI value range defined as one of the following:
  - i. For sections with a pre-paving IRI less than 160.0 inches per mile per 0.1 mile the final index must not exceed 80.0 inches per mile per 0.1 mile.
  - ii. For sections with a pre-paving IRI of 16.0 inches per 0.1 mile or greater, use the smoother of either:
    1. A 50 percent improvement of the pre-paving index.

2. A maximum final index of 100.0 inches per mile per 0.1 mile. Corrective action is required above the target IRI.
    - b. The Engineer will exclude acceptance test strips, pavement on horizontal curves having a centerline radius of curve of less than 1,000 feet and pavement within the super elevation transition of such curves, or pavement with a longitudinal grade greater than 6.5 percent from incentive/disincentive payments. Meet the corrective action requirements for the smoothness schedule specified.
3. Profile the pavement to provide continuous, uninterrupted profile data. The Department will not apply profile smoothness tolerances and incentive/disincentive payments to the following:
  - a. Pavement within 50 feet of a transverse joint that separates the pavement from a structure deck, an approach slab, or an existing pavement not constructed under the contract.
  - b. Pavement for approaches and structure decks.
  - c. Roadways with a speed limit less than 40 mph.
  - d. Interstate ramps.

Smoothness acceptance for these areas will be as specified with straightedge requirements.

Do not profile pavement for approaches.

Operate the profiler at a speed equal to or less than the manufacturer's recommended speed. Calibrate the profiler at the beginning of the work and as needed thereafter.

Grind individual high points in excess of 0.3 inch within 25 feet or less, as determined by the California Profilograph simulation, until such high points do not exceed 0.3 inch.

After individual high point grinding has been completed, perform additional grinding in sections requiring corrective action to reduce the IRI to a maximum of 80.0 inches per mile per 0.1 mile section along lines parallel with the pavement edge.

Grind parallel to centerline. Extend adjacent grinder passes, within ground area, to produce a neat rectangular area having a uniform surface appearance. Make smoothly feathered transitions at transverse boundaries between ground and unground areas. Apply a fog coat to the ground pavement surface as specified in 408 after grinding has been completed.

Use power-driven grinding equipment that is specifically designed to smooth portland cement concrete pavement with diamond blades. Use a machine with an effective wheelbase at least 12 feet and a cutting width of at least 3 feet. Instead of diamond grinding, the Contractor may use a self-propelled milling machine of the type used for removal of asphalt pavement provided a special milling head is used that is designed to provide a texture similar to diamond grinding. Use a milling head with cutting teeth that do not exceed a spacing of 0.2 inch. Restrict the machine forward speed to 5 feet per minute while milling. If the texture produced by milling is unsatisfactory, the Engineer will require diamond grinding. Provide grinding or milling equipment of a shape and dimension that does not encroach on traffic movement.

Check the pavement for smoothness after grinding as specified in this subsection and make additional corrections necessary to achieve smoothness. Submit a report and graph showing compliance of the final surface to the smoothness requirements. The Department will not pay for the cost of grinding, milling or related work (e.g., fog coat), disposal of milled material, traffic control, flagging, profiling, surface repair of ground or milled areas, or temporary striping.

If correction of the roadway as specified will not produce satisfactory smoothness results or it reduces pavement thicknesses and serviceability, the Engineer may accept the completed pavement and will deduct from monies due or may become due to the Contractor the sum of \$500 for each individual high

point or \$3,000 for each 0.1 mile section. Under these circumstances, the Engineer's decision whether to accept the completed pavement or to require corrections is final.

**405.04 Method of Measurement.** The Engineer will measure acceptably completed work as follows:

1. Pavements, leveling courses, and asphalts by the ton. The Engineer will not permit batch weights as a method of measurement. The Superpave HMA quantity will be the weight used in the accepted pavement and will include the weight of the aggregate, asphalt, and additives in the mixture.
2. Anti-stripping additive by the percentage of additive per ton of asphalt.
3. Miscellaneous pavement by the square yard. Final measurement will be based on plan quantities, unless changed by the Engineer. Miscellaneous pavement measurement is in addition to the measurement of asphalt and Superpave HMA material.
4. Approaches per each regardless of width or length. Separate mailbox turnouts will be measured as an approach. Mailbox turnouts adjacent to an approach will be considered as part of the approach and no separate measurement will be made. Approach measurements are in addition to the measurement of asphalt and Superpave HMA material.
5. Wedge milling for the transition section by the square yard.
6. Tack coat will be paid for as specified in 401.

**405.05 Basis of Payment.** The Department will pay for accepted quantities as follows:

<b>Pay Item</b>	<b>Pay Unit</b>
Superpave HMA Pavement Class SP ____ .....	Ton
Superpave HMA Pavement, including asphalt and additives	
Class SP.....	Ton
Leveling Course Class SP .....	Ton
Leveling Course, including asphalt and additives, Class SP.....	Ton
____Asphalt Binder for Superpave HMA Pavement .....	Ton
____Percent Anti-stripping Additive for Superpave HMA Pavement	TOA
Miscellaneous Pavement .....	SY
Approaches.....	Each
Wedge Milling.....	SY

The cost to produce the required aggregate in each stockpile to accommodate blends is incidental and included in the contract unit price for the Superpave HMA contract pay item.

When Superpave HMA includes RAP in any proportion, the Department will not include the asphalt binder contributed by the RAP in the quantity for asphalt and additives when asphalt and additives are paid for separately.

For each evaluation section, the Contractor is entitled to a payment adjustment excluding acceptance test strips and Schedule III surface smoothness work. An evaluation section is defined as a 0.1 mile per traffic lane or fraction as applicable. The Department will not pay an incentive for pavement on the roadway shoulders, center turn lanes, turn bays, crossovers, tapers, or other miscellaneous pavement. The Department will pay incentive as specified in Table 405.05-1.

**Table 405.05-1 – IRI Initial inches per mile per 0.1 mile section**

<b>Payment \$ per 0.1 mi</b>	<b>Schedule I</b>	<b>Schedule II</b>
\$500	40.0 or less	45.0 or less
\$300	41.0 to 50.0	46.0 to 60.0
\$100	51.0 to 60.0	61.0 to 70.0
\$0	61.0 to 70.0	71.0 to 80.0
-\$100	71.0 to 75.0	81.0 to 85.0
-\$300	76.0 to 85.0	86.0 to 95.0
-\$500	86.0 to 95.0	—
-\$500 and corrective action	96.0 or greater	96.0 or greater
-\$300 and corrective action	Individual high points	Individual high points

The Department will make only 1 incentive payment per evaluation section. An evaluation section runs consecutively from the point paving begins to the point paving is interrupted (e.g., at bridges, the end of lane paving areas specifically excluded by the specifications). The Department will prorate partial sections based on their percentage of a full section.

The Department will base incentive payments on initial profiles before corrective work on the top course of paving.