

Section 36 Surfacing and Pavements—General

4-3601 General

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Section 36 Surfacing and Pavements—General

4-3601 General

Section 36, “General,” of the *Standard Specifications* includes general requirements for sections within Division V “Surfacings and Pavements” of the *Standard Specifications*.

This section provides general guidelines for preconstruction meetings and pavement smoothness. Refer to the sections listed in Table 4-36.1 of the *Standard Specifications* and this manual for additional information.

Table 4-36.1. Additional Information for Surfacing and Pavements

Section Title	Standard Specification Section	Construction Manual Section
Seal Coats	37	4-37
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This section also includes inspection guidelines for base bond breaker that is applied between a base and concrete pavement.

4-3602 Before Work Begins

4-3602A Preconstruction Meetings

Hold a preconstruction meeting for the surfacing and or paving operation work a minimum of 3 business days before the start of the work. This meeting is specific to the surfacing or paving work and is not the same meeting as required in Section 8-1.03, “Preconstruction Conference,” of the *Standard Specifications* and as described in Section 5-003 “Preconstruction Conference with the Contractor,” of this manual. For preconstruction meetings under this section, discuss the specifications and process for producing materials and constructing the surfacing or pavement. Refer to Section 36-1.01D(2), “Preconstruction Meetings,” of the *Standard Specifications* for a list of topics to include in the meeting. Review the applicable specification section for additional items that are required to be covered in this preconstruction meeting.

Caltrans staff at this preconstruction meeting must include the resident engineer, principal assistants, material sampling and testing staff, and other key personnel.

Refer to Section 36-1.01D(2), “Preconstruction Meetings,” of the *Standard Specifications* for the list of contractor personnel that are required to attend. Ensure the contractor also includes:

1. For seal coats, the emulsion and binder suppliers.
2. For hot mix asphalt using a warm mix asphalt additive technology, the technical representative for the warm mix asphalt technology.
3. For individual slab replacement with rapid strength concrete, the concrete plant inspectors and personnel performing saw-cutting and joint sealing.

Do not allow placement of the trial slabs, construction of test strips, or paving to start until the required personnel have attended the preconstruction meeting.

4-3602B Base Bond Breaker

Before work on the base bond breaker begins, do the following:

- Review the contractor’s proposed base bond breaker to ensure it meets the requirements for the type of base it is being placed over.

4-3602C Pavement Smoothness

Before work begins, take the following steps:

- Review the contract and determine which portions of new pavement will be subject to inertial profiler requirements and which portions will be subject to straightedge requirements.
- In advance of the contractor’s start of surfacing or paving operations, ensure project staff are trained and knowledgeable in the use of ProVAL computer software. ProVAL is used to view and analyze raw profile data as well as review and generate PDF reports. ProVAL is on Caltrans’ Approved Software List and online training is available for Caltrans employees at:

<https://maintenance.onramp.dot.ca.gov/paveprogram/office-asphalt-pavements>

ProVAL software is available at:

<http://www.roadprofile.com/>

- Ensure the contractor submits certifications for the inertial profilers and operators and that certifications are not more than 12 months old.
- Discuss pavement smoothness requirements at the preconstruction meeting required for the surfacing or pavement operation. Include the following items in the discussion:
- The contractor is required to register with Caltrans’ electronic file sharing system at least 15 days prior to profiling. To start the registration process, the contractor must send an email that includes contact information to smoothness@dot.ca.gov.
- Within 2 business days after each profiling, the contractor must submit the profile information to the engineer and to Caltrans’ file sharing system. Refer to Section

4-3603, “During the Course of Work,” of this manual for more specific details of what is required in each submittal.

- After submitting the profile information to Caltrans’ file sharing system, the contractor must also send a notification to the engineer and to the above electronic mailbox.
- Failure to submit profile information within prescribed time frames is subject to progress payment withholds specified in Section 9-1.16E(3), “Performance Failure Withholds,” of the *Standard Specifications*. Refer to Section 3-906F (2), “Performance Failure Withholds,” of this manual.
- All bridge approach slabs, bridges, and culverts visible on the roadway surface and at grade intersections must be recorded in the raw inertial profile data.
- Contractor must mark beginning and ending stationing of contractor profiles so the engineer may verify final acceptance profiles. Lack of beginning and ending station markings on shoulder may delay the engineer’s validation profiles and acceptance.

4-3603 During the Course of Work

4-3603A Base Bond Breaker

During the base bond breaker work, take the following steps:

- Ensure contractor submits a certificate of compliance for each shipment of base bond breaker material delivered.
- Ensure base material is free of any foreign and loose materials and the base is cured prior to applying base bond breaker.
- Ensure the base bond breaker used is specified for the type of base it is covering.
- Ensure base bond breaker is paved over within 72 hours of placing base bond breaker.
- Ensure base bond breaker is applied in accordance with the specifications.

4-3603B Pavement Smoothness

During the pavement smoothness work, take the following steps:

- At locations not requiring pavement smoothness testing using an inertial profiler:
 1. Ensure the contractor tests areas for smoothness using a 12-foot straightedge. After testing, ensure the contractor submits a list of areas that require correction. Ensure each area is identified by size and location as required by the specifications.
 2. Ensure follow-up acceptance testing with a straightedge is performed to confirm contractor’s list is complete. If the area was measured using an inertial profiler, consider using the ProVAL Rolling Straightedge module to help identify locations that should be manually checked with the straightedge.

- Ensure the inertial profiler displays a current certification. Both the left and right accelerometers are to have a Caltrans-issued decal indicating the date the certification expires.
- In the Engineer's presence, ensure the contractor performs:
 1. The required calibration and verification tests of the inertial profiler before each day's operation.
 2. The cross-correlation verification test at least once per project and at least once per year on each pavement surface type.
- Ensure the inertial profiler operator has a current Caltrans-issued certificate. Ensure the certificate covers the model of the certified inertial profiler.
- Ensure the contractor marks the beginning and ending station on the pavement shoulder. When stationing is covered by additional surfacing or pavement, ensure markings are transferred to the next surface and display the same stationing. Prior to running verification tests, ensure the beginning and end station are still clearly marked, and that Caltrans' inertial profiler operator uses the same stationing as the contractor.
- Ensure the contractor submits pavement smoothness data in compliance with the current pavement smoothness requirements.
- To assist in gathering pavement smoothness information and pavement smoothness data files, promote the use of data collection forms. Pavement smoothness forms are available at:

<https://dot.ca.gov/programs/construction/forms>

These forms include:

- Form CEM-3736, "Pavement Smoothness Inertial Profiler Submittal Record," is a checklist to review the completeness of submittals of inertial profiler data files, reports, and calibration information. This form should be used for both hot mix asphalt and concrete pavements.
- Forms CEM-3736AC, "Asphalt Concrete Pavement Smoothness Corrections Information," and CEM-3736C, "Concrete Pavement Smoothness Corrections Information," provide information on pavement smoothness corrections made by contractors. The information collected on these forms will be used by Caltrans to help determine if improvements to the Caltrans pavement smoothness specifications are required. These forms should be completed by the contractor and submitted to the resident engineer and the smoothness electronic mailbox address.
- After each inertial profiling by the contractor, review the inertial profiles for accuracy and contract compliance.
- Upon receipt of the contractor's inertial profiles proposed for acceptance, review the raw profile data file, and the two ride quality reports using the guidelines described in items 1, 2, and 3. Carefully review the submittals to ensure:

1. All listed leave-outs meet the requirements for the contract.
 2. The ride-quality analysis report for International Roughness Index indicates no locations where short continuous roughness exceeds the established specification limit for areas of localized roughness.
 3. On the ride-quality analysis report for mean roughness index, where full 0.10-mile fixed increments are indicated, all mean roughness index values do not exceed the maximum mean roughness index provided for the contract. Where partial fixed increments are shown (fixed increments less than 0.10 mile), evaluate compliance against the contract requirements after adjusting the calculated mean roughness index for the partial section as described in the specification.
- After reviewing and accepting the contractor's profiles proposed for acceptance, request Caltrans' inertial profile be run. Include a copy of the contractor's raw data file. Prior to submitting the request, ensure the contractor's beginning and ending stationing locations are still clearly marked on the shoulder. Caltrans should use the same stationing. This allows both files to be simultaneously loaded in ProVAL and compared for differences.
 - Upon receipt of Caltrans' verification inertial profile runs, evaluate and validate the contractor's profiles when each contractor's mean roughness index value is within 10 percent of Caltrans'.

4-3604 Level of Inspection

4-3604A Base Bond Breaker

- Benchmark inspection of the existing base material to ensure it is free of any foreign or loose material, and base has fully cured prior to applying base bond breaker.
- Intermittent inspection of the application of the base bond breaker to ensure it meets the requirements

4-3604B Pavement Smoothness

- Intermittent inspection to assure inertial profiler and operator certifications are current.
- Intermittent inspection to assure beginning and ending stationing of inertial profiler runs are marked on the shoulder, and correctly transferred to subsequent lifts when necessary.
- Intermittent inspection of submitted inertial profile submittals to ensure they meet the contractual requirements.
- Benchmark inspection of contractor's final "corrected" inertial profiles to ensure they meet the requirements for pavement smoothness, including ensuring they are within 10 percent of Caltrans' International Roughness Index values for each 0.1-mile section.

4-3605 Quality Control

4-3605A Base Bond Breaker

- Ensure contractor submits a certificate of compliance for each delivery of base bond breaker material.

4-3605B Pavement Smoothness

- Ensure contractor has current certifications for inertial profiler and its operator.

4-3606 Payment

4-3606A Base Bond Breaker

- Measure and pay for base bond breaker where shown on the plans. Do not include any quantity for overlap.
- If performance grade asphalt binder is used as a base bond breaker, determine its weight in accordance with the Section 92-1.04, "Payment," of the *Standard Specifications*. Make any adjustments in accordance with Section 9-1.07, "Payment Adjustments for Price Index Fluctuations," of the *Standard Specifications*. Do not include the weight of the asphalt binder used for base bond breaker in any other payment item.

4-3606B Pavement Smoothness

- Payment for pavement smoothness is included in bid item covering the pavement being placed. If the contractor fails to submit required pavement smoothness submittals within the specified time, withhold from the next progress payment in accordance with Section 9-1.16E(3), "Performance Failure Withholds," of the *Standard Specifications*.
- During each progress payment, estimate the cost to correct smoothness on final surfaces that were constructed during the previous estimate period and apply an equivalent reduction in the corresponding pavement item pay quantities for incomplete work.