Friction Testing of Bridge Decks

After deck surfaces and approach slabs have been textured, the engineer tests the coefficient of friction of the concrete surfaces under California Test 342\(^1\). Refer to Standard Specifications\(^2\) for coefficient of friction testing requirements.

Newly Constructed Bridge Decks

Coefficient of friction testing must be performed on each deck. The test must be performed at a location which is representative of that portion of the deck surface exhibiting the lowest coefficient of friction. Once the representative area has been tested and shown to meet the specification, more tests will not be required unless, in the opinion of the Structure Representative, the test results are not representative of the bridge deck skid resistance.

Schedule the skid test 25 days in advance.

Existing Structures Bridge Deck Treatment

Coefficient of friction testing must be performed on the treated test area for the methacrylate\(^3\) or the trial overlay for polyester\(^4\), and the test result must comply with the specifications. The treated test area or trial overlay will then be authorized and used as a standard of comparison for the production work. Using this comparative process will allow Caltrans to better use the available friction testing resources.

Methacrylate Resin Bridge Deck Treatment

The following are some of the requirements for methacrylate resin bridge deck treatment:

- The contractor is to notify the engineer at least 15 days before treating the test area.

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\(^1\) Method of Test for Surface Skid Resistance with the California Portable Skid Tester
\(^2\) 2018 Standard Specifications (SS), Section 51-1.01D(3)(b)(iii), Coefficient of Friction.
\(^3\) 2018 SS, Section 60-3.03B, Methacrylate Resin Bridge Deck Treatment
\(^4\) 2018 SS, Section 60-3.04B, Polyester Concrete Overlays
• The test area demonstrates:
  1. Compliance with the specifications.
  2. That the work will be completed within the time allowed.

• The engineer performs friction testing of the treated test area. Ten days will be allowed after completion of the test area for the engineer to perform the testing.

• The test area must be authorized before the contractor starts deck treatment activities.

• The authorized test area will be the standard of comparison in determining the acceptability of treated deck surfaces.

• The engineer may perform testing under California Test 342 to verify the coefficient of friction of the treated deck surfaces.

The authorized test area will provide a standard of comparison for the Structure Representative to make a visual inspection between the treated test area and the production work for acceptance. The Structure Representative may perform additional testing to verify the coefficient of friction if the contractor’s materials, methods, or procedures have changed from those used on the test area.

There are additional specification requirements that need to be met before authorizing traffic or equipment onto the treated deck surface (overlay). See BCM 112-5.0, Methacrylate Deck Crack Treatment, for additional information.

See Scheduling Skid Testing below.

**Polyester Concrete Overlays**

The following are some of the requirements for polyester concrete overlays:

• The contractor is to notify the engineer at least 15 days before constructing the trial overlay.

• Trial overlay demonstrates:
  1. Compliance with the specifications.
  2. That the work will be completed within the time allowed.

• The engineer performs friction testing of the trial overlay. Ten days will be allowed after completion of the trial overlay for the engineer to perform the testing.

• Trial overlay area must be authorized before the contractor starts production overlay activities.
• The authorized trial overlay will be the standard of comparison in determining the acceptability of polyester concrete overlay.

• The engineer may perform testing under California Test 342 to verify the coefficient of friction of the polyester concrete overlay.

The authorized trial overlay will provide a standard of comparison for the Structure Representative to make a visual inspection between the trial overlay and the production work for acceptance. The Structure Representative may perform additional testing to verify the coefficient of friction if the contractor’s materials, methods, or procedures have changed from those used on the trial overlay.

Trial overlays should be constructed at a location within the project limits that will facilitate testing and inspection by the engineer and also simulate climate and weather conditions. The depth/thickness of the concrete base for the trial overlay must have the size, strength, and load capacity to accommodate the equipment used for the work. A minimum 4” slab thickness is recommended. After acceptance of all polyester concrete overlay surfaces the trial overlay and concrete base must be disposed of.

See Scheduling Skid Testing below.

**Scheduling Skid Testing**

To meet the 10-day test window requirement, and to ensure that there are no delays to the contract, the tests will have to be scheduled as soon as possible. Between the 15-day notification by the contractor prior to performing the test area or trial overlay, and the 10-day allowance to perform the testing, this should be sufficient time to schedule and complete the test.

Coefficient of friction testing can be arranged by contacting the appropriate staff listed on the instruction tab of Request for Portable Skid Test form.

Structure Construction inspection personnel witnessing the skid test must verify that the skid test machine has valid calibration under California Test 114.