
Standard Method of Test for

Slump Flow of Self-Consolidating Concrete (SCC)



AASHTO Designation: TP 73-09¹

1. SCOPE

- 1.1. This test method covers determination of slump flow of self-consolidating concrete (SCC), both in the laboratory and in the field. SCC is defined as a highly workable concrete that can flow through densely reinforced or complex structural elements under its own weight without vibration and adequately fill voids without experiencing segregation or excessive bleeding.
- 1.2. The values stated in either SI units or inch-pound units are to be regarded separately as standard. Within the text, the inch-pound units are shown in brackets. The values stated in each system are not exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in nonconformance with this standard.
- 1.3. *This standard does not purport to address all of the safety concerns associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. REFERENCED DOCUMENTS

- 2.1. *AASHTO Standards:*
 - T 119M/T 119, Slump of Hydraulic Cement Concrete
 - T 141, Sampling Freshly Mixed Concrete

3. SUMMARY OF TEST METHOD

- 3.1. A sample of freshly mixed SCC is placed in an inverted mold shaped as the frustum of a cone. The mold is raised, allowing the SCC to spread radially. After flow has ceased, the diameter of the SCC is measured in two perpendicular directions. The average of the two measured diameters is the slump flow.

4. SIGNIFICANCE AND USE

- 4.1. This test method is applicable to SCC, defined in Section 1.1.
- 4.2. This test method is intended to provide the user with a procedure to assess the horizontal free flow of SCC in the absence of obstructions. The test gives an assessment of filling ability and may give some indication of resistance to segregation, but it gives no indication of the ability of the SCC to pass between reinforcement without blocking.
- 4.3. This test method is applicable to SCC having coarse aggregate up to 25 mm [1 in.]. If the coarse aggregate is larger than 25 mm [1 in.], the test method is applicable when it is performed on the fraction of concrete passing a 25-mm [1-in.] sieve, with the larger aggregate being removed in accordance with Section 6 of T 141.

5. APPARATUS

- 5.1. *Mold*—The SCC shall be placed in an inverted slump cone mold conforming to the applicable requirements of T 119M/T 119.
- 5.2. *Base Plate*—The base plate shall be made of a stiff, nonabsorbing material, at least 820 mm [32 in.] square and marked with both a circle indicating the central location for the slump cone and a concentric circle with a diameter of 500 mm [20 in.].
- 5.3. Scoop.
- 5.4. Strike-off bar.
- 5.5. Tape measure containing increments of 5 mm [0.25 in.] or less.
- 5.6. Stopwatch.

6. SAMPLING

- 6.1. Approximately 6 L [0.2 ft³] of SCC is needed to perform the slump flow test, sampled normally.
- 6.2. The sample of concrete shall be obtained in accordance with T 141.

7. PROCEDURE

- 7.1. Moisten the base plate and the inside of the slump cone.
- 7.2. Place the base plate on a level, stable surface and the inverted slump cone centrally on the base plate, and hold down firmly (Figure 1).

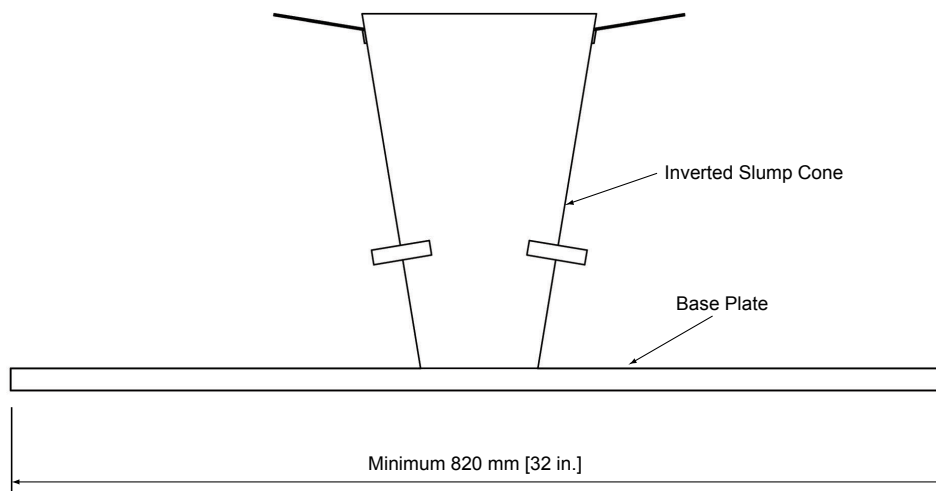


Figure 1—Mold and Base Plate for Slump Flow Test

- 7.3. From the sample of concrete obtained in accordance with Section 6, fill the entire mold continuously. The mold shall be held firmly in place during filling.
- 7.4. Do not rod or tamp the SCC. Do not tap or vibrate the cone.