

## SLUMP OF HYDRAULIC CEMENT CONCRETE FOP FOR AASHTO T 119

### Scope

This procedure provides instructions for determining the slump of hydraulic cement concrete in accordance with AASHTO T 119-18. It is not applicable to non-plastic and non-cohesive concrete.

**Warning**—Fresh Hydraulic cementitious mixtures are caustic and may cause chemical burns to skin and tissue upon prolonged exposure.

### Apparatus

- Mold: A metal frustum of a cone provided with foot pieces and handles. The mold must be constructed without a seam. The interior of the mold shall be relatively smooth and free from projections such as protruding rivets. The mold shall be free from dents. A mold that clamps to a rigid nonabsorbent base plate is acceptable provided the clamping arrangement is such that it can be fully released without movement of the mold.
- Mold: If other than metal, it must conform to AASHTO T 119, Sections 5.1.2.1 and 5.1.2.2.
- Tamping rod: 16 mm (5/8 in.) diameter and 400 mm (16 in.) to 600 mm (24 in.) long, having a hemispherical tip the same diameter as the rod. (Hemispherical means “half a sphere”; the tip is rounded like half of a ball.)
- Scoop: a receptacle of appropriate size so that each representative increment of the concrete sample can be placed in the container without spillage.
- Tape measure or ruler with at least 5 mm or 1/8 in. graduations
- Base: Flat, rigid, non-absorbent moistened surface on which to set the slump mold

### Procedure

1. Obtain the sample in accordance with the FOP for WAQTC TM 2. If the concrete mixture contains aggregate retained on the 37.5mm (1½ in.) sieve, the aggregate must be removed in accordance with the Wet Sieving portion of the FOP for WAQTC TM 2.  
*Note 1:* Testing shall begin within five minutes of obtaining the sample.
2. Dampen the inside of the mold and place it on a dampened, rigid, nonabsorbent surface that is level and firm.
3. Stand on both foot pieces in order to hold the mold firmly in place.
4. Use the scoop to fill the mold 1/3 full by volume, to a depth of approximately 67 mm (2 5/8 in.) by depth.

CONCRETE

WAQTC

FOP AASHTO T 119 (18)

5. Consolidate the layer with 25 strokes of the tamping rod, using the rounded end. Distribute the strokes evenly over the entire cross section of the concrete.  
For this bottom layer, incline the rod slightly and make approximately half the strokes near the perimeter, and then progress with vertical strokes, spiraling toward the center.
6. Use the scoop to fill the mold  $\frac{2}{3}$  full by volume, to a depth of approximately 155 mm (6  $\frac{1}{8}$  in.) by depth.
7. Consolidate this layer with 25 strokes of the tamping rod, penetrate approximately 25 mm (1 in.) into the bottom layer. Distribute the strokes evenly.
8. Use the scoop to fill the mold to overflowing.
9. Consolidate this layer with 25 strokes of the tamping rod, penetrate approximately 25 mm (1 in.) into the second layer. Distribute the strokes evenly. If the concrete falls below the top of the mold, stop, add more concrete, and continue rodding for a total of 25 strokes. Keep an excess of concrete above the top of the mold at all times. Distribute strokes evenly as before.
10. Strike off the top surface of concrete with a screeding and rolling motion of the tamping rod.
11. Clean overflow concrete away from the base of the mold.
12. Remove the mold from the concrete by raising it carefully in a vertical direction. Raise the mold 300 mm (12 in.) in  $5 \pm 2$  seconds by a steady upward lift with no lateral or torsional (twisting) motion being imparted to the concrete.  
The entire operation from the start of the filling through removal of the mold shall be carried out without interruption and shall be completed within an elapsed time of 2  $\frac{1}{2}$  minutes. Immediately measure the slump.
13. Invert the slump mold and set it next to the specimen.
14. Lay the tamping rod across the mold so that it is over the test specimen.
15. Measure the distance between the bottom of the rod and the displaced original center of the top of the specimen to the nearest 5 mm ( $\frac{1}{4}$  in.).  
*Note 2:* If a decided falling away or shearing off of concrete from one side or portion of the mass occurs, disregard the test and make a new test on another portion of the sample. If two consecutive tests on a sample of concrete show a falling away or shearing off of a portion of the concrete from the mass of the specimen, the concrete probably lacks the plasticity and cohesiveness necessary for the slump test to be applicable.
16. Discard the tested sample.

## Report

- Results on forms approved by the agency
- Sample ID
- Slump to the nearest 5 mm ( $\frac{1}{4}$  in.).

CONCRETE

WAQTC

FOP AASHTO T 119 (16)

**PERFORMANCE EXAM CHECKLIST****SLUMP OF HYDRAULIC CEMENT CONCRETE  
FOP FOR AASHTO T 119**

Participant Name \_\_\_\_\_ Exam Date \_\_\_\_\_

Record the symbols "P" for passing or "F" for failing on each step of the checklist.

Procedure Element	Trial 1	Trial 2
<b>First layer</b>		
1. Mold and floor or base plate dampened?	_____	_____
2. Mold held firmly against the base by standing on the two foot pieces? Mold not allowed to move in any way during filling?	_____	_____
3. Representative sample scooped into the mold, moving a scoop around the perimeter of the mold to evenly distribute the concrete as discharged?	_____	_____
4. Mold approximately one third (by volume), 67 mm (2 5/8 in.) deep?	_____	_____
5. Layer rodded throughout its depth 25 times with hemispherical end of rod, uniformly distributing strokes?	_____	_____
<b>Second layer</b>		
6. Representative samples scooped into the mold, moving a scoop around the perimeter of the mold to evenly distribute the concrete as discharged?	_____	_____
7. Mold filled approximately two thirds (by volume), 155 mm (6 1/8 in.), deep?	_____	_____
8. Layer rodded throughout its depth 25 times with hemispherical end of rod, uniformly distributing strokes, penetrate approximately 25 mm (1 in.) into the bottom layer?	_____	_____
<b>Third layer</b>		
9. Representative sample scooped into the mold, moving a scoop around the perimeter of the mold to evenly distribute the concrete as discharged??	_____	_____
10. Mold filled to just over the top of the mold?	_____	_____
11. Layer rodded throughout its depth 25 times with hemispherical end of rod, uniformly distributing strokes, penetrate approximately 25 mm (1 in.) into the second layer?	_____	_____
12. Excess concrete kept above the mold at all times while rodding?	_____	_____
13. Concrete struck off level with top of mold using tamping rod?	_____	_____

**OVER**

CONCRETE

WAQTC

FOP AASHTO T 119 (16)

**Procedure Element**

**Trial 1 Trial 2**

- 14. Concrete removed from around the outside bottom of the mold? \_\_\_\_\_
- 15. Mold lifted upward 300 mm (12 in.) in one smooth motion, without a lateral or twisting motion of the mold, in 5 ±2 seconds? \_\_\_\_\_
- 16. Test performed from start of filling through removal of the mold within 2 1/2 minutes? \_\_\_\_\_
- 17. Slump immediately measured to the nearest 5 mm (1/4 in.) from the top of the mold to the displaced original center of the top surface of the specimen? \_\_\_\_\_

Comments: First attempt: Pass\_\_\_\_\_Fail\_\_\_\_\_ Second attempt: Pass\_\_\_\_\_Fail\_\_\_\_\_

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Examiner Signature \_\_\_\_\_ WAQTC #: \_\_\_\_\_

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