INDIANA DEPARTMENT OF TRANSPORTATION
DIVISION OF MATERIALS AND TESTS

VERIFYING SLUMP CONES
ITM No. 911-17

1.0 SCOPE.

1.1 This test method covers the procedure for verifying the critical dimensions of slump cones.

1.2 This ITM may involve hazardous materials, operations, equipment and may not address all of the safety problems associated with the use of the test method. The user of the ITM is responsible for establishing appropriate safety and health practices and to determine the applicability of regulatory limitations prior to use.

2.0 REFERENCES.

2.1 AASHTO Standards.

T 119 Slump of Hydraulic Cement Concrete

3.0 TERMINOLOGY. Definitions for terms and abbreviations shall be in accordance with the Department's Standard Specifications, Section 101.

4.0 SIGNIFICANCE AND USE. This ITM is used by laboratory personnel to verify the critical dimensions of slump cones used in AASHTO T 119.

5.0 APPARATUS.

5.1 Calipers, readable to 0.001 in. and capable of measuring an 8 in. length

5.2 Ninety-degree square, with one edge longer than the height of the slump cone

5.3 Ruler, readable to 1/16 in. and able to measure 13 in.

5.4 Straight edge, at least 12 in. in length

6.0 PROCEDURE.

6.1 Visually inspect the slump cone for roundness of openings, overall condition of handles and foot pegs, and general cleanliness.

6.2 Measure the inside diameter of the base and top of the slump cone using the calipers. Take two readings on the base and top to the nearest 0 .001 in., 90° apart from each other.

6.3 Verify the wall thickness of the slump cone using the calipers. Take two readings to the nearest 0.001 in., 90° apart from each other on the top of the cone and two readings to the nearest 0.001 in., 90° apart from each other on the bottom of the cone. Average and record all four readings and record the minimum reading.

6.4 Verify the height of the slump cone using the ruler. Place the slump cone on a level surface. Insert the ruler in the top opening, lower the ruler until the ruler rests on the surface and while keeping the ruler vertical measure the height.

6.5 Verify that the base and top of the slump cone are parallel by placing the straightedge across the top opening. (Fig 1) Using the ruler measure the distance from the level surface to a reference point (A) on the straightedge. Measure the distance from the level surface to the straightedge again 4 in. from the reference point (B).

6.6 Verify that the base and top openings of the slump cone are perpendicular to the cones vertical axis by using the 90° square. (Fig 2) Place the square so that one side is flat along the level surface and the other edge is butted up against the base of the cone and parallel to the axis of the cone. Using the ruler, measure the distance from the outside of the top of the cone to the square (C). Repeat the procedure on the other side of the slump cone (D).

Figure 1

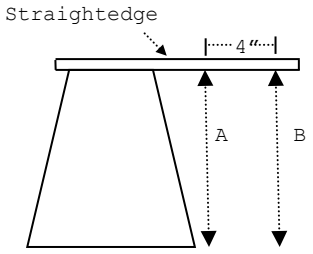
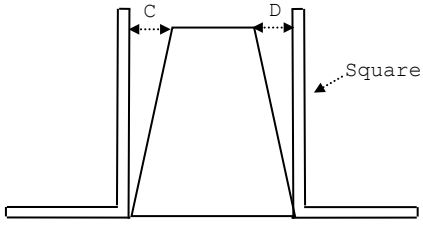


Figure 2



7.0 TOLERANCE.

7.1 Each individual inside diameter measurement of the 8 in. base and 4 in. top of the slump cone shall be $\pm$ 0.125 in.

7.2 The average thickness of the slump cone wall shall be a minimum of 0.060 in. No individual thickness of the slump cone shall be less than 0.045 in.

7.3 The height of the slump cone shall be 12 in. ± 1/8 in.

7.4 Measurements to verify that the base and top of the slump cone are parallel shall not differ by more than 1/16 in.

7.5 Measurements to verify that the base and top of the slump cone are perpendicular to the cones axis shall not differ by more than 1/16 in.

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SLUMP CONE VERIFICATION FORM
ITM 911

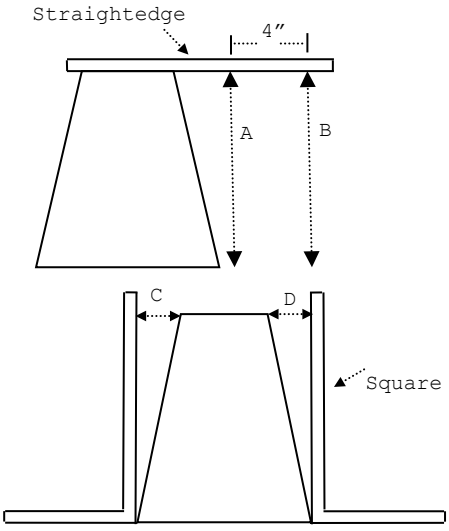
Equipment used: Calipers_____

Cone ID:_____

General Physical Condition	
Are opening round?	
Are handles and pegs in good condition?	
Is slump cone clean?	

Dimensions			
Inside diameter of base, in.			(8 ± 0.125")
Inside diameter of top, in.			(4 ± 0.125")
Height of cone, in.			(12 ± 1/8")
Wall thickness at top			Avg. of all 4 =
Wall thickness at bottom			Minimum=

Parallel Openings	
Reference point to flat surface, in.	A
4 in. from the reference point, in.	B
Measurement difference, in.	



Opening Perpendicular to Axis of Cone	
Horizontal distance from top to square, in.	C
Horizontal distance from top square rotated 180º, in.	D
Measurement difference, in.	

Comments:

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Verified by: _____Date: _____ Next date due:_____