

IA Checklist

T 121 Density (Unit Weight), Yield and Air Content (Gravimetric) of Concrete

Procedure		P	F	NA
1	Obtain a sample of freshly mixed in accordance with R 60.			
2	Determine mass of empty measure (lb[kg]).			
3	Place concrete in measure in three equal layers of approximately equal volume (for consolidation by rodding).			
4	Rod each layer with the tamping rod 25 times for 0.5ft ³ [14L] or smaller containers or 50 times for 1ft ³ [28L] containers			
5	Rod the bottom layer throughout its depth, without forcibly striking the bottom of the measure.			
6	Rod the middle and top layers, each throughout its depth, so that the strokes penetrate the previous layer by about 1 in. [25mm]			
7	Distribute the strokes uniformly over the cross section of the measure for each layer.			
8	After rodding each layer, tap the sides of the measure smartly 10 to 15 times with a mallet.			
9	Remove any excess concrete using a trowel or a scoop or add a small quantity of concrete to correct a deficiency after consolidation of final layer.			
10	Cover about 2/3 of the surface with a flat strike off plate and withdraw the plate in a sawing motion to finish the concrete surface.			
11	Cover the original 2/3 of the surface and advance it with vertical pressure and a sawing motion. Advance plate until it slides completely off the measure.			
12	Smooth surface with inclined edge of the plate.			
13	Clean off all excess concrete and determine the mass of the full measure.			
14	Calculate net mass (lb [kg]).			
15	Calculate density (lb/ft ³ [kg/m ³]).			

Equipment		P	F	NA
Balance				
1	A balance or scale accurate to 0.1 lb (45g) or to within 0.3% of the test load whichever is greater at any point within the range of use.			
2	The range of use shall be considered to extend from the mass of the measure empty to the mass of the measure plus its contents at 160 lb/ft ³ (2600 kg/m ³)			
Tamping Rod				
3	Tamping rod is a round straight steel rod 5/8" (±1/16") [16 mm ± 2mm] in diameter and at least 4" [100mm] greater than the depth of the measure, but not more than 24" (600mm) in overall length.			
4	Tamping rod has the tamping end or both ends rounded to a hemispherical tip, the diameter of which is 5/8" [16 mm].			

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Equipment (continued)		P	F	NA
Mallet				
5	Mallet has a rubber or rawhide head and weighs approximately 1.25 ± 0.50 lb [0.57 ± 0.23 kg] for use with measures of 0.5 ft ³ [14 L] or smaller or 2.25 ± 0.50 lb [1.02 ± 0.23 kg] for use with measures larger than 0.5 ft ³ [14 L].			
Strike-Off Plate				
6	Strike-off plate is a flat rectangular metal plate at least 1/4" [12 mm] thick or a glass or acrylic plate at least 1/2" [12 mm] thick with a length and width at least 2" [50 mm] greater than the diameter of the measure with which it is to be used.			
7	Edges of the plate are straight and smooth within a tolerance of 1/16" [2.0 mm]			
Measure				
8	A cylindrical container made of steel or other suitable material.			
9	Minimum capacity of the measure conforms to nominal maximum size of coarse aggregate in the concrete mix.			
10	Verify the measure is calibrated at least once a year or whenever there is a reason to question the accuracy of the calibration.			
11	Verify the top rim of the measure is smooth and plane within 0.01" [0.3mm]			

Remarks: