Designation: E1155M – 14

Standard Test Method for Determining F_F Floor Flatness and F_L Floor Levelness Numbers (Metric)[1]

This standard is issued under the fixed designation E1155M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method covers a quantitative method of measuring floor surface profiles to obtain estimates of the floor's characteristic F_F Flatness and F_L Levelness Face Floor Profile Numbers (*F*-Numbers) using the metric (SI) system of units.

NOTE 1—This is the metric companion to Test Method E1155.

1.2 The text of this test method references notes and footnotes that provide explanatory material. These notes and footnotes (excluding those in tables and figures) shall not be considered as requirements of this test method.

1.3 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.4 *This standard does not purport to address all of the safety concerns, if any, 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 *ASTM Standards:*[2]

E1155 Test Method for Determining F_F Floor Flatness and F_L Floor Levelness Numbers

2.2 *ACI Standard:*[3]

ACI 117-90 Standard Specifications for Tolerances for Concrete Construction and Materials

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *elevation*—height, altitude, vertical location in space. Elevation measurements are always made parallel to the direction of gravity.

3.1.2 *flat*—even, plane, homoloidal, free of undulation.

3.1.2.1 *Discussion*—For the purposes of this test method, flatness will be measured by calculating curvature value, *q*, between all 300-mm. reading points separated by 600 mm. The curvature value is the difference between successive elevation differences. The mean and standard deviation of all the curvature values for a given test section are then converted according to the equations in this test method to get the dimensionless F_F Flatness Number.

3.1.3 *floor profilometer*—a Type I device (see 6.1.1) that produces a continuous record of the elevation of a single point moving along a line on the floor's surface.

3.1.4 *horizontal*—level, normal to the direction of gravity.

3.1.5 *inclinometer*—a Type II device (see 6.1.2) that measures the angle between horizontal and the line joining the two points of contact with the floor's surface.

3.1.6 *level*—horizontal, normal to the direction of gravity.

3.1.6.1 *Discussion*—For the purposes of this test method, levelness will be measured by collecting elevation differences at points spaced 3 m apart and that will be described by the F_L Levelness number (dimensionless).

3.1.7 *longitudinal differential floor profilometer, n*—a Type II device (see 6.1.2) that produces a continuous record of the elevation difference between two points moving along a line on the floor's surface, which two points remain separated by a fixed distance.

3.1.8 *sample measurement line*—a sample measurement line shall consist of any straight line on the test surface along which measurements are taken, with the limitations listed in 7.3.

3.1.9 *sign convention*—where up is the positive direction; down is the negative direction. Consequently, the higher the reading point, the more positive its h_i value, and the lower the reading point, the more negative its h_i value. Similarly, the elevation difference from a low point to a high point (that is, an *uphill* difference) is positive, while the elevation difference from a high point to a low point (that is, a *downhill* difference) is negative.

[1] This test method is under the jurisdiction of ASTM Committee E06 on Performance of Buildings and is the direct responsibility of Subcommittee E06.21 on Serviceability.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] Available from American Concrete Institute (ACI), P.O. Box 9094, Farmington Hills, MI 48333-9094, http://www.concrete.org.

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