



Designation: F1304 – 18 (Reapproved 2024)

Standard Test Method for Deflection of Resilient Floor Tile¹

This standard is issued under the fixed designation F1304; 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 is used to determine the deflection of relatively rigid resilient floor tile such as vinyl composition tile and resilient flooring with a rigid polymeric core.

1.2 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.3 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*²

E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method

F141 Terminology Relating to Resilient Floor Coverings

2.2 *ANSI Standards:*

ANSI/ASQC Z1.4 Sampling Procedures and Tables for Inspection by Attributes³

3. Significance and Use

3.1 This test method measures physical properties associated with resilient floor tile's ability to conform to an uneven subfloor without breaking or cracking.

¹ This test method is under the jurisdiction of ASTM Committee F06 on Resilient Floor Coverings and is the direct responsibility of Subcommittee F06.20 on Test Methods.

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

³ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

4. Apparatus

4.1 *Deflection Frame*, as shown in Fig. 1.

4.2 *Tensile Test Apparatus*, capable of holding the deflection frame and having a movement of at least 2.5 in. (64 mm) at a rate of 4 in. (100 mm)/min at a load of 10 lb (4.54 kg).

4.3 *Measuring Device*, for measuring the deflection of the specimen at break or pull out from between the support bars to a tolerance of 0.05 in. (1.3 mm).

4.4 *Cutting Device*, for cutting the samples to 2 in. by 9 in. (50 mm by 229 mm).

5. Sampling

5.1 For sampling, refer to ANSI/ASQC Z1.4—most recent version.

5.2 Specimens for test shall be 2 in. $\pm$ 1/32 in. by 9 in. $\pm$ 1/32 in. (50 mm $\pm$ 0.8 mm by 229 mm $\pm$ 0.8 mm).

5.3 Six samples shall be taken from each test unit, three cut with the long dimension in the machine direction, and three with the long dimension across the machine direction. These samples are tested for deflection.

6. Preparation of Apparatus

6.1 Install the deflection frame in the tensile tester. Check to see that the three bars are parallel, and that the center bar is accurately centered between the two outside bars. Position the frame so that the test sample can be placed with the wearing surface touching the center bar, and the back surface touching the two outer bars, without deflection of the sample. This is the zero point for measuring deflection. Check that the deflection speed of the tester is 4 in./min. $\pm$ 1/8 in./min. (102 mm/min. $\pm$ 3 mm/min.). Check the deflection measuring device to see that it accurately measures the relative movement between the center bar and the frame holding the two outer bars.

NOTE 1—If a pendulum-type weighing system is used on the test machine, which has appreciable movement of the attached jaw, the mechanism may be locked in place to make measurement of the deflection easier, and to maintain the specified deflection rate, since measurement of the load is not required. Electronic load cell machines usually have negligible movement.