



Standard Practice to Evaluate the Effect of Dynamic Rolling Load over Resilient Floor Covering System¹

This standard is issued under the fixed designation F2753; 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 practice covers the determination of the effect of dynamic rolling load over a resilient floor covering.

1.2 This practice is intended to be used by resilient, adhesive and underlayment manufacturers to measure the impact of a dynamic rolling load over a specific product or a combination of products.

1.3 This practice may be used to evaluate the performance of joints (sealed or welded) in the resilient floor covering.

1.4 This practice may be used to aid in the diagnosis of a specific assembly performance and provide comparative evaluation.

1.5 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.

1.6 *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

[F141 Terminology Relating to Resilient Floor Coverings](#)
[F1482 Practice for Installation and Preparation of Panel Type Underlayments to Receive Resilient Flooring](#)

3. Terminology

3.1 Definitions used in this practice shall be in accordance with Terminology [F141](#).

¹ This practice is under the jurisdiction of ASTM Committee [F06](#) on Resilient Floor Coverings and is the direct responsibility of Subcommittee [F06.40](#) on Practices.

Current edition approved May 1, 2015. Published July 2015. Originally approved in 2010. Last previous edition approved in 2010 as F2573-10. DOI: 10.1520/F2753-10R15.

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.

4. Significance and Use

4.1 The effect of dynamic rolling load over resilient floor covering system is important since the resistance reflects the ability of a resilient floor covering system to properly perform under specific use or condition.

4.2 Excessive rolling load over an installed resilient floor covering may cause floor covering system failures such as bond failure, delamination, and finish or coating deteriorations.

4.3 The effect of dynamic rolling load shall be measured by qualitative evaluation comparing the tested assembly with a standard assembly.

5. Apparatus

5.1 Rolling load simulator comparable or similar to the apparatus as described in [Annex A1](#).

6. Procedure

6.1 *Test Assembly:*

6.1.1 The test assembly shall have a minimum size of 12 in. (30.5 cm) by 24 in. (61.0 cm).

6.1.2 The base substrate shall be rigid such as a concrete slab 4 in. (10 cm), a cementitious board or a $\frac{3}{4}$ in. (1.9 cm) plywood, panel type underlayments, (Practice [F1482](#) provides additional information), or others. Adhere the flooring test specimen to the base substrate according to the manufacturer's installation instructions.

6.2 *Testing:*

6.2.1 The test shall run at a temperature of $73 \pm 5^\circ\text{F}$ ($23 \pm 3^\circ\text{C}$) and at $50 \pm 10\%$ relative humidity unless otherwise specified.

6.2.2 Install the wheel to be tested.

6.2.3 After proper conditioning, the test assembly should be installed and fixed with clamps on the table. The assembly must not move.

6.2.4 Select the wheel path and the number of cycles. Usually a series of 500 cycles is used.

6.2.5 Place the required amount of auxiliary weights. A starting weight of 100 lb (45.4 kg) is generally used to begin the test.

6.2.6 Turn ON the rolling load simulator.

6.2.7 Once the number of cycles has been reached, the rolling load simulator shall automatically stop. At this time, the flooring surface shall be evaluated for any abnormalities, distortions, bumps, scratches, holes, cavities and bond failures. Once the observations are recorded, pictures may be taken.

6.2.8 When more cycles are needed in different conditions, return to step 6.2.2.

6.2.9 When the test is completed, the flooring shall be opened to evaluate the adhesive and substrate performance. Any abnormalities shall be reported.

7. Reporting

7.1 Report the Following Information:

7.1.1 Name and type of flooring, substrate, and adhesive tested.

7.1.2 Detailed description of the installation used; trowel, flash time, rolling weight and other pertinent information.

7.1.3 Detailed description of the assembly conditioning including conditioning time, temperature and any other pertinent information.

7.1.4 Detailed description of test cycles performed, including date, time, number of cycles, weight, type of wheel, type of wheel path, the wheel motion and any other pertinent information.

7.1.5 Complete the summary report after each test cycle including a qualitative evaluation of the type of damage. Report any other pertinent information. The pictures shall be included in the appendix.

8. Keywords

8.1 dynamic rolling load; resilient floor covering; rolling load simulator; wheel path

ANNEX

(Mandatory Information)

A1. ROLLING LOAD SIMULATOR

A1.1 The rolling load simulator consists of a working surface that could support the assembly and a wheel support device which is attached to at least one movable arm. The wheels should be swivel casters with removable axles. The

wheel path is mechanically driven to allow the desired movement. Above the wheel, there should be a device to permit the addition of auxiliary weights. [Annex A1](#) includes pictures of a rolling load simulator prototype. See [Fig. A1.1](#) and [Fig. A1.2](#).



FIG. A1.1 Rolling Load Simulator Prototype



FIG. A1.2 Rolling Load Simulator Prototype

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