



Designation: E695 – 22

# Standard Test Method of Measuring Relative Resistance of Wall, Floor, and Roof Construction to Impact Loading<sup>1</sup>

This standard is issued under the fixed designation E695; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This test method covers the measurement of the relative resistance of wall, floor, and roof construction to impact loading. The test is not applicable to doors.

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:*<sup>2</sup>

[D1517 Terminology Relating to Leather](#)

[E73 Practice for Static Load Testing of Truss Assemblies](#)

[E575 Practice for Reporting Data from Structural Tests of Building Constructions, Elements, Connections, and Assemblies](#)

[E631 Terminology of Building Constructions](#)

[E661 Test Method for Performance of Wood and Wood-](#)

[Based Floor and Roof Sheathing Under Concentrated Static and Impact Loads](#)

[2.2 Other Standard:](#)<sup>3</sup>

[Fed. Spec. A-A-50197A Linen, Thread](#)

## 3. Terminology

3.1 *Definitions*—For definitions of terms related to this standard, see Terminology [E631](#).

## 4. Significance and Use

4.1 The procedures outlined will provide data that can be used to evaluate the relative performance of wall, floor, and roof constructions under conditions representative of those sustained in actual service when subjected to impact by a heavy blunt object. See Test Method [E661](#) for evaluation of floor and roof sheathing and Practice [E73](#) for evaluation of roof trusses.

4.2 The method is intended to be applied to relatively light construction, including, but not limited to, wood floor and roof systems, partitions framed with wood or steel studs, steel floor or roof decking systems, steel siding and wall panels, or thin concrete and masonry walls or slabs and similar assemblies.

## 5. Summary of Method

5.1 Specimens of wall, floor, and roof construction are subjected to the impact force of a standard impact instrument. Wall sections are tested in the vertical position. Floor and roof sections are tested only in the horizontal position. Because of the inherent differences in the method of applying load, measurements obtained from tests in a horizontal mode are not comparable to measurements obtained from tests in the vertical mode.

## 6. Apparatus for Floor and Roof Systems, Specimen Horizontal (see [Fig. 1](#))

6.1 *Supports*, steel rollers, two, on a rigid base.

6.2 *Impact Instrument*, made with a shot-filled leather bag as specified in [6.2.1 – 6.2.6](#). (see [Fig. 2](#).)

<sup>1</sup> This test method is under the jurisdiction of ASTM Committee [E06](#) on Performance of Buildings and is the direct responsibility of Subcommittee [E06.11](#) on Horizontal and Vertical Structures/Structural Performance of Completed Structures.

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

<sup>3</sup> Available from U.S. General Services Administration, 1800 F Street, NW Washington, DC 20405, <https://fedspecs.gsa.gov>.

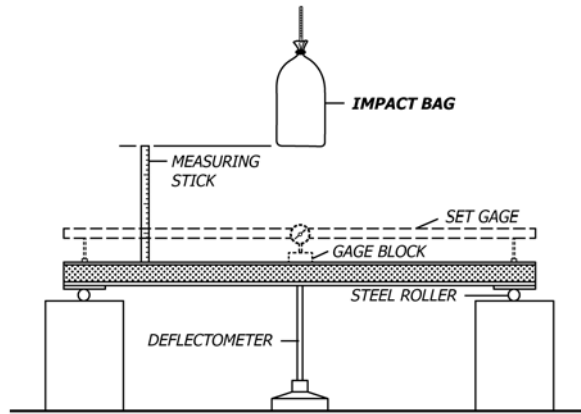
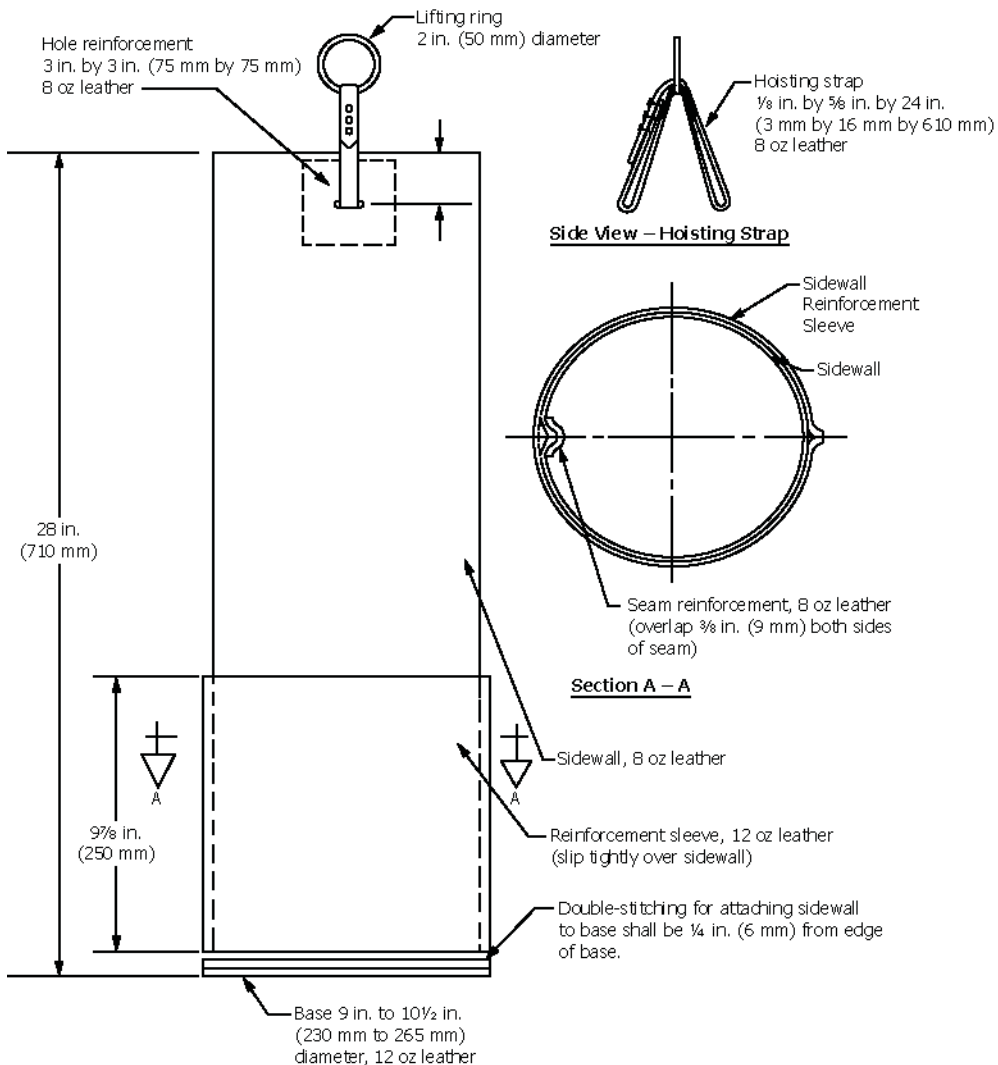


FIG. 1 Impact Load Test (Specimen Horizontal)



(1) *Leather*—Use harness leather (oak tanned from packer hides) or latigo leather (alum and vegetable tanned) (see Terminology **D1517**, **E631** for definitions and terms) (1 oz leather = 1/64 in. (0.4 mm) thick).

(2) *Thread*—Use linen thread (minimum four-ply) in accordance with Fed. Spec. A-A-50197A, Type II, Class 1 or 2. Double-stitch sidewall seam and seam attaching sidewall to the base.

(3) *Shot*—Use shot (0.039 in. to 0.138 in. (1 mm to 3.5 mm) diameter). Fill bag with shot and cover with two layers of 3 in. (76 mm) foam rubber.

FIG. 2 Leather Drop Bag Assembly