



Designation: F150 – 06

Standard Test Method for Electrical Resistance of Conductive and Static Dissipative Resilient Flooring¹

This standard is issued under the fixed designation F150; 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.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 This test method covers the determination of electrical conductance or resistance of resilient flooring either in tile or sheet form, for applications such as hospitals, computer rooms, clean rooms, access flooring, munition plants, or any other environment concerning personnel-generated static electricity.

1.2 *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
[D2240 Test Method for Rubber Property—Durometer Hardness](#)

3. Terminology

3.1 Definitions:

3.1.1 *conductive flooring*—a floor material that has a resistance to between 2.5×10^4 and $1.0 \times 10^6 \Omega$.

3.1.2 *dissipative floor material*—floor material that has a resistance between 1.0×10^6 to $1.0 \times 10^9 \Omega$.

4. Significance and Use

4.1 Conductive and static dissipative floors (static control flooring) serve as a convenient means of electrically connecting persons and objects together to prevent the accumulation of electrostatic charges. A static control floor is specified on the basis of controlled resistance values. The surface of the floor provides a path of moderate electrical conductivity between all

persons and equipment making contact with the floor to prevent the accumulation of dangerous electrostatic charges. Static control footwear will need to be used in conjunction with the floor for the floor to perform effectively with personnel.

4.2 The resistance of some flooring materials change with age. Floors of such materials should have an initial resistance low enough or high enough to permit increase or decrease in resistance with age without exceeding the limits prescribed in the product specifications.

5. Apparatus

5.1 *Self-Contained Resistance Meter* (such as a megohm meter) or power supplies and current meters in the appropriate configuration for resistance measurement with $\pm 10\%$ accuracy. For safety, all power supplies used herein should be current limited, usually below 5.0 mA. This apparatus shall be capable of open circuit voltages of $100 \text{ VDC} \pm 10\%$, and $10 \text{ VDC} \pm 10\%$. Test leads should be isolated from ground.

5.2 *Electrodes*—Two cylindrical $5 \text{ lb} \pm 1 \text{ oz}$ ($2.27 \text{ kg} \pm 28 \text{ g}$) metal electrodes shall have a diameter of $2.5 \pm 0.062 \text{ in}$. ($63.5 \pm 1.58 \text{ mm}$) each having contacts of electrically conductive material with a Shore-A (IRHD) durometer hardness of 50–70 (Test Method [D2240](#)). The electrically conductive material may be permanently attached to the electrode. The resistance between the electrodes shall be less than 1 Kohms when measured at 10 V or less on a metallic surface.

6. Test Specimen

6.1 *Qualification Testing*—When mounting specimen, use insulative support material ($\frac{1}{4} \text{ in}$. (6.35 mm) tempered hardboard is recommended). Use manufacturer's recommended procedures, adhesives, and grounding method to install the sample floor. The specimen shall consist of a portion of floor covering 48 by 48 in. (1.22 by 1.22 m) in area. If a qualification test is required, one specimen shall be tested unless otherwise specified. Unless otherwise specified, make five measurements on the specimen with electrodes at different locations for each measurement and record the value to two significant figures.

6.2 When the following is to be tested after jobsite installation, the specimen shall be a portion of the floor not exceeding 20 by 20 ft (6 by 6 m) in dimensions.

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 - Products Construction/Materials.

Current edition approved Nov. 1, 2006. Published December 2006. Originally approved in 1972. Last previous edition approved in 1998 as F150 - 98. DOI: 10.1520/F0150-06.

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.