



Designation: D 418 – 93

Standard Test Methods for Testing Pile Yarn Floor Covering Construction¹

This standard is issued under the fixed designation D 418; 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 NOTE—This standard was corrected editorially in June 1993. The 1992 edition was incorrect. The current test methods contained in the document will eventually be balloted as individual standards.

1. Scope

1.1 These test methods cover the construction testing of machine-made woven, knitted, and tufted pile yarn floor covering both before and after an adhesive back coating, which bonds the pile yarn to the backing fabric, has been applied.

1.2 This standard includes the following test methods:

	Section
Component Masses ² per Unit Area	8
Number of Binding Sites per Unit Length or Width of Floor Covering	16
Number of Binding Sites per Unit Length or Width of Pile Floor Covering	21
Pile Thickness—Level Pile	10
Pile Thickness—Multilevel Pile	11
Pile Yarn Length per Unit Length of Floor Covering	14
Pile Yarn Length per Unit Length of Floor Covering	20
Pile Yarn Mass per Unit Area	9
Total Mass per Unit Area	7
Tuft and Yarn Length of Uncoated Floor Covering	18
Tuft Length	12
Tuft Length	19
Tuft Length for Level Loop Pile Floor Covering	15
Tuft Height	13

1.2.1 Specimen preparation procedures common to Sections 7-11 are presented in **Annex A1**, Preparing Specimens of Measured Area. **Annex A2** and **Annex A3** give examples of typical calculations for Sections 9-11.

1.3 The values stated in inch-pound units are to be regarded as the standard for all measurements except mass. The SI (metric) values for all measurements except mass are provided for information purposes only.

1.4 *This standard may involve the use of hazardous materials, operations and equipment. It is the responsibility of the user of this standard to establish appropriate safety practices and to determine the applicability of regulatory limitations prior to use.*

¹ These methods are under the jurisdiction of ASTM Committee D-13 on Textiles and are the direct responsibility of Subcommittee D13.21 on Pile Floor Coverings.

Current edition approved May 12, 1993. Published August 1993. Originally published as D 418 – 82. Last previous edition D 418 – 92.

² The technically correct term “mass” is used throughout this standard in place of “weight,” the term in common usage. The buoyancy effect of the displaced air is considered negligible for the test methods in this standard, so that apparent mass and mass are the same within the limits of precision and accuracy achieved (see section 3.4.1 of E 380E 380).

2. Referenced Documents

2.1 ASTM Standards:

- D 123 Terminology Relating to Textiles³
- D 861 Practice for Use of the Tex System to Designate Linear Density of Fibers, Yarn Intermediates, and Yarns³
- D 1193 Specification for Reagent Water⁴
- D 1909 Table of Commercial Moisture Regains for Textile Fibers³
- E 122 Recommended Practice for Choice of Sample Size to Estimate the Average Quality of a Lot or Process⁵
- E 380 Standard for Metric Practice⁶

3. Terminology

3.1 Definitions:

3.1.1 *back coating, n—in textiles*, an adhesive-type substance applied to the back of a fabric for such purposes as locking pile yarn tufts into a carpet backing, bonding a secondary backing to a primary backing, or increasing fabric body or stiffness.

3.1.2 *backing, n—for pile yarn floor covering*, all materials in a pile yarn floor covering other than pile yarn.

3.1.3 *backing fabric, n—in textiles*, (1) a fabric into which a pile yarn is inserted, or (2) a reinforcing layer adhered to the reverse side of a fabric.

3.1.3.1 *Discussion*—In woven and knitted pile yarn floor coverings the backing fabric is created at the same time the pile yarn is bound to the backing fabric but in tufted pile yarn floor coverings the backing fabric is made prior to the operation in which the pile yarn is fastened to the backing fabric.

3.1.4 *backing, primary, n—for tufted pile yarn floor covering*, the fabric through which the pile yarn is carried by needles to form tufts: the backing fabric.

3.1.5 *backing, secondary, n—for pile yarn floor covering*, a material adhered to the backing fabric side of a pile yarn floor covering.

³ Annual Book of ASTM Standards, Vol 07.01.

⁴ Annual Book of ASTM Standards, Vol 11.01.

⁵ Annual Book of ASTM Standards, Vol 14.02.

⁶ Excerpts appear in Annual Book of ASTM Standards, Vol 07.01.