



Designation: D 5684 – 04a

Standard Terminology Relating to Pile Floor Coverings¹

This standard is issued under the fixed designation D 5684; 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 approval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This terminology covers definitions of technical terms related to pile yarn floor coverings. Terms that are generally understood or adequately defined in other readily available sources are not included.

1.1.1 Fig. 1 is included to show the different elements of a tufted pile yarn floor covering.

2. Referenced Documents

2.1 ASTM Standards:²

- D 123 Terminology Relating to Textile Materials
- D 1335 Test Method for Tuft Bind of Pile Floor Coverings
- D 2646 Method of Testing Backing Fabrics
- D 2859 Test Method for Flammability of Finished Textile Floor Covering Materials
- D 3936 Test Method for Delamination Strength of Secondary Backing of Pile Floor Covering
- D 5793 Test Method for Binding Sites Per Unit Length or Width of Pile Floor Coverings

3. Terminology

3.1 Definitions:

attached cushion, *n*— for pile yarn floor covering, a material, bonded to the backing fabric side of a pile yarn floor covering to provide additional dimensional stability, thickness, and padding.

DISCUSSION—Such products as foam, rubber, and urethane are used as attached cushion.

back coating, *n*— in textile floor covering, an adhesive compound applied for such purpose as locking pile yarn tufts into a carpet backing, bonding a secondary backing to a primary backing, increasing fabric body or stiffness and increasing dimensional stability.

backing, *n*— in pile yarn floor covering, all materials in a pile

floor covering other than the pile yarn.

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

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.

binding site, *n*— for pile yarn floor covering, a point at which the pile yarn is, or can be, bound to the backing fabric.

DISCUSSION—In any machine-made pile yarn floor covering, the binding sites occur in an orderly and repetitive array at uniform intervals both in the lengthwise and widthwise directions of the pile yarn floor covering. The nature of the binding sites differs among woven, knitted, and tufted pile yarn floor coverings. For example, the binding site of a woven pile yarn floor covering consists of one or more filling shots under which the face yarn passes, whereas the binding site of a tufted pile yarn floor covering consists of a section of backing fabric between two adjacent needle holes in the lengthwise direction. The number of pile yarn strands that can be fastened at one binding site can vary from one to several, according to the design.

buried pile yarn, *n*— for coated pile yarn floor covering, the part of pile yarn tufts which is in or under the primary backing.

carpet, *n*—all textile floor coverings not designated as rugs.

carpet module, *n*—textile floor covering sections usually having dimensions of less than 1 m².

change in surface appearance—for pile yarn floor coverings, the physical affect of changing the use-surface by mechanical means or foot traffic.

DISCUSSION—The change in surface appearance is the cumulative change in appearance between the unexposed and exposed test specimens due to matting, crushing, and loss of tuft definition. **D 6119**

components, *n*—for pile yarn floor covering, the individual yarn or fabric elements into which a pile yarn floor covering can be separated.

constant-rate-of-extension tensile type testing machine (CRE), *n*— a testing machine in which the rate of increase of specimen length is uniform with time.

crush, *n*—in pile yarn floor coverings, loss of tuft definition due to entanglement and compression of pile fibers.

¹ This terminology is under the jurisdiction of ASTM Committee D13 on Textiles and is the direct responsibility of Subcommittee D13.21 on Pile Floor Coverings. Current edition approved Oct. 1, 2004. Published October 2004. Originally approved in 1995. Last previous edition approved in 2002 as D 5684 – 04

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.

cut pile yarn floor covering, *n*—a pile floor covering in which the pile is composed of adjacent tuft elements that are separated or cut (see Fig. 1).

delamination—See *resistance to delamination*.

dents per unit width, *n*— for woven pile floor covering, the number of binding sites per unit width; dents being the reed spaces through which the warp yarns pass in the loom or the metal strips in the reed that form these spaces.

durability, *n*— for pile yarn floor coverings, a property of a pile yarn floor covering describing the ability to maintain specific physical properties or product integrity without deterioration after a significant amount of time or a significant extended stress.

extractable matter, *n*—nonfibrous material in or on a textile not including water that is removable by a specified solvent or solvents, as directed in a specified procedure.

finished, *adj*—in textile floor covering materials, the completion of all manufacturing operations.

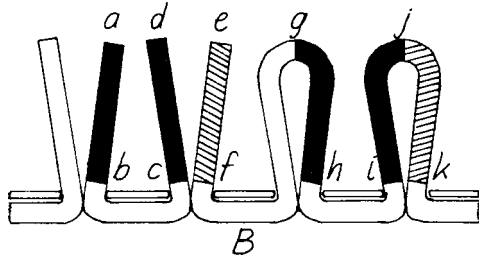
finished pile yarn floor covering, *n*—in textile floor covering materials, the pile yarn floor covering that has undergone all of the steps of the manufacturing process.

flame resistance, *n*— that property of a material whereby flaming combustion is prevented, terminated, or inhibited following application of a flaming or nonflaming source of ignition, with or without subsequent removal of the ignition source.

flame retardant, *n*—a chemical used to impart flame resistance.

flame-retardant treatment, *n*—a process for incorporating or adding flame retardant(s) to a material or product.

floor covering, *n*— an essentially planar material, having a relatively small thickness in comparison to its length or width, that is laid on a floor to enhance the beauty, comfort, and utility of the floor.



ad = cut pile tuft element
 gj = loop pile tuft element
 ab, cd, ef, gh, ij, jk = tuft legs
 cd, ef = cut pile tuft leg pair
 ij, jk = loop pile tuft leg pair, a loop
 B = one binding site

FIG. 1 Cross Section of Tufted Pile Yarn Floor Covering

fusion bonded, *n*—a method of creating a carpet pile construction by adhering loops or lengths of yarn to the face of a primary backing.

ignition, *n*—the initial combustion.

lengthwise direction, *n*— in textiles, the direction in a machine-made fabric parallel to the warp yarns.

DISCUSSION—In manufactured goods the lengthwise direction or warp is the direction of movement the fabric followed in the manufacturing machine.

level pile, *n*—for pile yarn floor covering, pile in which all tuft legs are of substantially the same length.

loop pile yarn floor covering, *n*— a pile yarn floor covering in which the pile is composed only of uncut loops (see Fig. 1).

loss of tuft definition, *n*— for pile yarn floor coverings, the bursting, opening, and untwisting of pile yarn, decrimping of the fibers in the surface pile, or any combination of these.

matting, *n*—for pile yarn floor coverings, loss of tuft definition due to entanglement.

multilevel pile, *n*— for pile yarn floor covering, pile in which some tuft legs are substantially longer than others, resulting in a sculptured appearance or pattern.

needles per unit width, *n*—for tufted pile yarn floor covering, the number of binding sites per unit of floor covering width; needles being the means of inserting the pile yarn into the backing fabric.

nonwoven fabric, *n*—a textile structure produced by bonding or interlocking of fibers, or both, accomplished by mechanical, chemical, thermal, or solvent means and combinations thereof.

peak force, *n*—for pile floor covering, the force required to separate two or more layers and registered on a chart as a peak, that is, a value exceeding the value immediately preceding and following it.

pile, *n*—for pile yarn floor covering, the textured surface composed of many tuft legs bound to a backing fabric in an orderly and repetitive array.

DISCUSSION—A particular pile floor covering may be all cut pile or all loop pile, and, in either case, the pile may be of essentially one pile level or multilevel. A particular floor covering may also contain both cut pile areas and loop pile areas which may be of the same pile level or different pile levels. Areas of intermingled cut and loop pile or intermingled high and low level pile may also occur.

pile height, *n*— in determination of tuft height, a measurement that uses a small graduated ruler inserted until it touches the backing to measure the pile from the top surface of the primary backing to the top of the tuft.

DISCUSSION—Pile height is typically used generically by manufacturing personnel in setting machinery and by laymen. This procedure is subject to significant variability between technicians and is therefore used only for rough field work and machinery setting during the manufacturing process.

pile lay, *n*—the direction in which most of the pile fibers lean in the original, uncrushed carpet.

pile reversal, *n*—a persistent change in the direction of pile lay in certain areas, resulting in an apparent visual difference of shade. (Syn. *watermarking, pooling, shading*).

pile thickness, *n*— in pile yarn floor covering, the difference in the unextended height of the tuft elements above the backing measured as the difference between two parallel plates exerting a specified compression on the pile and backing and on the backing with the pile removed.