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## Standard Terminology Relating to Pile Floor Coverings<sup>1</sup>

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### 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:*

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<sup>1</sup> This terminology is under the jurisdiction of ASTM Committee D-13 on Textiles and is the direct responsibility of Subcommittee D13.21 on Pile Floor Coverings. Current edition approved ~~March~~ Sept. 10, 2000<sup>2</sup>. Published ~~April 2000~~ November 2002. Originally published as D 5684 – 95. Last previous edition D 5684 – ~~98~~00.

- D 123 Terminology Relating to Textile Materials<sup>2</sup>  
 D 1335 Test Method for Tuft Bind of Pile Floor Coverings<sup>2</sup>  
 D 2646 Method of Testing Backing Fabrics<sup>2</sup>  
 D 2859 Test Method for Flammability of Finished Textile Floor Covering Materials<sup>2</sup>  
 D 3936 Test Method for Delamination Strength of Secondary Backing of Pile Floor Covering<sup>3</sup>  
 D 5793 Test Method for Binding Sites Per Unit Length or Width of Pile Floor Coverings<sup>3</sup>

### 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 m<sup>2</sup>.

**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.

**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.

**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.

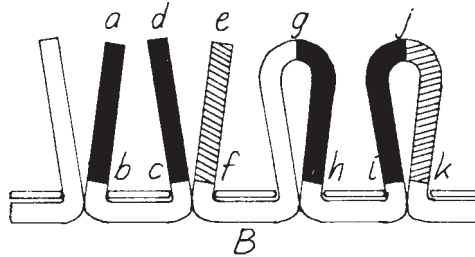
**floor covering**, *n*— an essentially planar material, having a relatively small thickness in comparison to its length or width, that is laid on a floor to enhance the beauty, comfort, and utility of the floor.

**foot traffic units**, *n*— for pile floor covering, the number of passes by human walkers over a specific group of carpet samples.

**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.

<sup>2</sup> Annual Book of ASTM Standards, Vol 07.01.

<sup>3</sup> Annual Book of ASTM Standards, Vol 07.02.



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

**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.

DISCUSSION—Pile thickness is the preferred procedure for precision measurement, and, although it is more complex, it is very repeatable between different technicians and laboratories.

**pile yarn floor covering, *n***—a textile product in which yarn or yarn segments are attached intermittently to a backing fabric to project above the backing fabric and form a pile, in the form of cut loops or loops, or both, with the yarn entering the backing fabric substantially perpendicular to the plane of the backing fabric. See *cut pile, cut pile floor covering, cut-loop pile, level pile, loop pile, loop pile floor covering, multilevel pile*.

**pile yarn mass, *n***— *for backcoated pile yarn floor covering*, the mass per unit area of pile yarn.

DISCUSSION—Pile yarn mass includes pile yarn portions buried in the backing and the short stubble of yarn projecting above the backing after shearing as opposed to measurement of mass per unit area which includes only the amount that can be shorn away from the backing. Some pile yarn

floor covering constructions, such as patterned woven Wiltons, may have pile yarns that appear infrequently on the pile surface; however, these inactive pile yarns should be included as part of the pile yarn mass per unit area, not as backing. This is not applicable to needlepunch.

**pitch**, *n*—*for woven pile floor covering*, the number of binding sites in 686 mm (27 in.) of width.

*pooling*—See *pile reversal*.

**practice**, *n*—a definitive procedure for performing one or more specific operations or functions that does not produce a test result.

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

**resistance to delamination**, *n*—*for pile yarn floor covering*, the force/unit width measured when separating the secondary backing.

**rug**, *n*—a textile floor covering of limited area which is complete in itself and is intended for use as a partial covering of a floor or another floor covering.

**secondary backing**, *n*—*for pile yarn floor covering*, a suitable material attached to or adhered to the underside of the primary backing fabric.

DISCUSSION—The secondary backing may be a textile layer, a solid plastic layer, a rubber sponge, or an elastomeric foam attached to or adhered to, flowed on, or coated onto the underside of the primary backing fabric.

**shorn pile**, *n*—pile that is removed when the face pile is sheared.

**shrinkage**, *n*—a decrease in one or more dimensions of an object or material.

**soiling**, *n*—*for pile yarn floor covering*, a process by which dirt and other foreign material becomes attached to the surface pile causing a change in appearance.

**stitches**, *n*—*in tufted pile yarn floor covering*, the number of pile tufts per unit length in the lengthwise direction.

**stubble**, *n*—*in shorn floor covering*, the portion of the pile that remains after shearing.

**stubble height**, *n*—the distance the stubble extends above the backing fabric.

**textile floor covering**, *n*—a system having a use-surface composed of textile material and generally used for floor covering.

**texture**, *n*—*in pile yarn floor coverings*, in the case of pile yarn floor coverings, the detailed configuration of loops, cut pile ends, and individual fibers in the pile.

**total mass**, *n*—*in pile yarn floor covering*, the mass of all matter in the mass per unit area expressed in grams per square metre (ounces per square yard) or in grams per linear metre (ounces per linear yard).

**tuft**, *n*—*in pile yarn floor coverings*, those cut or uncut loops which form part of the fabric face that are attached or bound to the backing fabric at binding sites (see Fig. 1).

**tuft bind**, *n*—*in pile fabrics*, the force required to pull a tuft element from a pile yarn floor covering.

**tuft element**, *n*—*for pile yarn floor covering*, a segment of yarn bound to a backing fabric at a binding site with two portions (legs) of the yarn projecting above the backing fabric, one portion on each side of the binding site (see Fig. 1).

DISCUSSION—In loop pile floor covering, the tuft element extends from the midpoint of the loop on one side of the binding site to the midpoint of the other side of the binding site. In most pile yarn floor coverings both legs of the tuft element are immediately adjacent to the same binding site. In some pile yarn floor coverings the yarn segment extends from one leg past a number of binding sites before the second leg of the tuft element projects above the backing fabric.

**tuft height**, *n*—*or cut pile yarn floor covering*, the length of a tuft leg (see Fig. 1).

**tuft leg**, *n*—*for pile yarn floor covering*, one of the two portions of a tuft element that projects above the backing fabric on the pile side of the floor covering (see Fig. 1).

**tuft length**, *n*—*for pile yarn floor covering*, the length of a tuft element measured while extended in a straight line under zero tension.

**tufted fabric**, *n*—a fabric with a pile consisting of tufts or loops formed by inserting yarn into a previously prepared backing fabric.

**underlay**, *n*—a resilient layer of material placed under rugs or carpets to increase comfort and improve service life of the carpet.

**use-surface**, *n*—*for pile yarn floor covering*, that part of a textile floor covering directly exposed to traffic.

**wale**, *n*—*in woven fabrics*, one of a series of raised portions or ribs lying warpwise in the fabric.

**widthwise direction**, *n*—*in textiles*, the direction in machinemade fabric perpendicular to the warp. (Syn. *cross-machine direction*, *weftwise direction*, *fillingwise direction*).

**wires per unit length**, *n*—*for woven pile yarn floor covering*, the number of binding sites per unit of floor covering length; wires in the widthwise direction being the usual means of forming the pile.

## 4. Keyword

### 4.1 terminology

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