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Standard Classification of Wallcovering by Durability Characteristics¹

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1. Scope

1.1 This classification covers the classification of wallcovering by durability characteristics, that is, according to its serviceability in use, recognizing that certain wallcovering is designed primarily for decorative effect, while other wallcovering is also designed to achieve a high degree of serviceability.

1.2 The values stated in inch-pound units are to be regarded as the standard. The metric values given in parentheses are provided for information only.

1.3 *The flammability test in this classification should be used to measure and describe the properties of materials, products, or assemblies in response to heat and flame under controlled laboratory conditions and should not be used to describe or appraise the fire hazard or fire risk of materials, products, or assemblies under actual fire conditions. However, results of this test may be used as elements of a fire risk assessment that takes into account all of the factors that are pertinent to an assessment of the fire hazard of a particular end use.*

1.4 *This standard does not purport to address all of the safety problems, 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:

- D 685 Practice for Conditioning Paper and Paper Products for Testing²
- D 751 Test Methods for Coated Fabrics³
- D 1308 Test Method for Effect of Household Chemicals on Clear and Pigmented Organic Finishes⁴
- D 2486 Test Method for Scrub Resistance of Interior Latex Flat Wall Paints⁴

E 84 Test Method for Surface Burning Characteristics of Building Materials⁵

G 21 Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi⁶

2.2 Federal Standards:

Fed. Std. No. 191 Textile Test Methods⁷

Fed. Spec. CCCW-408C Wallcoverings and Vinyl Coated⁷

2.3 Other Documents:

NFPA 101 Life Safety Code⁸

NFPA 255 Test of Surface Burning Characteristics of Building Materials⁸

UL 723 Test for Surface Burning Characteristics of Building Materials⁹

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *abrasion resistance*—the ability to withstand mechanical action such as rubbing, scraping, or scrubbing that may progressively tend to remove material from the surface of a wallcovering.

3.1.2 *blocking resistance*—the ability to resist adhesion or sticking between two surfaces of a wallcovering that touch under uniform loading and temperature conditions for a specified time.

3.1.3 *breaking strength*—the ability of a wallcovering to withstand a pulling force in the plane of the web.

3.1.4 *coating adhesion*—a measure of the strength of the bond between the surface coating and the backing or substrate of a wallcovering.

3.1.5 *cold cracking resistance*—the ability to resist cracking of the coated or decorative surface when a wallcovering is folded during exposure to low temperatures.

3.1.6 *colorfastness*—the ability to resist change or loss of color resulting from exposure to light.

¹ This classification is under the jurisdiction of ASTM Committee F-15 on Consumer Products and is the direct responsibility of Subcommittee F15.15 on Wallcovering.

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² *Annual Book of ASTM Standards*, Vol 15.09.

³ *Annual Book of ASTM Standards*, Vol 09.02.

⁴ *Annual Book of ASTM Standards*, Vol 06.02.

⁵ *Annual Book of ASTM Standards*, Vol 04.07.

⁶ *Annual Book of ASTM Standards*, Vol 14.02.

⁷ Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, ATTN: NPODS.

⁸ Available from National Fire Protection Assn., Batterymarch Park, Quincy, MA 02269.

⁹ Available from Underwriters Laboratories, Inc., 333 Pfingsten Road, Northbrook, IL 60062.



3.1.7 *crocking resistance*—the ability to resist transfer of color from a wallcovering surface when rubbed.

3.1.8 *flammability*—a measure of the ability of a wallcovering to resist the propagation of flame and the development of smoke under prescribed test conditions. (See 1.2.)

3.1.9 *heat aging resistance*—the ability to resist deterioration of the coated or decorative surface when a wallcovering is exposed to elevated temperatures over an extended period.

3.1.10 *mildew-resistant wallcovering*—a wallcovering that has been treated to deter the growth of fungi (mildew) on the decorative surface.

3.1.11 *peelable wallcovering*—a wallcovering from which the decorative surface may be dry-peeled from the substrate, leaving a continuous layer of the substrate on the wall, when the wallcovering has been installed and peeled in accordance with the manufacturer's instructions.

3.1.12 *scrubbability*—the ability of a wallcovering to withstand scrubbing with a brush and a prescribed detergent solution.

3.1.13 *shrinkability*—the change in the dimension of the wallcovering after wetting it and drying it.

3.1.14 *stain resistance*—the ability of a wallcovering to show no appreciable change in appearance after application and removal of specified reagents.

3.1.15 *strippable wallcovering*—a wallcovering that can be dry-stripped from the wall after having been installed and stripped in accordance with the manufacturer's instructions, leaving a minimum of product residue on the wall and without damage to the wall surface.

3.1.16 *tear strength*—the ability of a wallcovering to resist the propagation of an existing tear.

3.1.17 *wallcovering*—a flexible product designed to cover walls and ceilings for decorative or functional purposes, or both.

3.1.18 *washability*—the ability of a wallcovering to withstand occasional sponging with a prescribed detergent solution.

4. Significance and Use

4.1 This classification provides criteria by which wallcovering of appropriate durability characteristics can be chosen for particular residential and commercial decorating applications.

5. Basis of Classification

5.1 Wallcovering is classified based on its durability in tests for:

Abrasion resistance
Blocking resistance
Breaking strength
Coating adhesion
Cold cracking resistance
Colorfastness
Crocking resistance
Heat aging resistance
Maximum Flame Spread
Maximum Shrinkage
Maximum Smoke Development
Scrubbability
Stain resistance
Tear resistance
Washability

Wallcovering shall be classified in accordance with the performance criteria listed in Table 1 when tested in accordance with the appropriate test methods in Section 7.

5.1.1 *Category I, Decorative Only*—Wallcovering manufactured for decorative purposes that can be hung without damage in accordance with the manufacturer's instructions.

5.1.2 *Category II, Decorative with Medium Serviceability*—Wallcovering primarily decorative but more washable and colorfast than Category I wallcovering.

5.1.3 *Category III, Decorative with High Serviceability*—Wallcovering manufactured for medium use, where abrasion resistance, stain resistance, scrubbability, and increased colorfastness are necessary. Category III wallcovering must also meet breaking strength and crocking resistance criteria.

5.1.4 *Category IV, Type I Commercial Serviceability*—Wallcovering manufactured for use where higher abrasion

TABLE 1 Classification Criteria

Property	Section Reference	Category I Decorative Only	Category II Decorative with Medium Serviceability	Category III Decorative with High Serviceability	Category IV Type I Commercial Serviceability	Category V Type II Commercial Serviceability	Category VI Type III Commercial Serviceability
Minimum colorfastness	7.3		23 h	46 h	200 h	200 h	200 h
Minimum washability	7.4		100 cycles	100 cycles	100 cycles	100 cycles	100 cycles
Minimum scrubbability	7.7			50 cycles	200 cycles	300 cycles	500 cycles
Minimum abrasion resistance	7.8				200 cycles (220 grit)	300 cycles (220 grit)	1000 cycles (220 grit)
Minimum breaking strength	7.9				40 lb	50 lb	100 lb
MD (machine direction)					30 lb	55 lb	95 lb
CMD (cross machine direction)							
Minimum crocking resistance	7.6			good	good	good	good
Minimum stain resistance	7.5			Reagents 1 to 9	Reagents 1 to 9	Reagents 1 to 12	Reagents 1 to 12
Minimum tear resistance	7.10				12	25	50
Maximum blocking resistance	7.11				2	2	2
Minimum coating adhesion	7.12				2 lb/in	3 lb/in.	3 lb/in.
Minimum cold cracking resistance	7.13				no change	no change	no change
Minimum heat aging resistance	7.14				pass	pass	pass
Maximum flame spread	7.15		25	25	25	25	25
Maximum smoke development	7.15		50	50	50	50	50
Maximum shrinkage	7.19						
MD (machine direction)					2	2	2
CMD (cross machine direction)					1	1	1.5