



Designation: F 2169 – 02

Standard Specification for Resilient Stair Treads¹

This standard is issued under the fixed designation F 2169; 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 specification covers resilient treads made of rubber and vinyl for interior use.

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

1.3 *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 requirements prior to use.*

2. Referenced Documents

2.1 The following documents of the issue in effect on the date of the material purchase form a part of this specification to the extent referenced herein:

2.2 *ASTM Standards:*

D 883 Terminology Relating to Plastics²

D 1566 Terminology Relating to Rubber²

D 1755 Specification on Poly (Vinyl Chloride) Resins²

D 2240 Test Method for Rubber Property—Durometer Hardness²

F 386 Test Method for Thickness of Resilient Flooring Having Flat Surfaces³

F 925 Test Method for Resistance to Chemicals of Resilient Flooring³

F 1514 Test Method for Measuring Heat Stability of Resilient Vinyl Flooring by Color Change³

F 1515 Test Method for Measuring Light Stability of Resilient Flooring by Color Change³

2.3 *ANSI Standard:*

ANSI/ASQC Z1.4-1993 Sampling Procedures and Tables for Inspection by Attributes⁴

3. Terminology

3.1 *Material Definitions:*

¹ This specification is under the jurisdiction of ASTM Committee F06 on Resilient Floor Coverings and is the direct responsibility of Subcommittee F06.80 on Specifications.

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² *Annual Book of ASTM Standards*, Vol 09.01.

³ *Annual Book of ASTM Standards*, Vol 15.04.

⁴ Available from American National Standards Institute, 25 W. 43rd St., 4th Floor, New York, NY 10036.

3.1.1 *rubber, thermoplastic*—The polymeric binder of this compound shall satisfy the definition of rubber, but remain thermoplastic, as defined in Terminology D 883.

3.1.2 *rubber, vulcanized thermoset*—the polymeric binder of this compound shall satisfy the definition of rubber, and have been vulcanized, as defined in Terminology D 1566.

3.1.3 *vinyl, thermoplastic*—The polymeric binder of this compound shall satisfy the definition of poly (vinyl chloride) in Terminology D 883 and Specification D 1755 but remain thermoplastic as defined in Terminology D 883.

4. Classification

4.1 Treads covered by this specification will be of the following types (compositions), class, and groups, as specified.

Type TS	Rubber, Vulcanized Thermoset
Type TP	Rubber, Thermoplastic
Type TV	Vinyl, Thermoplastic
Class 1	Smooth (Flat)
Class 2	Pattern: Embossed, Grooved, or Ribbed
Group 1	Abrasive Strips: Embedded
Group 2	Contrasting Color for Visually Impaired

5. Ordering Information

5.1 Purchasers shall state whether this specification is to be used, select the preferred options permitted herein, and include the following information in the invitation to bid or purchase order:

5.1.1 Title, number, and date of this specification.

5.1.2 Type, class, nosing style (see Sections 4 and 6).

5.1.3 Color (see 6.4).

5.1.4 Quantity, in pieces, linear feet, or cartons.

5.1.5 Thickness required (see 8.2).

5.1.6 Length required (see 8.3).

5.1.7 Lot information, if other than as specified in ANSI/ASQC Z1.4-1993 (see 10.1 and 11.1).

5.1.8 Sampling, if other than as specified in ANSI/ASQC Z1.4-1993 (see 10.1).

5.1.9 Statement requesting certification, if certification of compliance is required (see Section 12).

5.1.10 Packing requirement, if other than as specified (see Section 14).

5.1.11 Palletization, if required.

5.1.12 Marking required, if other than specified (see Section 13).

5.1.13 Other requirements.

6. Materials and Manufacture

6.1 *Standard Commercial Product*—A tread of the same classification shall, as a minimum, be in accordance with the requirements of this specification and shall be the manufacturer’s standard commercial product. A standard commercial product is a product that has been sold or is currently being offered for sale on the commercial market through advertisements, manufacturer’s catalogs, or brochures and represents the latest production model.

6.2 *Tread Design*—The upper surface of tread shall have one or a combination of the following:

Class 1	Smooth (Flat)
Class 2	Pattern: Embossed, Grooved, or Ribbed
Group 1	Abrasive Strips: Embedded
Group 2	Contrasting Color for Visually Impaired

6.2.1 *Class 1, Smooth (Flat)*—The tread surface shall be smooth and flat.

6.2.2 *Class 2, Pattern: Embossed, Grooved, or Ribbed*—When the surface is embossed, grooved or ribbed, the depth of the design shall not be greater than 50 % of the overall thickness of the tread.

6.2.3 *Group 1, Abrasive Strips (Embedded)*—When specified, one or more mineral-coated abrasive grit strips, each strip not less than 0.030-in. (0.76 mm) thick, shall be recessed into and adhered to the top surface of a smooth surface tread portion to form a continuous flat surface overall. Each strip shall run the full length of the treads and shall be parallel to the nose of the tread. The front edge of the first strip shall be not more than 1 in. (25.4 mm) from the nose of the step or landing. If a second strip is used, it shall be ¾ (19 mm) to 1½ in. (38 mm) from the first strip.

6.2.4 *Group 2, Contrasting Color for Visually Impaired*—The tread shall contain a strip of contrasting color of either the same material or an abrasive material.

6.3 *Nosing Style*—Nosing style shall be as specified (see Figs. 1-3 for some typical styles).

6.4 *Color*—According to manufacturer’s latest catalogs, and actual samples. Sample color may vary with age and storage conditions.

7. Performance Requirements

7.1 *Hardness*—Treads shall meet a Shore A Durometer reading of not less than 85 when tested according to Test Method D 2240.

7.2 *Molded Stair Treads*—The bonding surface of the tread shall be sanded, roughened, or otherwise modified by the manufacturer to remove substances that may interfere with proper adhesion.

7.3 *Tread Backs*—Unless otherwise specified in the contract or order, the back or bonding surface of the rubber tread shall be sanded, buffed, roughened, ribbed/grooved, or otherwise modified to ensure proper adhesion.

7.4 *Resistance to Chemicals, Short-Term Exposure*—When tested in accordance with Test Method F 925, the vinyl and

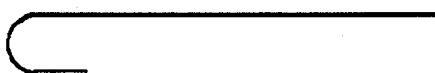


FIG. 1 Round Nose

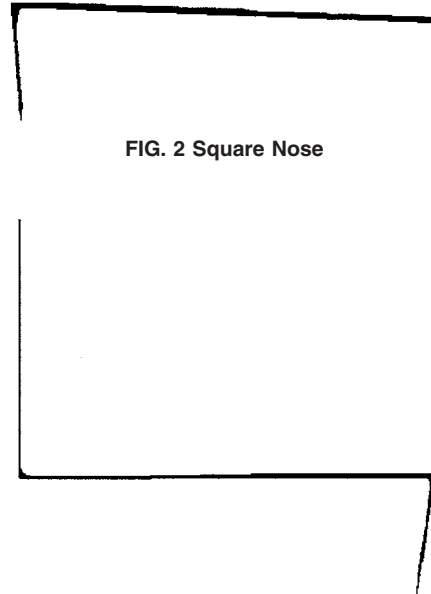


FIG. 2 Square Nose



FIG. 3 With Riser

rubber treads shall have no more than a slight change in surface dulling, surface attack, or staining when exposed to the following chemicals:

- White Vinegar (5 % Acetic Acid)
- Rubbing Alcohol (70 % Isopropyl Alcohol)
- White Mineral Oil (Medicinal Grade)
- Sodium Hydroxide Solution (5 % NaOH)
- Hydrochloric Acid Solution (5 % HCl)
- Sulfuric Acid Solution (5 % H₂SO₄)
- Household Ammonia Solution (5 % NH₄OH)
- Household Bleach Solution (5.25 % NaOCl)
- Olive Oil (light)
- Unleaded Gasoline (regular grade)
- Disinfectant Cleaner (5 % Phenol)
- Kerosene (K1)

NOTE 1—These basic chemicals are representative of those likely to be found in domestic, commercial, and institutional use. Many proprietary compounds contain one or more of these basic chemicals. Should the rubber or vinyl tread for an unusual application need to be resistant to a specific chemical, this additional requirement should become part of the procurement document.

7.5 *Resistance to Heat*—When tested in accordance to Test Method F 1514, the color change of the resilient stair treads shall have an average ΔE not greater than 8.0 after 7 days exposure to 158°F (70°C).

7.6 *Resistance to Light*—Task Group F06.80.13 will continue to search for a test method or develop a test method to address this requirement. Existing Q-UV and Xenon-Arc test methods used to test rubber floor tiles resulted in extremely high failure rates, which is not typical in everyday use of these products.

8. Dimensions and Permissible Variations

8.1 *Dimensions of Rubber and Vinyl Treads*—Rubber and vinyl tread dimensions shall be as specified. The nominal size shall be the actual length and depth of the tread portion (see Figs. 1-3).

8.2 *Thickness*—The thickness of resilient stair treads shall be the manufacturer’s standard or as specified. Thickness