Designation: F 1861 – 02

Standard Specification for Resilient Wall Base[1]

This standard is issued under the fixed designation F 1861; 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.

1. Scope

1.1 This specification covers resilient wall base. These products are manufactured from rubber or thermoplastic materials, or a combination thereof. Wall base is used to provide a functional, as well as decorative border, between walls and floors. This specification does not include rigid products.

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 The following safety caveat pertains to the test methods portion, Section 12, of this specification: *This standard does not purport to address all 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 limitations 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 Plastics[2]

D 1566 Terminology Relating to Rubber[3]

D 1755 Specification for Poly(Vinyl Chloride) Resins[2]

F 137 Test Method for Flexibility of Resilient Flooring Materials with Cylindrical Mandrel Apparatus[4]

F 141 Terminology Relating to Resilient Floor Coverings[3]

F 386 Test Method for Thickness of Resilient Flooring Having Flat Surfaces[4]

F 410 Test Method for Wear Layer Thickness of Resilient Floor Coverings by Optical Measurement[4]

F 925 Test Method for Resistance to Chemicals of Resilient Flooring[4]

F 1515 Test Method for Measuring Light Stability of Resilient Vinyl Flooring by Color Change[4]

2.3 *Other Standards:*

ANSI/ASQC Z1.4–1993 Sampling Procedures and Tables for Inspection by Attributes[5]

3. Terminology

3.1 *Definitions*—For definitions of other terms used in this standard, see Terminology F 141.

4. Classification

4.1 *Types*—Wall base shall be of the following types, as specified (see 5.1.2, 6.1, and 7.1).

4.1.1 *Type TS*—rubber, vulcanized thermoset.

4.1.2 *Type TP*—rubber, thermoplastic.

4.1.3 *Type TV*—vinyl, thermoplastic.

4.2 *Groups*—Wall base shall be one of the following groups, as specified (see 5.1.2, 6.2.1, and 6.2.2):

4.2.1 *Group 1*—solid (homogeneous).

4.2.2 *Group 2*—layered (multiple layers).

4.2.3 Either group may be specified with any of the types above. It is not necessary to specify group when either is acceptable.

4.3 *Styles*—Wall base shall be of the following styles as specified (see 5.1.2, 6.3, and Fig. 1):

4.3.1 *Style A*—straight.

4.3.2 *Style B*—cove.

4.3.3 *Style C*—butt-to.

4.4 *Corners*—Where specified, both inside and outside 90° factory-made corners should be specified by style. Corners must meet the same height and thickness requirements as wall base (see Section 9).

NOTE 1—Factory-made corners and wall base may have visual color differences due to process and material variations. Consult the manufacturer to ensure color acceptability between factory-made corners and wall base prior to ordering.

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, group, and style, (see Sections 4, 6, and 7),

5.1.3 Factory-made corners, if required (see 4.4),

[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.

Current edition approved Sept. 10, 2002. Published November 2002. Originally published as F 1861–98. Last previous edition F 1861–00.

[2] *Annual Book of ASTM Standards*, Vol 08.01.

[3] *Annual Book of ASTM Standards*, Vol 09.01.

[4] *Annual Book of ASTM Standards*, Vol 15.04.

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

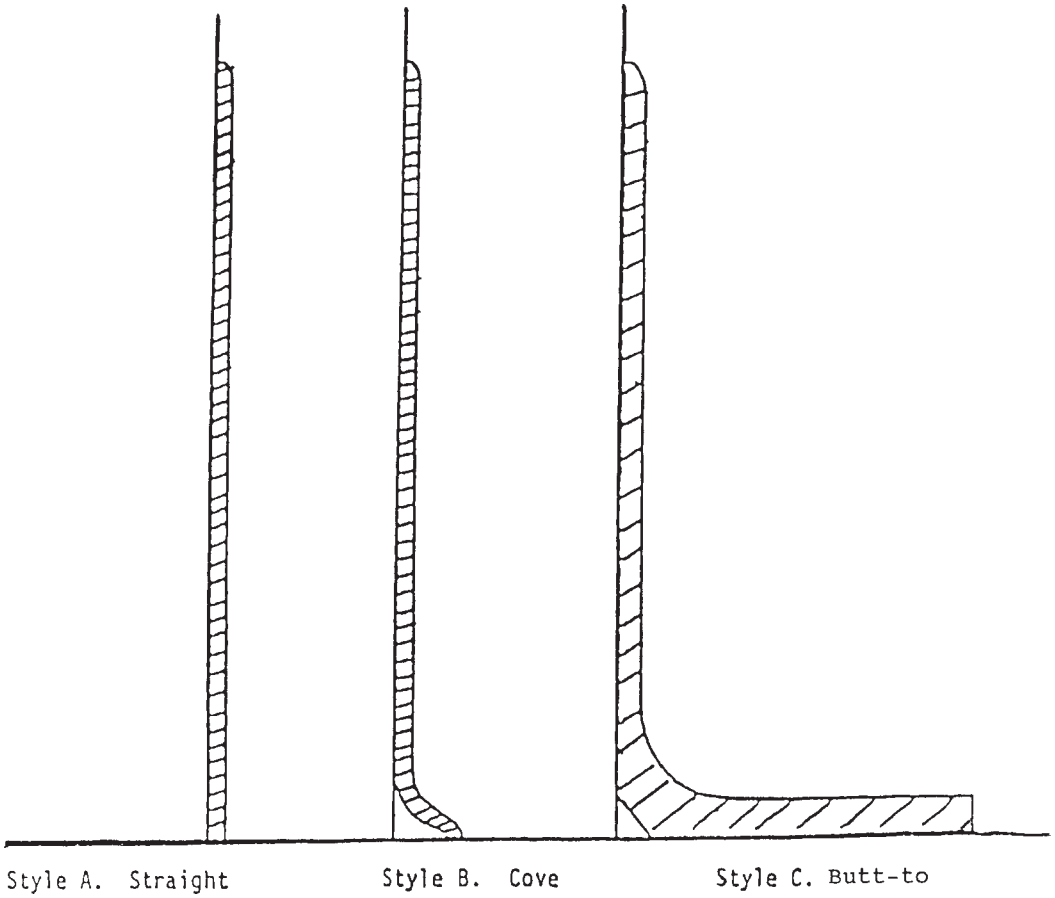

FIG. 1 Typical Profiles of Wall Base

5.1.4 Color (see 6.2),
5.1.5 Quantity: in pieces, linear feet, or cartons,
5.1.6 Height required (see 9.1),
5.1.7 Thickness required (see 9.2),
5.1.8 Length required (see 9.3, 9.3.1, and Section 15),
5.1.9 Lot information, if other than as specified in ANSI/ASQC Z1.4–1993, (see 11.1 and 13.1),
5.1.10 Sampling, if other than as specified in ANSI/ASQC Z1.4–1993, (see 11.1),
5.1.11 Statement requesting certification, if certification of compliance is required (see Section 14),
5.1.12 Packing requirements, if other than as specified (see Section 16),
5.1.13 Palletization, if required,
5.1.14 Marking required, if other than specified (see Section 15), and
5.1.15 Other requirements.

6. Materials and Manufacture

6.1 *Materials*—Any polymeric material or combination of polymeric materials is acceptable if, in combination with processing chemicals, fillers, and colorants, the material can be formed into wall base, which satisfies all the requirements of this specification (see 5.1 and 7.1). Other suitable recycled polymeric material may be incorporated as a part of the total polymeric content.

6.2 *Color*—The color shall be as specified in the contract or order (see 5.1.4).

NOTE 2—The colors and styles that are available are indicated in individual manufacturer's current catalogs. As manufactured, colors may vary somewhat in hue or shade from the catalog.

NOTE 3—Where color match is a concern, obtain current samples from the manufacturer to verify color acceptability.

6.2.1 *Solid Wall Base*— The color shall be uniform throughout the entire thickness of the wall base.

6.2.2 *Layered Wall Base*—The surface color need not extend through the entire thickness of the wall base, but must extend throughout the entire wear layer. Layered wall base shall have a minimum wear layer thickness of 0.002 in. (0.05 mm) when measured in accordance with Test Method F 410 and shall not delaminate under normal use.

6.3 *Styles*—The style shall be as specified in the contract or order (see 5.1.2).

6.3.1 *Straight Wall Base*—The exposed surface of straight (toeless) wall base is vertical, as illustrated by the first cross-sectional profile in Fig. 1.

6.3.2 *Cove Wall Base*— The exposed surface of cove wall base shall be distinguished by a "toe" at its bottom edge as illustrated by the second cross-sectional profile in Fig. 1.

6.3.2.1 *Fit to Floor*— The toe shall be curved, or angled, or both, to allow it to fit snugly against the floor when the vertical portion of the cove base is adhered to the wall.

6.3.2.2 *Intersection at Toe*—The intersection of the exposed surfaces of the toe and the vertical portion of the cove base shall be rounded and smooth to facilitate maintenance.

6.3.3 *Butt-to Wall Base*—The exposed surface of butt-to

wall base shall be distinguished by a "toe," which butts against the flooring as illustrated by the third cross-sectional profile in Fig. 1.

6.3.3.1 *Fit to Floor*— The leading edge of the toe of the butt-to base shall be square to allow a tight, flush fit to the finished flooring when the vertical portion of the butt-to base is adhered to the wall.

6.3.3.2 *Intersection at Toe*—The intersection of the exposed surfaces of the toe and the vertical portion of the butt-to base shall be designed to facilitate maintenance.

7. Material Definitions

7.1 The following definitions will be used in classifying material according to 4.1:

7.1.1 *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.

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

7.1.3 *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.

8. Performance Requirements

8.1 *Flexibility*— Unless otherwise specified in the contract or order (see 5.1), the wall base shall show no visible cracks, breaks, or other evidence of weakness when tested in accordance with Test Method F 137 using a ¼ in. (6.35 mm) diameter mandrel.

NOTE 4—Cove wall base shall be tested with the mandrel perpendicular to the cove when oriented as in use.

8.2 *Staining of Adjacent Surfaces Induced by Wall Base*— Wall base shall contain no ingredient which will cause staining of the finished surfaces adjacent to it when aged by the method specified in 12.1-12.7.

8.3 *Resistance to Light*—When tested in accordance to Test Method F 1515, the color change of the wall base shall have an average ΔE no greater than 8.0 after 200 h of exposure to light, simulated by a properly fitted xenon-arc radiant energy source.

8.4 *Resistance to Chemicals*—When tested in accordance with Test Method F 925, the wall base shall have no more than a slight change in surface dulling, surface attack, or staining when exposed to the following chemicals:

8.4.1 White vinegar (5 % acetic acid).
8.4.2 Rubbing alcohol (70 % isopropyl alcohol).
8.4.3 White mineral oil (medicinal grade).
8.4.4 Sodium hydroxide solution (5 % NaOH).
8.4.5 Hydrochloric acid solution (5 % HCl).
8.4.6 Sulfuric acid solution (5 H_2SO_4).
8.4.7 Household ammonia solution (5 % NH_4OH).
8.4.8 Household bleach solution (5.25 % NaOCl).
8.4.9 Olive oil (light).
8.4.10 Kerosene (K1).
8.4.11 Unleaded gasoline (regular grade).

NOTE 5—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 wall base for an unusual application need to be resistant to a specific chemical, this additional requirement should become part of the procurement document.

8.5 *Dimensional Stability*—Wall base shall not change in length by more than ± 0.25 % when tested by the method specified in 12.8-12.15.

8.6 *Odor*—The wall base shall be free from offensive odor.

9. Dimensions and Permissible Variations

9.1 *Height*—The height of the wall base shall be as specified in the contract or order (see 5.1.6). A tolerance of ±1 % of the nominal height of the wall base shall be permitted when measured with a scale, caliper, or other device graduated in 0.001–in. (0.025 mm) divisions and capable of measuring the maximum height of the specimen. The specimen shall be placed on a flat surface and the measuring device applied in such a manner that the height is not distorted during measurement.

9.2 *Thickness*—Unless otherwise specified in the contract or order (see 5.1.7), the wall base shall be 0.080 in. (2.03 mm) or 0.125 in. (3.17 mm) thick. A permissible tolerance for 0.080 in. (2.03 mm) thick wall base shall be +0.015 in. to –0.005 in. (+0.38 mm to –0.13 mm) and 0.125 in. thick wall base shall have a permissible tolerance of +0.015 in. to –0.015 in. (+0.38 mm to –0.38 mm) when measured in accordance with Test Method F 386.

9.3 *Length*—The length of the wall base shall be as specified in the contract or order (see 5.1.8). The length of the wall base shall not be less than as marked on the label or package when measured with a calibrated scale or tape graduated in 1/8 in. (3.18 mm) divisions and capable of measuring the maximum length of the specimen. The specimen shall be extended to its full length on a flat surface and all creases and buckles removed, insofar as practical, without applying stresses that cause any significant stretching. The measuring device shall be applied in such a manner that the length is not distorted during measurement.

9.3.1 If a roll contains multiple lengths, a maximum of three pieces shall be permitted; the shortest length shall not be less than 15 ft (4.57 m).

9.4 *Squareness*—Each vertical end of the wall base shall form an angle of 90° ± 0.5° with the top edge and shall fit against the vertical end of another length so that a 0.010 in. (0.254 mm) feeler gage cannot be inserted between the sections at any point.

10. Workmanship, Finish and Appearance

10.1 The wall base furnished in accordance with this specification shall be free of defects, which adversely affect performance or appearance. Such defects include blemishes, spots, lines, indentations, blisters, and delamination.

10.2 Unless otherwise specified in the contract or order (see 5.1), the back or bonding surface of the wall base shall be buffed, roughened, ribbed, grooved, or otherwise modified to improve the application to and adhesion to the wall surface, but in no case shall the thickness of the wall base be decreased to the extent that any depression or groove on the bonding surface

be perceptible, under any circumstances, on the exposed surface.

11. Sampling for Test

11.1 Sampling for testing physical characteristics listed in Table 1 shall be done in accordance with the provisions set forth in ANSI/ASQC Z1.4–1993. The inspection level shall be special inspection level S-1, as noted in Table I of ANSI/ASQC Z1.4–1993, and acceptable quality level (AQL) shall be 6.5 defects per hundred units as noted in Table II-A of ANSI/ASQC Z1.4–1993 or as otherwise specified in 11.2. The lot shall be expressed in units. A unit represents a single, manufactured, inventoried, finished carton or roll.

11.2 Sampling for testing physical characteristics listed in Table I of ANSI/ASQC Z1.4–1993 shall be agreed upon by the purchaser and manufacturer as part of the procurement document.

12. Test Methods

Wall Base—Staining of Adjacent Surfaces Induced by Wall Base

12.1 *Scope*—This test method describes a technique for producing a stain or discoloration that wall base may cause when in contact with a light-colored surface, when exposed to elevated temperature aging under controlled conditions.

12.2 *Significance and Use*—Wall base often is required to be in contact with light-colored surfaces. In such applications, the discoloration or stain of the light-colored surfaces is objectionable. This test method provides a way to evaluate wall base for its staining characteristics.

TABLE 1 Characteristics and Tests

Characteristic	Requirement	Test Method	Reference
Composition of material	Certificate of compliance		6.1, 6.2, 6.3
Wear layer thickness	min 0.002 in. (0.05 mm)	F 410	6.2.2
Flexibility	No crack or break	F 137 (¼ in. mandrel)	8.1
Staining of adjacent surfaces induced by wall base	No staining of adjacent surfaces	Section 12 (see 12.1-12.7)	8.2
Resistance to light	Ave ΔE not greater than 8.0	F 1515	8.3
Resistance to chemicals	No more than a slight change in surface dulling, surface attack, or staining	F 925	8.4
Dimensional stability	Not more than ± 0.25 %	Section 12 (see 12.8-12.15)	8.5
Height	As specified, ±1 % of nominal height	Section 9	9.1
Thickness	As specified, 0.080 in. + 0.015 to –0.005 in. (2.03 mm + 0.38 mm to –0.13 mm) 0.125 in. + 0.015 to –0.015 in. (3.18 mm + 0.38 mm to –0.38 mm)	F 386	9.2
Length	As specified, not less than nominal value	Section 9	9.3

12.3 *Apparatus*:

12.3.1 *Circulating-Air Oven*, capable of maintaining a temperature of 158 ± 1.8°F (70 ± 1°C).

12.4 *Materials*—Metal panels 2 in. (51 mm) square shall be cut from No. 20 gage (approximately 0.9 mm) sheet metal that has been finished with a white acrylic enamel. The panels shall be aged for at least 48 h, after finishing, before use in this test method.

12.5 *Test Specimen*— Prepare the test specimens from a production part. Cut the specimen in a rectangular shape 1 by 0.5 in. (25 by 13 mm). Test the specimen as received. Remove extraneous contamination with a mild soap solution or by mechanical means without abrading the surface of the specimen.

12.6 *Procedure*:

12.6.1 Place two wall base specimens from the same production part on the painted surface of one metal panel. Space specimens approximately 0.250 in. (6.4 mm) apart. Cover the wall base specimens with a second metal panel so that the painted surfaces of both metal panels are in contact with the wall base specimens.

12.6.2 Place the panel-wall base sandwich, thus formed, in the oven maintained at a temperature of 158 ± 1.8°F (70 ± 1°C). Place a 1-lb weight (0.5 kg mass) on top of the sandwich.

12.6.3 Simultaneously test a control panel without the wall base to check the effect of the test conditions on the finish itself. Expose no panel more than once.

12.6.4 Expose the sandwich assembly and control panel to the specified oven temperature for a period of 166 ± 1 h. Take care that no other volatile or vapor-producing materials, which might produce stain, are in the oven.

12.6.5 After the aging period, remove the assembly and control panel from the oven. Separate the specimens cleanly from the sandwich. Wash all the panels with a mild soap solution.

12.6.6 Observe and compare the panels. Any staining of the sandwich panel, beyond the specimen location greater than the discoloration of the control panel, shall be considered migration staining and objectionable.

12.7 *Precision*—The evaluation of staining and discoloration by this test method is achieved by means of visual comparison. Precision, as normally expressed for quantitative measurement test methods, is not directly applicable.

Wall Base—Dimensional Stability

12.8 *Scope*—This test method covers the measurement of changes in linear dimensions of wall base that result from exposure of the material to specified conditions of elevated temperature and time.

12.9 *Significance and Use*—This test method is applicable particularly to wall base made by the molding or extrusion process. The test gives an indication of the lot-to-lot uniformity as regards the degree of internal strains introduced during the processing.

12.10 *Apparatus*:

12.10.1 *Circulating-Air Oven*, capable of maintaining a

temperature of 179.6 ± 3.6°F (82± 2°C) and equipped so that the specimens of the specified size can be suspended horizontally therein without touching each other or any surface of the oven.

12.10.2 *Rigid Steel Plate*, at least 1 in. (25 m) larger in both length and width than the specimen and suitable for supporting the specimen in a horizontal position during oven exposure and during measurement.

12.10.3 *Rigid Steel Plate*, approximately 1 to 2 in. (25 to 50 mm) smaller in both length and width than the specimen and ½ in. (13 mm) thick suitable for keeping the specimen flat during measurement.

12.10.4 *Scale, Caliper, or Other Device* graduated in 0.001-in. (0.025 mm) divisions and capable of measuring 12 in. (30 cm) or more in length.

12.10.5 *Thermometer*, graduated in 1°F (1°C) divisions, with a range suitable for the test temperatures specified.

12.11 *Test Specimen*— Prepare two specimens from a production part. Cut each specimen to a minimum of 9 in. (229 mm) in length and of a uniform thickness.

12.12 *Conditioning*— Condition the specimens at 73.4 ± 3.6°F (23 ± 2°C) and 50 ± 5 % relative humidity for not less than 3 h, such that the air circulates freely around the specimen surfaces.

12.13 *Procedure*:

12.13.1 Determine the dimensional stability by measuring the separation of reference points before and after heating the specimen at a temperature of 179.6 ± 3.6°F (82 ± 2°C) for 6 ± ¼ h.

12.13.2 Mark two sets of equally spaced reference points, 8 in. (20.3 cm) apart, but not more than ½ in. (13 mm) from the edges on each specimen. A line passing through a given set of points shall form a perpendicular with the intersected edges of the specimen.

12.13.3 Place the specimen on the larger supporting plate and then place the smaller plate on the specimen to keep it flat during measurement. Measure the distance between the reference points in each set to the nearest 0.001 in. (0.025 mm). Measure the temperature of the specimen to the nearest 1°F (1°C).

12.13.4 Place the specimen on the metal supporting plate in a horizontal position in the oven with the surface intended to be exposed after installation facing up. Heat for the required time at the required temperature.

12.13.5 At the end of the heating period, remove the specimen and supporting plate from the oven and allow to cool to room temperature. Then remove the specimen from the supporting plate and condition the specimen again as specified in 12.12 for not less than 3 h.

12.13.6 At the end of the conditioning period, return the specimen to the metal supporting plate and place the smaller metal plate on top of the specimen to keep it flat. Measure the distance between the reference points again as specified in 12.13.2 to the nearest 0.001 in. (0.025 mm).

12.13.7 Maintain the temperature of the specimen during final measurement within 1.8°F (1°C) higher or lower than the temperature during initial measurement.

12.14 *Calculation*— Calculate the dimensional stability of the specimen at each set of reference points separately as follows:

$$\text{Dimensional stability, \%} = \frac{L_1 - L}{L} \times 100 \quad (1)$$

where:

L = the distance in inches between the reference points of the specimen before heating, and

L_1 = the distance in inches between the reference points of the specimen after heating and final conditioning.

NOTE 6—$L_1 - L$ may be a positive or a negative value depending on whether the specimen expands or contracts due to heating.

12.14.1 Record the values for the most extreme change measured, regardless if the value is positive or negative, obtained from the same test specimen to the nearest 0.01 % as the dimensional stability of the specimen.

12.15 *Precision and Bias*—The precision and bias of this test method have not been determined.

13. Inspection

13.1 Sampling for inspection of the wall base for defects that would adversely affect performance (see 10.1) shall be done in accordance with the provisions set forth in ANSI/ASQC Z1.4–1993. The inspection level shall be Level I as noted in Table I of ANSI/ASQC Z1.4–1993 with an acceptable quality level (AQL) of 6.5 defects per hundred as noted in Table II-A of ANSI/ASQC Z1.4–1993 or as otherwise specified in 13.2. The lot size shall be expressed in units. A unit represents a single, manufactured, inventoried carton or roll.

13.2 Inspection of the wall base for defects that would adversely affect performance (see 10.1) shall be agreed upon by the purchaser and the manufacturer as part of the procurement document.

14. Certification

14.1 When specified in the purchase order or contract, a manufacturer's certification and any other documents required to substantiate certification shall be furnished to the purchaser that the product was manufactured to meet this specification.

15. Product Marking

15.1 Unless otherwise specified in 5.1, the wall base and wall base corners shall be marked with the name of the material as defined by the contract or order under which the shipment is made, the height, thickness, style, the quantity or length contained therein, and the name of the manufacturer. Rolls, which contain multiple lengths, shall be marked with the number of lengths and the shortest length contained therein.

15.2 When product sample sets, sample set cover cards, and marketing and technical literature reference this specification, the complete product classification information relative to this specification shall be included.

16. Packaging and Packing

16.1 Unless otherwise specified in 5.1, the wall base and wall base corners shall be packaged in accordance with normal commercial practice and packed to ensure acceptance by the common carrier and to provide protection against damage during normal shipping, handling, and storage.

17. Keywords

17.1 cove base; resilient; rubber; straight base; thermoplastic; wall base