



Standard Specification for Preformed Architectural Strip Seals for Buildings and Parking Structures¹

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1. Scope

1.1 This specification describes the physical requirements for the fully cured elastomeric alloy and the movement capabilities of preformed architectural compression seals used for sealing expansion joints in buildings and parking structures. The preformed architectural strip seal is an elastomeric extrusion. This extrusion is either a membrane or tubular having an internal baffle system produced continuously and longitudinally throughout the material. These extrusions are secured in or over a joint by locking rails or an end dam nosing material. The architectural strip seal is compressed and expanded by this mechanical or chemical attachment.

NOTE 1—Movement capability is defined in Test Method E 1399.

1.2 This specification covers all colors of architectural strip seals.

NOTE 2—The products described in this specification are manufactured from thermoplastic elastomers defined as “fully cured elastomeric alloys” in Test Method D 5048.

1.3 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

1.4 *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 limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

- D 395 Test Methods for Rubber Property—Compression Set²
- D 412 Test Methods for Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers—Tension²

- D 471 Test Method for Rubber Property—Effect of Liquids²
- D 518 Test Method for Rubber Deterioration—Surface Cracking²
- D 573 Test Method for Rubber—Deterioration in an Air Oven²
- D 624 Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers²
- D 746 Test Method for Brittleness Temperature of Plastics and Elastomers by Impact³
- D 792 Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement³
- D 865 Test Method for Rubber—Deterioration by Heating in Air (Test Tube Enclosure)²
- D 1052 Test Method for Rubber Deterioration—Cut Growth Using Ross Flexing Apparatus²
- D 1149 Test Method for Rubber Deterioration—Surface Ozone Cracking in Chamber²
- D 2000 Classification System for Rubber Products in Automotive Applications⁴
- D 2240 Test Method for Rubber Property—Durometer Hardness²
- D 3183 Practice for Rubber—Preparation of Pieces for Test Purposes from Products²
- D 5048 Test Method for Measuring Comparative Burning Characteristics and Resistance to Burn-Through of Solid Plastics Using 125-mm Flame⁵
- E 577 Guide for Dimensional Coordination of Rectilinear Building Parts and Systems⁶
- E 631 Terminology of Building Constructions⁶
- E 1399 Test Method for Cyclic Movement and Measuring Minimum and Maximum Joint Widths of Architectural Joint Systems⁶

¹ This specification is under the jurisdiction of ASTM Committee E-6 on Performance of Buildings and is the direct responsibility of Subcommittee E06.21 on Serviceability.

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

³ *Annual Book of ASTM Standards*, Vol 08.01.

⁴ *Annual Book of ASTM Standards*, Vol 09.02.

⁵ *Annual Book of ASTM Standards*, Vol 08.03.

⁶ *Annual Book of ASTM Standards*, Vol 04.11.

3. Terminology

3.1 *Definitions:* Terms defined in Terminology E 631 will prevail for terms not defined in this document.

3.1.1 *architectural strip seal*—a preformed membrane or tubular extrusion, manufactured from a fully cured elastomeric alloy, having flanges or other means of mechanically or chemically securing it.

NOTE 3—Joint is defined in Guide E 577.

4. Materials and Manufacture

4.1 The architectural strip seal shall be a preformed extrusion manufactured from a fully cured elastomeric alloy. This alloy shall be classified under Classification D 2000.

5. Physical Requirements

5.1 The fully cured elastomeric alloy supplied in plaque form shall conform to the material requirements prescribed in Table 1.

5.2 The finished architectural joint seal shall conform to the material requirements prescribed in Table 2.

5.3 The movement capabilities shall be established using Test Method E 1399.

6. Dimensions, Mass, and Permissible Variations

6.1 The size, shape, internal structure, and tolerances shall be as agreed upon by the purchaser and the producer or supplier.

7. Workmanship, Color, and Appearance

7.1 The architectural strip seal shall be free of defects in workmanship. Defects in the extrusion consist of the following:

7.1.1 Holes;

7.1.2 Air bubbles; and

7.1.3 Parts not conforming to 6.1.

7.2 The cross section of the seal shall be as agreed upon by the purchaser and the producer or supplier.

7.3 The color of the seal shall be as agreed upon by the purchaser and the producer or supplier.

8. Specimen Preparation

8.1 Maintain laboratory at a temperature of $23 \pm 2^\circ\text{C}$ ($73 \pm 4^\circ\text{F}$).

8.2 Maintain laboratory at a relative humidity of $50 \pm 5\%$.

8.3 *Test Plaque Specimens:*

8.3.1 Use equipment per Annex A1.

8.3.2 Produce 20 quality assurance test plaques in accordance with Annex A2.

8.4 *Strip Seal Specimens:*

8.4.1 Cut all test specimens from the architectural strip seal sample. Except as otherwise specified in the applicable specifications or test methods given in Table 2, prepare the test specimens in accordance with the requirements of Practice D 3183.

8.4.2 Prepare the test specimens for determining tensile strength and elongation using Die C (Test Methods D 412) or Die D when the flat sections of a seal are too small for Die C. However, the requirements of Table 2 shall apply regardless of the die used.

8.4.3 The grain or flow pattern for all specimens prepared for tensile strength and elongation testing (Test Methods D 412) shall be parallel to the length of the die.

8.4.4 Prepare the test specimens for ozone resistance in accordance with Procedure A of Test Method D 518, and wipe them with toluene before testing to remove surface contamination.

8.4.5 The grain or flow pattern for all specimens prepared for tear resistance testing (Test Method D 624) shall be perpendicular to the length of the die.

9. Significance and Use

9.1 Architectural strip seals included in this specification shall be those:

9.1.1 Extruded as a membrane;

9.1.2 Extruded as tubular;

9.1.3 With frames;

9.1.4 With flanges mechanically secured;

9.1.5 With flanges chemically secured;

9.1.6 Used in interior or exterior applications; and

9.1.7 Used in any construction of the building.

9.2 This specification will give users, producers, building officials, code authorities, and others a basis for verifying material and performance characteristics of representative specimens under common test conditions. This specification will produce data on the following:

9.2.1 The physical properties of the fully cured elastomeric alloy; and

9.2.2 The movement capability in relation to the nominal joint width as defined under Test Method E 1399.

9.3 This specification compares similar architectural strip seals but is not intended to reflect the system's application. "Similar" refers to the same type of architectural strip seal within the same subsection under 9.1.

TABLE 1 Requirements for Fully Cured Elastomeric Alloy Injection Molded Plaques

Property	Requirement						Test Method
	Type I	Type II	Type III	Type IV	Type V	Type VI	
Tensile strength, min, MPa (psi)	13.8 (2000)	9.7 (1400)	7.2 (1050)	6.0 (870)	5.8 (850)	5.8 (850)	D 412
Elongation at break, min, %	500	460	380	350	340	340	D 412
Hardness, Type A durometer, points (5 s delay)	87 ± 3	80 ± 3	73 ± 3	70 ± 3	67 ± 3	64 ± 3	D 2240
Relative density @ 23°C (73°F)	0.95 ± 0.02	0.96 ± 0.02	0.97 ± 0.02	0.97 ± 0.02	0.97 ± 0.02	0.97 ± 0.02	D 792
100 % Modulus, min, MPa (psi)	6.1 (890)	3.8 (550)	2.8 (400)	2.2 (320)	1.9 (280)	1.9 (280)	D 412
Mass gain, max %, (24 h at 121°C (23°F) ASTM No. 3 Oil)	60	75	80	90	95	95	D 471