



Designation: D 3679 – 01c

An American National Standard

Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Siding¹

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1. Scope *

1.1 This specification establishes requirements and test methods for the materials, dimensions, warp, shrinkage, impact strength, expansion, appearance, and windload resistance of extruded single-wall siding manufactured from rigid (unplasticized) PVC compound. Methods of indicating compliance with this specification are also provided.

1.2 Rigid PVC recycled plastic may be used in this product in accordance with the requirements in Section 4.

1.3 Rigid (unplasticized) PVC soffit is covered in Specification D 4477.

1.4 Siding produced to this specification shall be installed in accordance with Practice D 4756. Reference shall also be made to the manufacturer's installation instructions for the specific product to be installed.

NOTE 1—Information with regard to siding maintenance shall be obtained from the manufacturer.

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

1.6 The following precautionary caveat pertains to the test method portion only, Section 6, of this specification: *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.*

NOTE 2—There are no ISO standards covering the primary subject matter of this specification.

2. Referenced Documents

2.1 ASTM Standards:

D 256 Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics²

D 374 Test Methods for Thickness of Solid Electrical Insulation³

D 523 Test Method for Specular Gloss⁴

D 618 Practice for Conditioning Plastics for Testing²

D 635 Test Method for Rate of Burning and/or Extent and Time of Burning of Self-Supporting Plastics in a Horizontal Position²

D 696 Test Method for Coefficient of Linear Expansion of Plastics Between -30°C and 30°C with a Vitreous Silica Dilatometer²

D 883 Terminology Relating to Plastics²

D 1042 Test Method for Linear Dimensional Changes of Plastics Under Accelerated Service Conditions²

D 1435 Practice for Outdoor Weathering of Plastics²

D 1600 Terminology for Abbreviated Terms Relating to Plastics²

D 1898 Practice for Sampling of Plastics²

D 2244 Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates⁴

D 3892 Practice for Packaging/Packing of Plastics⁵

D 4216 Specification for Rigid Poly(Vinyl Chloride) (PVC) and Related PVC and Chlorinated Poly(Vinyl Chloride) (CPVC) Building Products Compounds⁶

D 4226 Test Methods for Impact Resistance of Rigid Poly(Vinyl Chloride) (PVC) Building Products⁷

D 4477 Specification for Rigid (Unplasticized) Poly(Vinyl Chloride) (PVC) Soffit⁷

D 4756 Practice for the Installation of Rigid Poly(Vinyl Chloride) (PVC) Siding and Soffit⁷

D 5033 Guide for the Development of ASTM Standards Relating to Recycling and Use of Recycled Plastics⁵

D 5206 Test Method for the Windload Resistance of Rigid Poly(Vinyl Chloride) (PVC) Siding⁷

E 631 Terminology of Building Construction⁸

E 805 Practice for Identification of Instrumental Methods of Color or Color-Difference of Materials⁴

2.2 ASCE Standard:

ASCE 7-98 Minimum Design Loads for Buildings and Other Structures⁹

¹ This specification is under the jurisdiction of ASTM Committee D20 on Plastics and is the direct responsibility of Subcommittee D20.24 on Plastic Building Products.

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² Annual Book of ASTM Standards, Vol 08.01.

³ Annual Book of ASTM Standards, Vol 10.01.

⁴ Annual Book of ASTM Standards, Vol 06.01.

⁵ Annual Book of ASTM Standards, Vol 08.03.

⁶ Annual Book of ASTM Standards, Vol 08.02.

⁷ Annual Book of ASTM Standards, Vol 08.04.

⁸ Annual Book of ASTM Standards, Vol 04.11.

⁹ Available from the American Society of Civil Engineers, 1801 Alexander Bell Dr., Reston, VA 20191-4400.

*A Summary of Changes section appears at the end of this standard.



3. Terminology

3.1 Definitions are in accordance with Terminologies D 883, E 631, and D 1600, unless otherwise specified.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *dark beige siding*—siding the color of which is defined by the color space falling within the parameters $L_H = 50$ to 75, $a_H = -3$ to 4, and $b_H = 5$ to 18.

3.2.2 *dark gray-blue siding*—siding the color of which is defined by the color space falling within the parameters $L_H = 45$ to 65, $a_H = -7$ to 0, and $b_H = -10$ to 0.

3.2.3 *gold siding*—siding the color of which is defined by the color space falling within the parameters $L_H = 65$ to 100, $a_H = -5$ to 3, and $b_H = 18$ to 30.

3.2.4 *gray siding*—siding the color of which is defined by the color space falling within the parameters $L_H = 65$ to 85, $a_H = -3$ to 1, and $b_H = -3$ to 2.

3.2.5 *green siding*—siding the color of which is defined by the color space falling within the parameters $L_H = 55.6$ to 80.5, $a_H = -12$ to -3 , and $b_H = 4$ to 13.

3.2.6 *light beige siding*—siding the color of which is defined by the color space falling within the parameters $L_H = 75$ to 100, $a_H = -3$ to 4, and $b_H = 5$ to 18.

3.2.7 *light gray-blue siding*—siding the color of which is defined by the color space falling within the parameters $L_H = 65$ to 100, $a_H = -7$ to 0, and $b_H = -10$ to -3 .

3.2.8 *nominal*—the value that a manufacturer consistently uses to represent a specific property or dimension of a vinyl siding product in public claims including, but not limited to, product literature, advertisements, quotations, and certificates of conformance.

3.2.9 *process average thickness*—the rolling, arithmetic mean of average specimen thicknesses measured according to 6.5 for a specific product during all productions runs for the most recent six month period.

3.2.10 *temperate northern climate*— in weather testing, a North American metropolitan area testing site located within 73 to 100°W longitude and 37 to 45°N latitude.

3.2.11 *vinyl siding*—a shaped material, made principally from rigid poly(vinyl chloride) (PVC), that is used to clad exterior walls of buildings.

3.2.12 *Discussion*—Any exception to a homogeneous rigid PVC compound is present in a coextruded or laminated capstock.

3.2.13 *white siding*—siding the color of which is defined by the color space falling within the parameters $L_H = 85$ to 100, $a_H = 2$ to -3 , and $b_H = -2$ to 4.

3.2.14 *yellow siding*—siding the color of which is defined by the color space falling within the parameters $L_H = 65$ to 100, $a_H = -10$ to -5 , and $b_H = 13$ to 24.

4. Materials and Manufacture

4.1 The siding shall be made principally of PVC compound prepared from PVC homopolymer resin that conforms to the requirements for Class 1, 2, or 3 (see Table 1).

4.2 Rigid PVC recycled plastic, as defined in Guide D 5033, may be used in this product if all the requirements in the sections on Terminology (Section 3), on Materials and Manufacture (Section 4), and on Physical Requirements (Section 5)

TABLE 1 Class Requirements for Rigid Poly(Vinyl Chloride) Compounds Used for Siding

NOTE 1—The minimum property test value will determine the class number, even though other higher property test values may fall within another class.

Compound Class Number	1	2	3
Izod Impact Strength at 73.4°F (23°C), min:			
ft·lbf/in. of notch	1.5	2.4	9.9
(J/m of notch)	(80.0)	(130.0)	(530)
Tensile Strength, min:			
psi	6970	5800	5510
(MPa)	(48.0)	(40.0)	(38.0)
Modulus of elasticity in tension, min:			
psi	392 000	319 000	290 000
(MPa)	(2700)	(2200)	(2000)
Deflection temperature under load, min:			
°F at 264 psi	158	158	158
(°C at 1.82 MPa)	(70)	(70)	(70)

are met by the siding containing rigid PVC recycled plastic.

4.3 All specimen-preparation procedures and test conditions shall be the same as indicated in the Specimen Preparation and Test Methods sections of Specification D 4216.

4.4 The compound shall have a minimum Izod impact strength of 0.65 ft·lbf/in. (34.7 J/m) notch at 0°C (32°F) when tested in accordance with Test Method D 256.

4.5 The poly(vinyl chloride) compound, when tested in accordance with Test Method D 635, shall not exceed an average extent of burn of 4 in. (100 mm), with an average time of burn not to exceed 10 s. A sample thickness of 0.040 in. (1 mm) $\pm 10\%$ is required.

NOTE 3—The flammability testing data, conclusions, and recommendations of Test Method D 635 related solely to the measurement and description of properties for classification of the poly(vinyl chloride) compound in response to flame under controlled laboratory conditions and shall not be used for the description or appraisal of the fire hazard of vinyl siding under actual fire conditions.

4.6 The PVC compound when extruded into siding shall maintain uniform color and be free of any visual surface or structural changes, such as peeling, chipping, cracking, flaking, or pitting.

4.7 The PVC compound shall be compounded so as to provide the heat stability and weather exposure stability required for the siding market application.

5. Physical Requirements

5.1 *Length and Width*—The nominal length and width of the siding shall be as agreed upon between the purchaser and the seller. The actual length shall not be less than $\frac{1}{4}$ in. (6.4 mm) of the nominal length and the actual width shall be within $\pm \frac{1}{16}$ in. (1.6 mm) of the nominal width when measured in accordance with 6.3 and 6.4.

5.2 *Thickness*—These requirements pertain only to measurements of the portions of the siding that are exposed after installation of the panel, measured in accordance with the procedure in 6.5. The average thickness of each specimen shall be no less than 0.035 in. No individual measurement shall be thinner than 0.003 in. below the normal thickness. The process average thickness as defined in 3.2.9 shall be no thinner than 0.001 in. below the nominal thickness.

