



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 wind load resistance of extruded single-wall siding manufactured from rigid (unplasticized) PVC compound. Methods of indicating compliance with this specification are also provided.

1.2 The use PVC recycled plastic in this product shall be in accordance with the requirements in Section 4.

1.3 Rigid (unplasticized) PVC soffit is covered in Specification D4477.

1.4 Siding produced to this specification shall be installed in accordance with Practice D4756. 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 standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

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 is no known ISO equivalent to this standard.

1.7 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

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. Referenced Documents

2.1 ASTM Standards:²

- D618 Practice for Conditioning Plastics for Testing
- D635 Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position
- D696 Test Method for Coefficient of Linear Thermal Expansion of Plastics Between –30°C and 30°C with a Vitreous Silica Dilatometer
- D883 Terminology Relating to Plastics
- D1042 Test Method for Linear Dimensional Changes of Plastics Caused by Exposure to Heat and Moisture
- D1435 Practice for Outdoor Weathering of Plastics
- D1600 Terminology for Abbreviated Terms Relating to Plastics
- D2244 Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates
- D2457 Test Method for Specular Gloss of Plastic Films and Solid Plastics
- D3892 Practice for Packaging/Packing of Plastics
- D4226 Test Methods for Impact Resistance of Rigid Poly(Vinyl Chloride) (PVC) Building Products
- D4477 Specification for Rigid (Unplasticized) Poly(Vinyl Chloride) (PVC) Soffit
- D4756 Practice for Installation of Rigid Poly(Vinyl Chloride) (PVC) Siding and Soffit
- D5033 Guide for Development of ASTM Standards Relating to Recycling and Use of Recycled Plastics (Withdrawn 2007)³
- D5206 Test Method for Windload Resistance of Rigid Plastic Siding
- D5947 Test Methods for Physical Dimensions of Solid Plastics Specimens
- E631 Terminology of Building Constructions
- E1753 Practice for Use of Qualitative Chemical Spot Test Kits for Detection of Lead in Dry Paint Films
- G147 Practice for Conditioning and Handling of Nonmetallic Materials for Natural and Artificial Weathering Tests

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ The last approved version of this historical standard is referenced on www.astm.org.

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

2.2 ASCE Standard:

ASCE 7-10 Minimum Design Loads for Buildings and Other Structures⁴

2.3 International Code Council:⁵

International Building Code
International Residential Code

2.4 Vinyl Siding Institute, Inc.:⁶

VSI Vinyl Siding Installation Manual (2015)

2.5 Structural Building Components Association:⁷

ANSI/SBCA FS 100-2012 Standard Requirements for Wind Pressure Resistance of Foam Plastic Insulating Sheathing Used in Exterior Wall Covering Assemblies

such that it is capable of resisting 100 % of positive and negative wind pressures occurring under design conditions at the building location; and 2) with the standard fastening method specified in building codes, general installation instructions, and the siding manufacturer's instructions.

3.2.6.2 *alternative wind load design pressure rating*—the wind load design pressure rating for a siding product when installed over a sheathing not designed and attached such that it is capable of resisting 100 % of positive and negative wind pressures occurring under design conditions at the building location, or when the siding is not fastened in the standard way; as specified by the manufacturer.

3.2.6.3 *Discussion*—The standard test conditions, configuration, and fastening method used in this Specification are specified in 6.14, while alternative sheathing and installation conditions are specified by the manufacturer and must be reflected in the product's installation instructions. Alternative ratings apply only when the specified sheathing and fastening conditions are used. See Annex A1 for information on differences between the standard wind load design pressure rating and alternative wind load design pressure ratings, and how to determine standard and alternative design pressure ratings.

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

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

3. Terminology

3.1 Definitions are in accordance with Terminologies D883, E631, and D1600, unless otherwise specified.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *center-pinning*—an installation technique in which the siding panel is fastened tightly through the nail slot at the center length of the panel, in order to cause thermal expansion and contraction to occur equally in both directions from the center.

3.2.2 *heavily textured siding*—in this standard, any vinyl siding using separate postextrusion processing to produce a textured surface.

3.2.2.1 *Discussion*—Post-extrusion-forming does not include embossing of the surface or forming of the faces of the profile, but does include such processes as heat forming, vacuum forming and compression molding applied to the surface after the profile is extruded.

3.2.3 *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.

3.2.4 *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.

3.2.5 *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.

3.2.6 *wind load design pressure rating*—the maximum wind pressure that a vinyl siding product is rated to withstand, based on testing under Test Method D5206; there are two types of wind load design pressure rating used in this standard:

3.2.6.1 *standard wind load design pressure rating*—the wind load design pressure rating for a siding product when installed 1) over a sheathing material designed and attached

4. Materials and Manufacture

4.1 The siding shall be made of one or more layers of poly(vinyl chloride) (PVC) compound. Any layers of materials other than poly (vinyl chloride) (PVC) compound shall be kept to less than 20 % by volume.

4.2 Where rigid PVC recycled plastic as defined in Guide D5033 is used, the siding containing the PVC recycled plastic shall meet all of the requirements of Section 3, Terminology; Section 4, Materials and Manufacture; and Section 5, Physical Requirements.

4.3 The poly(vinyl chloride) siding material, when tested in accordance with Test Method D635, 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 minimum sample thickness of 0.035 in. (0.9 mm) is required. (**Warning**—The flammability testing data, conclusions, and recommendations of Test Method D635 related solely to the measurement and description of properties for classification of the poly(vinyl chloride) siding material 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.)

4.4 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.

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

⁴ Available from American Society of Civil Engineers (ASCE), 1801 Alexander Bell Dr., Reston, VA 20191, <http://www.asce.org>.

⁵ Available from International Code Council (ICC), 500 New Jersey Ave., NW, 6th Floor, Washington, DC 20001, <http://www.iccsafe.org>.

⁶ National Housing Center, 1201 15th Street NW, Suite 220, Washington, DC 20005, <http://www.vinylsiding.org>

⁷ 6300 Enterprise Lane, Madison, WI 53719, <http://www.sbcindustry.com>