STANDARDS UPDATE NOTICE (SUN)
ISSUED: June 4, 2018

STANDARD INFORMATION

Standard Number: ASTM D3679
Standard Name: Specification for Rigid Poly (Vinyl Chloride) (PVC) Siding
Standard Edition and Issue Date: 2017 Edition Dated June 1, 2017
Date of Revision: June 1, 2017
Date of Previous Revision of Standard: 2013 Edition Dated November 1, 2013

EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

Effective Date: **October 5, 2019**

IMPACT, OVERVIEW, AND ACTION REQUIRED

Impact Statement: A review of all Listing Reports is necessary to determine which products comply with new/revised requirements and which products will require re-evaluation. **NOTE:** Effective immediately, this revised standard will be exclusively used for evaluation of new products unless the Applicant requests in writing that current requirements be used along with their understanding that their listings will be withdrawn on Effective Date noted above, unless the product is found to comply with new/revised requirements.

Overview of Changes:

- Subsection 5.11 was revised to clarify current requirements and put non-mandatory information in Notes, and to provide for the determination of standard and alternative wind load design pressure ratings.
- In 5.11, the minimum static test pressure was changed to reflect the change in pressure equalization factor in A1.2.1.
- Subsection 6.14 was revised to provide the standard test conditions for determining compliance with the minimum test pressure and standard wind load design pressure rating.
- Section 7 was deleted and its content merged into a new Section 7 dealing with packaging and package marking. Provisions specifying marking of the standard design pressure and alternative design pressures were added.
- Subsection A1.2 was revised to add provisions for adjusting the minimum required test pressure for applications of siding over certain alternative sheathing types.
- In A1.2.1, the pressure equalization factor was changed and a reference added to research supporting this change.
- Added A1.2.1.1 to provide for the use of alternative pressure equalization factors.
- In A1.2.3 and A1.2.3.1, the minimum test pressures were changed to reflect the change in pressure equalization factor in A1.2.1.
- Subsection A1.3 was added to describe the procedures for determining design pressure ratings.

Specific details of new/revised requirements are found in table below.

If the applicable requirements noted in the table are not described in your report(s), these requirements will need to be confirmed as met and added to your report(s) such as markings, instructions, test results, etc. (as required).

Client Action Required:

Information – To assist our Engineer with review of your Listing Reports, please submit technical information in response to the new/revised paragraphs noted in the attached or explain why these new/revised requirements do not apply to your product (s).

Current Listings Not Active? – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records. We will do this at no charge as long as Intertek is notified in writing prior to the review of your reports.

STANDARD INFORMATION

CLAUSE	VERDICT	COMMENT
		Additions to existing requirements are underlined and deletions are shown ~~lined out~~ below.
5	Info	**Physical Requirements**
5.11		Wind Load Resistance—The siding ~~panel(s) shall be able to~~ shall withstand a minimum static test pressure ~~of 15.73 lbf/ft2 (753 Pa) when tested in accordance with 6.14.~~ and a standard wind load design pressure rating shall be determined.
5.11.1		~~The static test pressure of 15.73 lbf/ft2 (753 Pa) was established to withstand structural loading conditions that occur in 110 mph (177 km/h) wind-zone areas for elevations of 30 ft (9.1 m) and less in exposure category B, and is equivalent to 29.12 lbf/ft2 (1394 Pa) negative design pressure.~~ Minimum Test Pressure—The siding panel(s) shall be able to withstand a minimum static test pressure of 22.5 lbf/ft2 (1077 Pa) when tested in accordance with 6.14. The average maximum sustained static test pressure determined in 6.14 shall be equal to or greater than this value. Note 4: The static test pressure of 22.5 lbf/ft2 (1077 Pa) was established to withstand structural loading conditions that occur in wind exposures of approximately 110 mph (177 km/h) (VASD) for mean roof heights of 30 ft (9.1 m) and less in exposure category B, and corresponds to 30.0 lbf/ft2 (1436 Pa) negative design pressure, to match the default wind design conditions of Table 703.3(1) in the 2015 International Residential Code. Note 5: Refer to Annex A1 for an explanation as to how the negative design pressure was established, and for applications where effective negative design

		pressure as specified in ASCE 7-10 is different from 30.00 lbf/ft2 (1436 Pa) (for example, wind-zone areas greater than 110 mph (177 km/h) (VASD) (225 km/h (VULT)) or mean roof height above 30 ft (9.1 m), or exposures other than exposure category B).
5.11.2		~~Refer to Annex A1 for an explanation as to how the 29.12 lbf/ft2 (1394 Pa) negative design pressure was established, and for applications where the effective negative design pressure as specified in ASCE 7-02 is greater than 29.12 lbf/ft2 (1394 Pa) (for example, wind-zone areas greater than 110 mph (177 km/h) or elevations above 30 ft (9.1 m), or exposures other than exposure category B).~~ Standard Wind Load Design Pressure Rating—The standard wind load design pressure rating shall be determined from the results of testing in accordance with 6.14, using the procedures described in A1.3. Note 7: The standard design pressure rating is valid for applications where the siding is installed over sheathing and its fastening that are capable of independently resisting both positive and negative wind pressures occurring under design conditions at the building location. For applications over other sheathing, a different design pressure rating is applicable, and is determined in accordance with A1.3. Determination of a rating other than the standard design pressure rating is not required by this section.
5.11.3		***New clause added;*** Alternative Design Pressure Ratings—Design pressure ratings other than the standard wind load design pressure rating, for use with different sheathing materials or using different installation or fastening, are permitted to be determined in accordance with testing under 6.14, using the procedures in Annex A1.
6	Info	**Test Methods**
6.14		Resistance—Conduct the test on wind load resistance of finished siding in accordance with Test Method D5206. The average maximum sustained static test pressure determined from this testing is used in 5.11. For purposes of determining compliance with the minimum test pressure and standard design pressure requirements in 5.11, the test structure shall be constructed with vertical studs 16 inches on center, the siding in the test installation shall be installed over wood sheathing with a nominal thickness of 7/16 to 1/2 inch, and fastened as follows:
6.14.1		***New clause added;*** Fastener Type—Roofing nail, smooth shank, 0.120 in. (1/8 in. nominal; 3.2 mm) shank diameter, 5/16 in. (7.9 mm) head diameter, length as necessary to penetrate into sheathing and stud a total of 1 1/4 in. (32 mm). For vertical siding, length as necessary to penetrate the thickness of the sheathing plus 1/4 in. (6.4 mm).
6.14.2		***New clause added;*** Fastener Spacing—Every 16 in. (406 mm) into center of stud for horizontal siding. For vertical siding, every 12 inches into sheathing only.

6.14.3		***New clause added;*** Fasteners shall not be driven tightly against the siding. Allow approximately 1/32 in. (0.8 mm) clearance between the fastener head and siding surface. Note 10: The installation details described in 6.14 conform to the minimum requirements of the 2015 International Residential Code and the VSI Vinyl Siding Installation Manual.
6.15.5		Normalization—From among the length measurements recorded for all three cycles, identify the shortest and longest length of each panel, and the average panel temperature at the time that length was recorded. Determine the maximum difference in length, ΔL, and the maximum difference in temperature, ΔT, by subtracting the smaller from the larger. Normalize the change in length to the full length of the panel over a 100°F (38°C) temperature range using the following formula: $E_t = \Delta L \; x \; \left(\frac{100}{\Delta T}\right) x \; (L_f / L_t)$ (2) Where: E_t = Total thermal expansion and contraction of a full length panel over a range of 100 °F (38 °C) ΔL = Maximum change in length of the tested panel ΔT = Maximum change in temperature of the tested panel L_f = Longest length in which the panel is produced L_t = Actual length of the panel as tested
7	Info	**Packing, Packaging, and package Marking**
7.3		***New clause added;*** To aid identification of siding conforming to all requirements of this specification, producers and distributors shall include a statement of compliance in conjunction with their name and address on product labels, invoices, sales literature, and the like. The following statement is suggested when sufficient space is available: This PVC siding conforms to all the requirements established in ASTM Specification D3679, developed cooperatively with the industry and published by ASTM. Full responsibility for the conformance of this product to the specification is assumed by (name and address of producer or distributor).
7.4		***New clause added;*** The following abbreviated statement is suggested when available space on labels is insufficient for the full statement: Conforms to ASTM Specification D3679 (name and address of producer or distributor).

		New section added;
7.5		The standard wind load design pressure rating determined in accordance with 5.11.2 shall be stated on the product or on the product package by one of the means in 7.5.1 or 7.5.2.
7.5.1		The package shall be marked or labeled with the standard wind load design pressure rating. The marking shall be in the format "Standard Wind Load Design Pressure Rating: ##.# psf (ASD)".
7.5.2		The standard design pressure rating shall be included on a line imprint or other marking on the front (outward-facing) surface of all siding panels. It is not required that the marking be visible after installation, provided that the marking can be revealed and read by detaching the lower edge lock of an adjacent course, without removal of any fasteners. The standard design pressure marking shall be stated at least once per panel. The marking shall be in the format "Std Design Pressure Rating: ##.# psf (ASD)".
7.5.3		At the option of the manufacturer, additional marking or labeling of the package or product with alternative wind load design pressure ratings determined in accordance with 5.11.3 for use with alternative sheathings, wall configurations or fastening methods is permitted. The marking shall use the format specified in 7.5, shall indicate the type of sheathing or wall configuration for which it is applicable, and shall refer to the manufacturer's instructions for more information and any installation requirements.
A1	Info	**WIND LOAD RESISTANCE TEST DESIGN FACTORS**
A1.1	Info	Wind Load Criteria:
A1.1.1		ASCE ~~7-02~~ 7-10 is the basis for determining the design pressures used in ~~this test method. The velocity pressures, q, used in this test method have been computed using the following equation:~~ specification. Design wind loads are determined on an ASD basis in this specification. Note A1.1: In previous editions of ASCE 7, wind loads were determined using wind speed maps based on a 50-year return period. In ASCE 7-10, maps based on a 700-year return period are used which, for any given location, produce a wind speed approximately 30 % greater than that of the previous maps. This larger magnitude (higher return period) wind speed, referred to as the ultimate wind speed, (VULT), is used directly (with a load factor of 1.0) to determine nominal wind loads on a Strength Design (LRFD) or "ultimate" wind load basis. When Allowable Stress Design (ASD) is used, ASCE 7-10 provides for these ultimate wind loads, determined from the ultimate wind speed map velocities, to be multiplied by a load factor of 0.6. Alternatively, the adjustment can be made directly to the wind velocity, which is the approach taken in this method (see A1.1.2). This procedure produces results consistent with past ASD wind loads.

	New clause added;
A1.1.2	It is necessary to determine whether the wind velocity to be used is based on the maps in ASCE 7-10 or on older maps designed for direct application of ASD. Wind velocity, V, based on ASD is used in this method. Wind speeds determined using the maps in ASCE 7-10, referred to as VULT, are converted to ASD wind speeds, VASD, by multiplying by the square root of 0.6. Wind speeds based on maps using an ASD basis do not require conversion (see A1.3) Thus: $$\mathrm{V} = \mathrm{V}_{\mathrm{ASD}} = V_{ULT}\ X\ \sqrt{0.6}$$ The V determined in this section is used in the following calculations:
A1.1.3	The velocity pressures, q, used in this specification have been computed using the following equation: $q = 0.00256\ K_z K_d V^2 I$ (lb/sqft) $= 0.613 K_z K_d V^2 I$ (N/m^2) Where: V = wind velocity, mph (km/h). The basic wind speed corresponds to a 3-s gust speed at 33 ft (10.1 m) above ground in exposure category C, as described in ASCE ~~7-02~~ 7-10. A velocity of $V = V_{ASD}$= 110 mph (177 km/h) was used in this specification. (See Note A1.2 and Note A1.3.) I = "importance factor" as described in editions of ASCE 7 prior to ASCE 7-10. A value of 1.0 is used. This factor is not used where the wind speed has been determined from a map in ASCE 7-10. (See Note A1.4.) ~~"importance factor" as described in ASCE 7-02. A value of 1.0 was used.~~ K_z = "velocity pressure coefficient" as described in ASCE ~~7-02~~ 7-10. A "Kz" of 0.70 ~~was~~ is used in the wind pressure calculations, which is the value from ASCE ~~7-02~~ 7-10 for ~~an elevation~~ a mean roof height of 30 ft (9.1 m) above ground level and Exposure Category B. K_d = wind directionality factor" as described in ASCE ~~7-02~~ 7-10. A "Kd" of 0.85 is used.
A1.1.4	***New clause added;*** The velocity pressure = -18.43 lbf/ft2 (882 Pa). Note A1.2: As explained in Note A1.1, the wind velocity used in this method is converted from the VULT given by wind speed maps in ASCE 7-10 to VASD using the equation in A1.1.2. A VULT wind speed of approximately 140 mph from the maps is equivalent to a VASD of 110 mph, which is the velocity V used in this specification. Note A1.1: A1.3: In ASCE ~~7-02~~ 7-10 the default wind speeds are given for exposure category C, and a table is provided to adjust this wind speed for other exposure categories. Since most vinyl siding is installed on buildings located in exposure category B, the velocity pressure coefficient, Kz is included in the equation to make

	this adjustment. Note A1.4: Editions of ASCE 7 prior to ASCE 7-10 included an importance factor to represent the relative significance of the building and the consequences of its loss. Because most vinyl siding is installed on residential and light commercial buildings, the importance factor was set at 1.0 by default. ASCE 7-10 has removed the importance factor from the velocity pressure equation, and instead provides a different wind speed map for each of the building importance categories (referred to as risk categories in ASCE 7-10). Thus, the importance factor will already have been incorporated into the wind speed determined from the appropriate map, and the importance factor is not used for determining velocity pressure using wind speeds from ASCE 7-10 maps.
A1.1.5	~~A1.1.2 ASCE 7-02~~ ASCE 7-10 recommends various internal and external pressure coefficients, which include gust response factors. These coefficients vary with the effective area of the cladding component, the location of the cladding component relative to building corners, and the configuration of the building (open versus enclosed). The internal and external pressure coefficients are taken from Table 26.11-1 and ~~Figure 6–5 and Figure 6–11A of ASCE 7–02~~ 30.4-1 of ASCE 7–10. The effective area is taken as 10 square ft (the area of one piece of siding), an enclosed building is assumed, and factors for the building corners are used. The pressure coefficients are as follows: Internal Pressure Coefficient = ±0.18 External Pressure Coefficient +1.00 and -1.40 The design pressure is calculated by multiplying the velocity pressures by the algebraic sum of the internal and external pressure coefficients.
A.1.2.1	The negative values (suction loads) are the largest in magnitude and are the design values used in this ~~test method. Based on research~~ specification. Research conducted by ~~Architectural Testing, Inc. for the Vinyl Siding Institute5~~ various organizations8, 9 has shown that a certain amount of pressure equalization occurs through residential siding products installed with sheathing under high dynamic pressures. In light of this pressure equalization, the design pressure in the ~~ASCE 7-02 windload~~ 7-10 wind load standards is reduced by a factor of ~~0.36~~ 0.5.
A.1.2.2	Therefore, the required test pressures are calculated as follows: ~~$P_t = D_p$ X 0.36 X 1.5~~ $P_t = D_p$ X PEF X 1.5 Where: P_t = test pressure, lbf/ft^2 (Pa), D_p = design pressure, lf/ft^2 (Pa), PEF ~~0.36~~ = pressure equalization factor, 0.5, and

	1.5 = safety factor
A1.2.2.1	***New clause added;*** If documentation in support of the use of compensation for pressure equalization other than 0.5 is provided, use the calculation in A1.2.2, substituting the appropriate pressure equalization factor.
A1.2.3	~~In a 110 mph (177 km/h) wind zone area specifying a design pressure of –29.12 lbf/ft2 (1394 Pa) for a building 30 ft (9.1m) in height or less, the required siding uniform load test pressure is 15.73 lbf/ft2 (753 Pa). For applications where the effective design pressure is greater than –29.12 lbf/ft2 (1394 Pa) (for example, wind zone areas greater than 110 mph (177 km/h), elevations over 30 ft (9.1 m), or exposure conditions other than Exposure B), refer to ASCE 7-02 for the effective design pressure. The product shall be subjected to a static test pressure determined by the formula in A1.2.2. These loading conditions apply only to siding installed to solid walls, with internal or external sheathing. For applications where the siding is installed over open studding, rapid pressure equalization does not occur. In these applications, the load the siding will see is equal to the total design pressure. The static test pressure required for products used under these conditions is as follows:~~ Using the above equations, in a 110 mph (177 km/h) (VASD) wind zone area specifying a design pressure of -29.12 lbf/ft2 (1394 Pa) for a building 30 ft (9.1 m) in height or less, the required minimum siding uniform load test pressure is 21.84 lb/ft2 (1047 Pa).
A1.2.3.1	***New clause added;*** For compliance with 5.11, the referenced design pressure has been rounded to -30.0 lbf/ft2 (1436 Pa) to match the standard design conditions specified by the 2015 International Residential Code. When tested under Test Method D5206, the siding must attain an average maximum sustained static test pressure equal to or greater than the corresponding minimum test pressure of 22.5 lb/ft2 (1077 Pa).
A1.2.4	***New clause added;*** For applications where the effective design pressure is greater than -30.0 lbf/ft2 (1436 Pa) (for example, wind zone areas greater than 110 mph (177 km/h) (VASD), mean roof height over 30 ft (9.1 m), or exposure conditions other than Exposure B), refer to ASCE 7-10 for the effective design pressure. To be shown to be suitable for the application, when tested under Test Method D5206 the siding must attain an average maximum sustained static test pressure equal to or greater than the minimum test pressure determined by the formula in A1.2.2, using the design pressure, DP, determined for the application using the procedure in A1.1.2 through A1.2.
A1.2.5	***New clause added;*** These loading conditions apply only to siding installed without an air space, directly over sheathing of a type and fastening method that is capable of independently resisting both positive and negative wind design pressures at the building location.

	Examples of such sheathing include oriented strand board (OSB) and plywood fastened to resist the design wind pressures. For applications where the siding is installed over open studding, without sheathing, rapid pressure equalization does not occur. In these applications, the load the siding will see is equal to the total design pressure, and the pressure equalization factor (PEF) is set to 1.0. The static test pressure required for products used under these conditions is as follows: $P_t = D_p$ X PEF X 1.5 Where: P_t = static pressure, lbf/ft^2 (Pa) D_P = design pressure lbf/ft^2 (Pa) PEF = pressure equalization factor, 1.0, and 1.5 = safety factor Note A1.6: Building codes and vinyl siding installation instructions require vinyl siding to be installed over sheathing, so calculation of minimum test pressure for siding installed without sheathing is essentially moot. However, the calculation has been retained for completeness and comparison with other installation conditions.
A1.2.6	When siding is installed over sheathing that is not capable of independently resisting both positive and negative wind pressures occurring under design conditions at the building location, a greater percentage of the total wind pressure is transferred to the siding and its fasteners. This has the effect of partially or completely countering the effect of the pressure equalization factor. In these cases a value between 0.5 and 1.0 is used for the pressure equalization factor (PEF).
A1.2.6.1	In addition, in cases where failure of the siding would result in failure of the exterior wall covering assembly (that is, siding and sheathing) a safety factor of greater than 1.5 is indicated.
A1.7	Where the sheathing is not capable of independently resisting both positive and negative wind pressures occurring under design conditions at the building location, the layer of siding over the sheathing, and its fastening through the sheathing, act to reinforce the sheathing such that the whole wall covering (siding-sheathing) assembly is capable of resisting such wind pressures. Because vinyl siding is tested by itself (not as part of a siding-sheathing assembly) in Test Method D5206, the adjustment of test pressure (before the test) or of the design pressure (after the test) ensures that the wind load resistance of the assembly as a whole is reflected in the rating of the siding. Note A1.8: In some high wind hazard regions, such as south Florida, the exterior wall covering assembly may also be required to meet wind-borne debris impact resistance criteria which would affect the choice of sheathing material to be used together with vinyl siding. Such considerations are beyond the scope of this standard.

A1.3	***New section added;*** **Wind Design Pressure Rating (Maximum Allowable Pressure):** This section contains requirements for the wind design pressure rating (see standard for details).

	CUSTOMERS PLEASE NOTE: This Table and column “Verdict” can be used in determining how your current or future production is or will be in compliance with new/revised requirements.