Designation: D 5206 – 96 (Reapproved 2002)ε1

An American National Standard

Standard Test Method for Windload Resistance of Rigid Poly(Vinyl Chloride) (PVC) Siding[1,2]

This standard is issued under the fixed designation D 5206; 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.

ε[1] NOTE—Summary of Changes was added in July 2004.

1. Scope*

1.1 This test method describes methods for testing and evaluating windload resistance of rigid poly(vinyl chloride) (PVC) siding when fastened in accordance with Practice D 4756.

1.2 The proper use of this test method requires a knowledge of the principles of pressure measurement.

1.3 This test method describes the apparatus and the procedures to be used for either a specific static test pressure (Procedure A) or ultimate test pressure values (Procedure B) applied uniformly to a specimen.

NOTE 1—There are no ISO standards covering the subject matter of this test method.

1.4 The values expressed in inch-pound units are to be regarded as the standard. The SI equivalents in parentheses may be approximate.

1.5 *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.* For specific precautionary statements, see Section 7.

2. Referenced Documents

2.1 *ASTM Standards:* [3]

D 883 Terminology Relating to Plastics

D 1600 Terminology of Abbreviated Terms Relating to Plastics

D 3679 Specification for Rigid Poly(Vinyl Chloride) (PVC) Siding

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

E 631 Terminology of Building Constructions

3. Terminology

3.1 *General*—Definitions are in accordance with Terminologies D 883 and E 631 and abbreviations are in accordance with Terminology D 1600 unless otherwise indicated.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *specimen*—the entire assembled siding panel as described in Section 8.

3.2.2 *static test pressure*—the specific difference in static air pressure (positive or negative) for which the specimen is to be tested expressed as force per square foot (or pascals).

3.2.3 *ultimate test pressure*—the difference in static air pressure (positive or negative) at which failure occurs expressed as force per square foot (or pascals).

4. Summary of Test Method

4.1 This test method consists of sealing the test specimen with or against one face of a test chamber, supplying to or exhausting air from the chamber at a rate required to maintain a specific air pressure across the specimen for a specific time period. After removal of the pressure, the specimen is observed for failure, and the nature of any failure established. The specimen may then be repressured at increments of added test pressure difference until failure occurs to measure the ultimate test pressure.

5. Significance and Use

5.1 This test method is a standard procedure for determining windload resistance of rigid poly(vinyl chloride) (PVC) siding under specified uniform static pressure difference. This typically is intended to represent the effects of wind loads on

[1] This test method 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] This edition contains a change to Section 1 to add an ISO equivalency statement, and to 1.1 and to 8.3 to ensure uniform specimen mounting practice.

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

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.

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

exterior building surfaces. The actual loading on building surfaces is quite complex, varying with wind direction, time, height above ground, building shape, terrain, surrounding structures, and other factors.

5.2 Design wind pressure may be selected for specific geographical locations from wind velocity maps prepared by the National Weather Service. Refer to Annex A1 of Specification D 3679 for additional detailed information relating to use of this test method for evaluation of rigid poly(vinyl chloride) (PVC) siding.

NOTE 2—In applying the results of this test method, note that the performance of rigid PVC siding may be a function of installation, and the specimen may or may not truly represent the actual application. In service, performance will also depend on the rigidity of supporting construction, and on the resistance of other components to deterioration by various causes, to thermal expansion and contraction, etc.

6. Apparatus

6.1 The description of apparatus is general in nature; any equipment capable of performing the test procedure within the allowable tolerances is permitted.

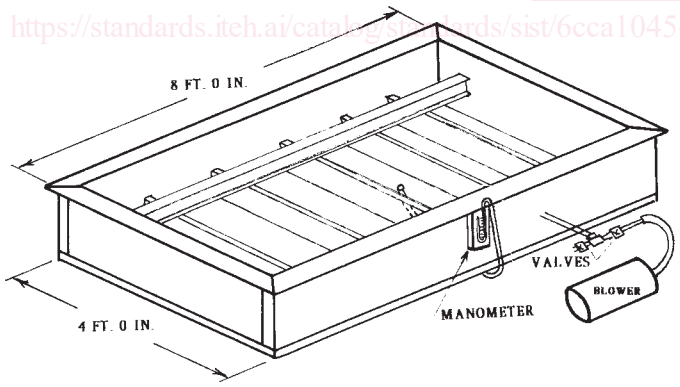
6.2 *Major Components (See Fig. 1)*:

6.2.1 *Test Chamber*—A test chamber or box (Fig. 1) with an opening, a removable mounting panel, or one open side in which or against which the specimen is installed. At least one static pressure tap shall be provided to measure the chamber pressure and shall be so located that the reading is unaffected by the velocity of the air supply to or from the chamber or any other air movement. The air supply opening into the chamber shall be arranged so that the air does not impinge directly on the test specimen with any significant velocity. A means of access into the chamber may be provided to facilitate adjustments, observations, and measurements after the specimen has been installed.

NOTE 3—The test chamber or the specimen mounting frame, or both, must not deflect under the test load in such a manner that the performance of the specimen will be affected.

6.2.2 *Air System*—A controllable blower, a compressed air supply, an exhaust system, or reversible controllable blower designed to provide the required maximum air pressure difference across the specimen. The system shall provide an essentially constant air pressure difference for the required test period.

6.2.3 *Pressure Measuring Apparatus*—A device to measure the test pressure difference within a tolerance of ±2 %.



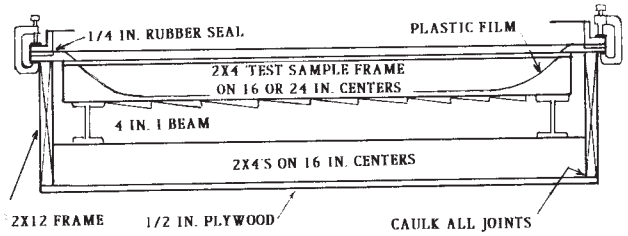


FIG. 1 Test Chamber

7. Safety Precautions

7.1 Take proper precautions to protect the observers in the event of any failure. At the pressures used in this test method, considerable energy and hazard are involved. In cases of failure, the hazard to personnel is less with an exhaust system, as the specimen will tend to blow into the test chamber rather than out. Do not permit personnel in such chambers during tests and lockout chambers during tests.

8. Test Specimens

8.1 *Sampling*—Siding samples for test specimens shall be selected at random from production stock.

8.2 Prepare test specimen frames from wood 2 × 4s sized to accommodate specimens three stud spaces wide and four siding panels high.

8.2.1 Stud spacing shall have either 16 or 24-in. centers in accordance with the manufacturer's fastening instructions.

8.2.2 The overall height of the test specimen frame shall be adjusted for siding panels of varying height to keep the distance between the frame and the siding at the top and bottom to a minimum and yet provide clearance between siding and frame. (See Fig. 1.)

8.3 Apply a starter strip and four siding panels to the test specimen frame as specified in the section on application of horizontal siding in Practice D 4756 (9.1).

8.4 Prepare six identical test specimens under uniform preparation conditions by experienced personnel so as to provide adequate specimens for retests or determination of ultimate test pressure (when required) in addition to static test pressure.

9. Procedure

9.1 Position a test specimen frame vertically or horizontally over the opening in the test chamber (box) so as to subject the entire test specimen to the pressure load. The orientation of the siding face will depend upon whether pressure or vacuum is used in the chamber (box). Orientation shall provide a positive pressure on the back of the siding specimen.

9.2 Cover the test specimen frame with a 6-mil maximum thickness plastic film that can be sealed to the perimeter of the test chamber (box).

9.2.1 Film application must permit full pressure load transfer to the specimen and must not prevent movement or failure