



Standard Test Method for Field Testing Uplift Resistance of Adhered Membrane Roofing Systems¹

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1. Scope

1.1 This test method covers the determination of the resistance of adhered membrane roofing systems to uplift pressure. It applies to roof systems with or without rigid board insulation or base ply, which are either adhered or mechanically fastened, and fully adhered membranes.

1.2 This test method is intended to be used as a measure of the uplift resistance of the roofing system. Systems containing cold adhesive shall be in place for the cure time specified by the adhesive manufacturer to obtain optimum adhesion before conducting the test. Hot-applied systems shall be permitted to cool to normal prevailing surface temperatures before conducting the test.

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:*²

E 575 Practice for Reporting Data from Structural Tests of Building Constructions, Elements, Connections, and Assemblies²

3. Summary of Test Method

3.1 A controlled negative pressure is created on top of the roof surface by means of a chamber fitted with a pressure measuring device and vacuum equipment.

3.2 For roofs containing surfacing such as gravel, slag, or granules, the loose surfacing shall be removed by sweeping a 300 mm (12 in.) wide path around the perimeter of the test area. Care shall be taken not to damage the test area. A heavy pouring of hot asphalt is applied over the swept area and allowed to cool. This provides a smooth surface and allows the edges of the chamber to be in complete contact with the roof surface so that a negative pressure is developed inside the chamber. Other methods are not to be used to prepare the test area unless the method used will produce a tight seal and is compatible so as not to damage the roof membrane. Examples are the use of wet sand, duct tape, water, or polythene film.

4. Significance and Use

4.1 This field test method is suitable for determining the uplift resistance of the roofing system as stated in applicable specifications, bid documents, or when required by other authorities having jurisdiction. This field test method is also intended to supplement measurement of the uplift resistance performance of roofing systems as determined under laboratory conditions.

5. Apparatus

5.1 *Square Chamber*, 1500 $\pm$ 15 mm (60 $\pm$ 1/2 in.) in size, sufficiently strong to withstand the necessary negative pressure without collapsing.

NOTE 1—A manufactured dome shaped chamber of rigid clear polycarbonate shown in Fig. 1 has been successfully used. The dome consists of four equal segments for ease of transporting the unit to and from the job site. Rubber gaskets are used to seal the joints along the flanges. One segment of the dome has a hole to accommodate vacuum equipment and another segment has a hole for a flexible hose leading to a manometer (Fig. 2). The bottom flanges of the chamber are equipped with a flexible poly(vinyl chloride) foam strip to seal the chamber to the roof surface.

5.2 *Pressure-Sensing Device*, for measuring the negative pressure inside the chamber. The manometer shall be calibrated to indicate negative pressures in increments of 360 $\pm$ 20 Pa (7.5 $\pm$ 0.5 lbf/ft²).

5.3 *Vacuum Equipment*, with sufficient capacity to create the negative pressures required in the test chamber (see 8.8). The chamber vacuum equipment shall also be equipped with

¹ This test method is under the jurisdiction of ASTM Committee D08 on Roofing and Waterproofing and is the direct responsibility of Subcommittee D08.20 on Roofing Membrane Systems.

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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.