



Standard Test Method for Measuring the Field Performance of Commercial Kitchen Ventilation Systems¹

This standard is issued under the fixed designation F2975; 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.

1. Scope

1.1 This test method can be used to measure and validate successful design, installation and commissioning of commercial kitchen HVAC and makeup air systems for specific installations.

1.2 This test method field evaluates commercial kitchen ventilation system airflows and pressures.

1.3 This test method field evaluates visual hood capture and containment performance.

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

1.5 The data generated is specific to the field conditions as installed.

1.6 *This test method may involve hazardous materials, gasses (for example, CO) operations, and equipment. 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

F1704 Test Method for Capture and Containment Performance of Commercial Kitchen Exhaust Ventilation Systems

2.2 Other Standards:

ANSI/ASHRAE Standard 111-2008 Measurement, Testing, Adjusting and Balancing of Building HVAC Systems³

ANSI/ASHRAE Standard 154 Ventilation for Commercial Cooking Operations³
Testing, Adjusting and Balancing, Chapter 37 2007 HVAC Applications Handbook⁴
Kitchen Ventilation, Chapter 31 2007 HVAC Applications Handbook⁴

3. Terminology

3.1 Definitions:

3.1.1 *airflow rate*—volumetric flow rate of air in units of ft³/min (cfm) or m³/s. When adjusted for standard air density the flow rate is designated by scfm.

3.1.2 *appliance*—cooking device used in kitchen and powered by gas, and/or electricity and/or solid fuel.

3.1.3 *barometric pressure*—absolute pressure of the air measured by a barometer or absolute pressure measuring device.

3.1.4 *capture and containment (C&C)*—the ability of a hood or other removal device to capture and contain all effluent generated by the appliances or processes during normal operation.

3.1.4.1 *Discussion*—For the purpose of this test method effluent may be simulated as defined in this test method.

3.1.4.2 *Discussion*—Successful C&C shall be demonstrated along the entire perimeter of the hood or removal device.

3.1.4.3 *Discussion*—Successful C&C may include rising effluent that when below the leading edge of the hood may extend out no more than 3 in. vertically beyond the leading edge of the hood and is completely recovered before reaching the leading edge of the hood or removal device and once inside the hood is completely contained. **F1704**

3.1.4.4 *Discussion*—For backshelf or passover style hoods effluent shall not rise more than 3 in. above the exterior leading edge of the hood and shall not extend more than 3 in. beyond the open front or sides of the cooking surface and shall be completely contained once reaching the hood.

3.1.5 *differential pressure gauge*—instrument that measures pressure difference between the two inlet ports. This can be a

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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.

³ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

⁴ Available from American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc. (ASHRAE), 1791 Tullie Circle, NE, Atlanta, GA 30329, <http://www.ashrae.org>.