



Standard Test Methods for Physical Assault on Ventilation Grilles for Detention and Correctional Facilities¹

This standard is issued under the fixed designation F2542; 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 These test methods cover requirements for simulated service tests and testing equipment for determining the performance characteristics of ventilation grilles used in secure areas, including detention and correctional facilities. The testing equipment provides for the setup and testing of specimen grilles and mounting systems. It is recognized that, in order to meet the intent of these test methods, ventilation grilles must be compatible with the level of performance required by Test Methods F2322.

1.2 It is the intent of these test methods to ensure that security ventilation grilles meet minimum performance levels to control the passage of unauthorized materials into secure areas, to confine inmates, to resist vandalism, and to delay or frustrate escape, or both. It is also the responsibility of the user of these test methods to insure that the grille selected is appropriate, based on relevant regulatory, health, and safety concerns and requirements. Such concerns include, but are not limited to, injury and suicide avoidance. These test methods do not quantify such concerns.

1.3 Take care to provide access to return and exhaust ducts for cleaning as required by NFPA 90A. If access cannot be provided through an interstitial space behind walls or ceiling, the use of filter grilles needs to be considered as an option. When filter grilles are provided, filters shall have a minimum UL-900 class 2 rating, and a filter replacement program needs to be in place at the facility.

1.4 Airflow performance shall be catalogued in accordance with ASHRAE 70–91. Manufacturer's catalog data must include grade level achieved.

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 These test methods are under the jurisdiction of ASTM Committee F33 on Detention and Correctional Facilities and are the direct responsibility of Subcommittee F33.04 on Detention Hardware.

Current edition approved June 1, 2012. Published August 2012. Originally approved in 2005. Last previous edition approved in 2005 as F2542 – 05. DOI: 10.1520/F2542-05R12.

1.6 *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

F2322 Test Methods for Physical Assault on Vertical Fixed Barriers for Detention and Correctional Facilities

2.2 *NFPA Standard:*³

NFPA 90A Standard for the Installation of Air Conditioning and Ventilating Systems

2.3 *UL Standard:*⁴

UL-900 Standard for Air Filter Units

2.4 *ASHRAE Standard:*⁵

ASHRAE 70–91 Method of Testing for Rating the Performance of Air Outlets and Inlets

3. Terminology

3.1 *Definitions:*

3.1.1 *bars*—method of reinforcement or prevention of egress installed in the sleeve. Bars may be of a material, size, shape, and spacing as selected by the manufacturer to provide the desired test results and meet applicable federal, state, and local jail and prison standards.

3.1.2 *diffuser*—ceiling-mounted device designed to provide deflection of air flow.

3.1.3 *filter grille*—grille incorporating a replaceable filter in the grille sleeve or body.

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 National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, MA 02269-9101.

⁴ Available from Underwriters Laboratories (UL), Corporate Progress, 333 Pfingsten Rd., Northbrook, IL 60062.

⁵ Available from American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc. (ASHRAE), 1791 Tullie Circle, NE, Atlanta, GA 30329.