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Standard Test Methods for Anchor Systems Used for Detention Hollow Metal Systems¹

This standard is issued under the fixed designation F2956; 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 reappraisal. A superscript epsilon (ε) indicates an editorial change since the last revision or reappraisal.

1. Scope

1.1 These test methods cover anchor systems used for the installation of fixed detention hollow metal vision systems and door assemblies of various materials and types of construction. These anchor systems are used to install fixed hollow metal vision systems and door assemblies in wall openings in detention and correctional institutions designed to incarcerate inmates.

1.2 Anchor systems individual components investigated under these test methods include detention security hollow metal frames, frame anchoring, security glazing, panels, and removable glazing stops.

1.3 These test methods are designed to test the capability of anchor systems used to install a fixed detention hollow metal vision system or door assembly to prevent, delay, and frustrate escape; to limit or control access to unauthorized or secured areas; and prevent passage of contraband.

1.4 These test methods apply primarily to anchor systems used to install detention hollow metal vision systems or door assemblies between secure areas generally found inside a detention/correctional facility such as: day rooms, control rooms, cells, and sally ports. These test methods are applicable to anchor systems used to install vision systems and door assemblies other than hollow metal, provided testing and reporting procedures are followed.

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

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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.7 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the*

Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

2. Referenced Documents

2.1 ASTM Standards:²

[A36 Specification for Carbon Structural Steel](#)

[A615 Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement](#)

[C90 Specification for Loadbearing Concrete Masonry Units](#)

[F1450 Test Methods for Hollow Metal Swinging Door Assemblies for Detention and Correctional Facilities](#)

[F1592 Test Methods for Detention Hollow Metal Vision Systems](#)

[F1577 Test Methods for Detention Locks for Swinging Doors](#)

[F1643 Test Methods for Detention Sliding Door Locking Device Assembly](#)

[F1758 Test Methods for Detention Hinges Used on Detention-Grade Swinging Doors](#)

[F1915 Test Methods for Glazing for Detention Facilities](#)

2.2 ANSI/NAAMM/HMMA Standard:³

[ANSI/NAAMM HMMA 863 Guide Specifications for Detention Security Hollow Metal Doors and Frames](#)

2.3 NFPA Standard:⁴

[NFPA 252 Standard Methods of Fire Tests of Door Assemblies](#)

2.4 UL Standards:⁵

[UL-10 \(C\) Standard for Positive Pressure Fire Tests of Door Assemblies](#)

[UL-752 Standard for Bullet-Resisting Equipment](#)

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

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 Hollow Metal Manufacturer's Association, A Division of NAAMM, 800 Roosevelt Road, Building C, Suite 312, Glen Ellyn, IL 60137.

⁴ Available from National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, MA 02269, <http://www.nfpa.org>.

⁵ Available from Underwriters Laboratories (UL), 2600 N.W. Lake Rd., Camas, WA 98607-8542, <http://www.ul.com>.

¹ These test methods are under the jurisdiction of ASTM Committee F33 on Detention and Correctional Facilities and is the direct responsibility of Subcommittee F33.02 on Physical Barriers.

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3.1.1 *anchor system, n*—assembly of components between a detention hollow metal vision system or door assembly and surrounding structure or substructure that supports and secures the fixed hollow metal vision system or door assembly vertically and laterally during its intended service life.

3.1.2 *borrowed light, n*—fixed window frame for use in an interior partition.

3.1.2.1 *Discussion*—This term is derived from the concept of borrowing light from one room or space to help illuminate another.

3.1.3 *butt joint, n*—corner or mullion joint of a frame in which the stop of either member is notched to fit the other, resulting in a perpendicular joint.

3.1.4 *component, n*—subassembly, as distinguished from a part, that combines with other components to make up a total frame assembly.

3.1.4.1 *Discussion*—The prime components of a fixed vision system assembly are frame, wall, glazing, and panels.

3.1.5 *contraband breach, n*—any through opening created such that a 0.060-in. diameter wire can be passed completely through the assembly at any location constitutes a contraband breach.

3.1.6 *detention security, n*—assurance of the restriction of mobility of inmates to designated areas within a correctional or detention facility.

3.1.7 *door assembly, n*—unit composed of a group of parts or components that make up an opening barrier for a passage-way through a wall.

3.1.8 *forcible egress, n*—ability to pass a 5 by 8 by 8-in. rigid rectangular box through an opening in the test sample created by destructive testing procedures using no more than 10 lbf (44.5 NM).

3.1.9 *glazing stop, n*—formed metal section used to secure glazing or panel in a frame either by application to the glazing material or as an integral part of the frame.

3.1.10 *head or header, n*—horizontal member that forms the top of a frame.

3.1.11 *hollow metal, n*—term used in reference to such items as doors, frames, partitions, enclosures, and other items that are fabricated from metal sheet, usually carbon steel.

3.1.11.1 *Discussion*—These products are usually internally reinforced but hollow, hence the term hollow metal. In doors and partitions, the voids are normally filled with insulation. In frames, the jambs and sometimes heads are grouted where installed in masonry walls, or of such construction that they may be left hollow⁶ (see ANSI/NAAMM HMMA 863).

3.1.12 *jamb, n*—vertical member forming the side of a frame.

3.1.13 *miter joint, n*—corner joint of a head and jamb in which the trim faces, and sometimes the stops, meet at an angle (usually 45°).

3.1.13.1 *Discussion*—The miter joint can be either punched in the flat form or sawed after the members are formed.

3.1.14 *mullion, n*—vertical or horizontal member within a frame, separating either doors, a door and a sidelight, glazed areas, or panels.

3.1.15 *multi-light, n*—two or more fixed lights or glazing, located adjacent to each other, horizontally, vertically, or both within the same frame, either located in an interior partition or in an exterior wall.

3.1.16 *panel, n*—for the purposes of these test methods, the panel is a steel plate at least 0.375 in. thick, installed to transfer impact energy to the glazing stops and the assembly, and serve as a uniform testing medium that substitutes for actual field glazing materials.

3.1.17 *performance characteristic, n*—response of the assembly or its components to any one of the tests described herein.

3.1.18 *sidelight, n*—fixed light of glazing located adjacent to a door or doors within the same frame.

3.1.19 *sill, n*—bottom horizontal member of a frame.

3.1.20 *tamper-resistant security screw, n*—screw that is designed to be removed only by special tools kept by detention/correctional facility maintenance personnel.

3.1.21 *test completion, n*—conduct of one test sequence for each of the frame assemblies.

3.1.22 *testing laboratory, n*—independent materials testing laboratory not associated with the manufacturer.

3.1.23 *vision system, n*—hollow metal frame with glazing, glazing stops, and panels in place ready for service.

3.1.23.1 *Discussion*—A vision system may be a borrowed light or sidelight.

3.1.24 *vision system frame, n*—assembly of members surrounding and supporting glazing panels, steel panels, or combinations thereof, located either in an interior partition or exterior wall.

3.1.24.1 *Discussion*—If an exterior application is desired, other standards that address cutting and deflection may be applicable.

4. Significance and Use

4.1 A major concern for corrections administration officials is the resistance of security barriers used in detention/correctional facilities to certain types of physical attack that it is reasonable to expect in the field. These test methods are designed to aid in identifying a level of physical security for anchor systems used to install fixed detention hollow metal vision systems and door assemblies.

4.2 These test methods are not intended to measure resistance to attack by corrosive agents, high-powered rifles, explosives, sawing, or other such methods. These test methods are intended to evaluate the resistance of a vision system to violent attacks using battering devices such as benches, bunks, fire extinguishers, or tables; hand guns up to and including the .44 magnum; and fires started by using mattresses, books, and similar flammable materials.

⁶ See The Hollow Metal Manual-87, available from the Hollow Metal Manufacturer's Association, A Division of NAAMM, 800 Roosevelt Road, Building C, Suite 312, Glen Ellyn, IL 60137.