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Standard Test Method for Timed Evaluation of Forced-Entry-Resistant Systems¹

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1. Scope

1.1 This test method sets forth the requirements and testing procedures to test forced-entry-resistant building components, construction components, and specialty security equipment. This test method is intended primarily for manufacturers to test and rate their windows, doors, modular panels, glazings, louvers, walls, seismic joints, roofs, roof hatches, grilles, and similar products to ensure that all manufactured products meet the necessary requirements for forced-entry protection.

1.2 This test method is currently designed to simulate a spontaneous mob using readily available hand tools as the primary threat for forced entry.

1.3 In order to receive a rating, all portions of the tested specimen must meet or exceed the test level.

1.4 Systems are required to be tested as complete units in a test frame or fielded conditions. Muller systems must be tested in the muller condition. Test results only apply to the component or system as tested. Once a system is tested and deemed to satisfy the requirements of this test method, no design change can be made without a retest.

1.5 *Units*—The values stated in this standard are SI units with the exception of the nominal descriptors for tools.

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.*

¹ This test method is under the jurisdiction of ASTM Committee F12 on Security Systems and Equipment and is the direct responsibility of Subcommittee F12.10 on Systems Products and Services.

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2. Referenced Documents

2.1 *ASTM Standards*:²

E631 [Terminology of Building Constructions](#)

E2771 [Terminology for Homeland Security Applications](#)

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

2.2 *Other Standards*:

SD-STD-01.01 [Forced-Entry and Ballistic-Resistance of Structural Systems, Rev. G \(Amended\)](#)³

ISO/IEC 17025:2005 [General Requirements for the Competence of Testing and Calibration Laboratories](#)⁴

3. Terminology

3.1 *Definitions of Terms Specific to This Standard*:

3.1.1 *component*—integral part of a forced entry test specimen such as: panels, frame, glazing, glazing bite, flanges, hinges, locks, jamb/wall, jamb/strike mullions, and mounting devices of different shape, size, and material.

3.1.2 *door, double*—two-door assembly with an opening twice as wide as a single door with a common latch and lock edge.

3.1.3 *independent test facility*—testing laboratory accredited to perform the referenced testing procedures by a nationally recognized accrediting agency in accordance with ISO/IEC 17025.

3.1.4 *individual systems*—individual doors, windows, louvers, hatches, grilles, or wall panels; the doors, windows, and panels may have one transparency or two or more transparencies separated with a mullion.

3.1.5 *louvers*—angled and gapped slats which permit the passage of air through an otherwise impassable barrier; while louvers usually are rigidly constructed, the slats may be moveable to seal off air passage.

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 U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401, <http://www.access.gpo.gov>.

⁴ Available from International Organization for Standardization (ISO), ISO Central Secretariat, Chemin de Blandonnet 8, CP 401, 1214 Vernier, Geneva, Switzerland, <http://www.iso.org>.

3.1.5.1 *manufacturer-delivered systems*—includes both individual and mulled systems.

3.1.6 *mullion*—a component used to divide two parts of the same system and it can be vertical or horizontal, movable or fixed; for purposes of this test method, a mullion does not include steel or concrete structural members (including seismic joints) which are present in the building.

3.1.7 *mulled*—the physical connection together of two parts of the same system; the two systems may be anchored directly to each other or have a mullion between them.

3.1.8 *ready-to-install*—fabricated, with an appropriate final finish such as galvanizing, paint, or anodizing; the test specimen shall consist of the entire fenestration assembly and contain all devices used to resist forced entry; all parts of the test specimen shall be full size, as specified for actual use, using the identical materials, details, and methods of construction.

3.1.9 *system*—the assembly of structural elements and devices which comprise the forced-entry-resistant barrier.

3.1.10 *shop assembly drawing*—a drawing which shows how a system is assembled including the locations, dimensions, and arrangements of all assembly elements such as bolts, glazing stops, and glazing spacers.

3.1.11 *Test:*

3.1.11.1 *concentrated assault*—test of forced entry attack using test tools on one dissimilar component in an attempt to create an opening and permit passage of the test shape.

3.1.11.2 *failure criteria*—any failure of the manufacturer's recommended mounting hardware or penetration of any portion of the system sufficient to permit passage of the test shape within the times of the FE concentrated assault test.

3.1.11.3 *test director*—the individual identified by the independent testing laboratory as being responsible to complete the specified tests as required and to document the results, in accordance with this test method.

3.1.11.4 *test facility*—laboratory or other area where forced-entry testing is conducted.

3.1.11.5 *test fixture*—the structural assembly which holds the test specimen.

3.1.11.6 *test levels*—the increments to which systems are tested through manual attack with a specific set of tools and weapons.

3.1.11.7 *test personnel/test team*—those personnel actively engaged in the Concentrated Assault Test but not including the Test Director, data recorders, or other supervisory personnel.

3.1.11.8 *test plane*—a plane parallel and contiguous to the face of the attack side of the test sample.

3.1.11.9 *testing report*—a report provided by the test facility that includes configuration documentation, any applicable abnormality, forced-entry testing data and photographs, a certification of testing, a narrative summary of testing, time-stamped drawings that have been validated to match the test specimen, and all video recording(s) of testing.

3.1.11.10 *test shape*—a non-compressible, rigid, elliptical cylinder made of solidly bonded particle board or medium-density fiberboard (MDF) layers measuring 400 mm major axis by 225 mm minor axis and 300 mm in height.

3.1.11.11 *test tools*—the devices used by the test team during the concentrated assault tests.

3.1.12 *Window:*

3.1.12.1 *view window*—a window system which permits visual contact through an otherwise opaque host assembly.

3.1.12.2 *window frame*—the opaque portion of a transparent assembly into which the transparent element is mounted.

3.1.12.3 *window grille*—spaced, rigid bars which are mounted over exterior windows of the host structure to provide delay in access.

4. Summary of Test Method

4.1 This test method establishes incremented timed levels of forced-entry protection via evaluation of a manual attack of a single or mulled system by using a specific set of tools and weapons. The weapons and tools used in the attack are selected from a prescribed list provided in [Annex A1](#).

5. Significance and Use

5.1 Within a given period of time, the success or failure of any attempt to forcibly enter a structure intended to resist that entry is dependent upon three primary factors that collectively define the threat: (1) the tools and devices employed, (2) the number of aggressors, and (3) the level of sophistication of the attack.

5.2 The procedures presented herein are based on field experience and are not intended to be used to establish or confirm the absolute prevention of forced entries.

5.3 The test requirements specified herein have been established for use in evaluating the forced-entry resistance characteristics of structures and assemblies to be used in commercial, government, and military installations.

5.4 The procedures of this test method are intended to evaluate the time necessary for personnel to create an opening of sufficient size to permit passage of a test shape through it.

6. Apparatus

6.1 Apparatus to conduct these tests include test personnel, test fixture, test tools, and the test shape.

6.2 *Test Personnel:*

6.2.1 Test personnel in good health, and capable of executing the required rigorous tests.

6.2.2 The number of personnel shall be six.

6.3 *Test Fixture:*

6.3.1 The test fixture shall be in accordance with Test Methods [F1915](#) or as specified by the authority having jurisdiction provided it does not enhance or degrade the specimen.

6.4 The test fixture shall simulate installation in a permanent steel or concrete structure which neither enhances nor degrades the forced-entry protection of the system.

6.5 *Forced Entry Test Tools:*