



Designation: **F1090—06 F1090 – 15**

Standard Classification for Bank and Mercantile Vault Construction¹

This standard is issued under the fixed designation F1090; 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 classification is for the use and guidance of those who purchase, design, construct, install, approve, or modify storage vault enclosures, intended for the protection of assets against loss due to forced entry.

1.2 This classification is a systematic arrangement of constructed products, based on similar intrusion resistance characteristics, as derived from available test data.

1.3 This classification does not address fire resistivity.

1.4 This classification does not address the methods of interfacing vault components. Things such as tamper notification, intrusion detection, response timelines, or other issues, typically forming a complete vault system, should be considered for inclusion.

1.5 Nothing in this classification is intended to prevent the use of systems, methods, or devices that provide a level of intrusion resistance equivalent to that prescribed herein.

1.5.1 Any system, method, or device different from that detailed herein may be examined, in accordance with the intent of this standard, and if found equivalent, may be included.

1.6 Nothing in this classification shall be construed to prohibit better or safer conditions than the requirements specified herein.

1.7 Each standard designation cited shall be meant to be the edition in effect on the date this classification was published.

1.8 A rationale is given in [Appendix X1](#).

NOTE 1—For more information on the construction of bank and mercantile vaults, refer to the following documents: ASTM Specifications [A184/A184M](#), [A615/A615M](#), [A635/A635M](#), [C33](#), [C94/C94M](#), [C150](#), [C494/C494M](#), [C618](#), [C685/C685M](#); American Concrete Institute Building Requirements ACI 318, and American Welding Society Structural Welding Code D 1.4.

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

<https://standards.iteh.ai/catalog/standards/sist/2365e396-b351-40c4-9f1a-d41d4217a3f0/astm-f1090-15>

2. Referenced Documents

2.1 *ASTM Standards*:²

[A184/A184M](#) Specification for Welded Deformed Steel Bar Mats for Concrete Reinforcement

[A615/A615M](#) Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement

[A635/A635M](#) Specification for Steel, Sheet and Strip, Heavy-Thickness Coils, Hot-Rolled, Alloy, Carbon, Structural, High-Strength Low-Alloy, and High-Strength Low-Alloy with Improved Formability, General Requirements for

[A820/A820M](#) Specification for Steel Fibers for Fiber-Reinforced Concrete

[C33](#) Specification for Concrete Aggregates

[C39/C39M](#) Test Method for Compressive Strength of Cylindrical Concrete Specimens

[C94/C94M](#) Specification for Ready-Mixed Concrete

[C150](#) Specification for Portland Cement

[C494/C494M](#) Specification for Chemical Admixtures for Concrete

[C618](#) Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete

¹ This classification 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 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.

[C685/C685M Specification for Concrete Made by Volumetric Batching and Continuous Mixing](#)

[C1116 Specification for Fiber-Reinforced Concrete and Shotcrete](#)

2.2 *Underwriters Laboratories Standards*:³

[UL 608 Burglary-Resistant Vault Doors and Modular Panels](#)

[UL 680 Emergency Vault Ventilators and Vault Ventilating Ports](#)

2.3 *American Concrete Institute Document*:⁴

[ACI 318 Building Code Requirements for Reinforced Concrete](#)

2.4 *American Welding Society Document*:⁵

[D 1.4 Structural Welding Code Reinforcing Steel](#)

3. Description of Terms Specific to this Standard

3.1 *alternate construction*—a substitute method of fabrication.

3.2 *classification*—a systematic rating of products based on testing, according to approved criteria.

3.3 *door, vault*—a movable barrier assembly constructed of intrusion-resistant materials by which a passageway is closed or opened.

3.4 *emergency ventilator*—a device constructed of intrusion-resistant materials for the introduction of fresh air.

3.5 *equivalent*—a term applied to two or more methods, procedures, materials, devices, etc., expected to give the same average results.

3.6 *generic construction*—commonly available construction materials not protected by trademark registration.

3.7 *heating, ventilating and air conditioning (HVAC) port*—a device constructed of intrusion-resistant materials providing an opening for intake or exhaust of air.

3.8 *intrusion-resistant*—constructed to prevent a successful penetration by means and techniques as described in UL 608.

3.9 *manhole size opening*—a 96-in.² (620-cm²) opening, the smallest dimension of which is not less than 6 in. (15 cm).

3.10 *modular panel*—wall, floor, or ceiling components, manufactured of intrusion-resistant material, intended for assembly at the place of use, and capable of being disassembled and relocated.

3.11 *vault*—an intrusion-resistant enclosure, intended for the safekeeping of valuables, and sized to allow entry by at least one person.

3. Terminology

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3.1.11 *vault door*—a movable barrier assembly constructed of intrusion-resistant materials by which a passageway is closed or opened.

³ Available from Underwriters Laboratories (UL), Corporate Progress, 333 Pfingsten Rd., Northbrook, IL 60062.

⁴ Available from American Concrete Institute (ACI), P.O. Box 9094, Farmington Hills, MI 48333.

⁵ Available from American Welding Society (AWS), 550 NW LeJeune Rd., Miami, FL 33126.