NFPA®

80

Standard for Fire Doors and Other Opening Protectives

2019

IMPORTANT NOTICES AND DISCLAIMERS CONCERNING NFPA® STANDARDS

NOTICE AND DISCLAIMER OF LIABILITY CONCERNING THE USE OF NFPA STANDARDS

NFPA® codes, standards, recommended practices, and guides ("NFPA Standards"), of which the document contained herein is one, are developed through a consensus standards development process approved by the American National Standards Institute. This process brings together volunteers representing varied viewpoints and interests to achieve consensus on fire and other safety issues. While the NFPA administers the process and establishes rules to promote fairness in the development of consensus, it does not independently test, evaluate, or verify the accuracy of any information or the soundness of any judgments contained in NFPA Standards.

The NFPA disclaims liability for any personal injury, property, or other damages of any nature whatsoever, whether special, indirect, consequential or compensatory, directly or indirectly resulting from the publication, use of, or reliance on NFPA Standards. The NFPA also makes no guaranty or warranty as to the accuracy or completeness of any information published herein.

In issuing and making NFPA Standards available, the NFPA is not undertaking to render professional or other services for or on behalf of any person or entity. Nor is the NFPA undertaking to perform any duty owed by any person or entity to someone else. Anyone using this document should rely on his or her own independent judgment or, as appropriate, seek the advice of a competent professional in determining the exercise of reasonable care in any given circumstances.

The NFPA has no power, nor does it undertake, to police or enforce compliance with the contents of NFPA Standards. Nor does the NFPA list, certify, test, or inspect products, designs, or installations for compliance with this document. Any certification or other statement of compliance with the requirements of this document shall not be attributable to the NFPA and is solely the responsibility of the certifier or maker of the statement.

REVISION SYMBOLS IDENTIFYING CHANGES FROM THE PREVIOUS EDITION

Text revisions are shaded. A Δ before a section number indicates that words within that section were deleted and a Δ to the left of a table or figure number indicates a revision to an existing table or figure. When a chapter was heavily revised, the entire chapter is marked throughout with the Δ symbol. Where one or more sections were deleted, a • is placed between the remaining sections. Chapters, annexes, sections, figures, and tables that are new are indicated with an *N*.

Note that these indicators are a guide. Rearrangement of sections may not be captured in the markup, but users can view complete revision details in the First and Second Draft Reports located in the archived revision information section of each code at www.nfpa.org/docinfo. Any subsequent changes from the NFPA Technical Meeting, Tentative Interim Amendments, and Errata are also located there.

REMINDER: UPDATING OF NFPA STANDARDS

Users of NFPA codes, standards, recommended practices, and guides ("NFPA Standards") should be aware that NFPA Standards may be amended from time to time through the issuance of a Tentative Interim Amendment (TIA) or corrected by Errata. An official NFPA Standard at any point in time consists of the current edition of the document together with any TIAs and Errata then in effect.

To determine whether an NFPA Standard has been amended through the issuance of Tentative Interim Amendments or corrected by Errata, go to www.nfpa.org/docinfo to choose from the list of NFPA Standards or use the search feature to select the NFPA Standard number (e.g., NFPA 13). The document information page provides up-to-date document-specific information as well as postings of all existing TIAs and Errata. It also includes the option to register for an "Alert" feature to receive an automatic email notification when new updates and other information are posted regarding the document.

ISBN: 978-145592060-0 (PDF)
ISBN: 978-145592061-7 (

IMPORTANT NOTICES AND DISCLAIMERS CONCERNING NFPA® STANDARDS

ADDITIONAL NOTICES AND DISCLAIMERS

Updating of NFPA Standards

Users of NFPA codes, standards, recommended practices, and guides ("NFPA Standards") should be aware that these documents may be superseded at any time by the issuance of new editions or may be amended from time to time through the issuance of Tentative Interim Amendments or corrected by Errata. An official NFPA Standard at any point in time consists of the current edition of the document together with any Tentative Interim Amendments and any Errata then in effect. In order to determine whether a given document is the current edition and whether it has been amended through the issuance of Tentative Interim Amendments or corrected through the issuance of Errata, consult appropriate NFPA publications such as the National Fire Codes® Subscription Service, visit the NFPA website at www.nfpa.org, or contact the NFPA at the address listed below.

Interpretations of NFPA Standards

A statement, written or oral, that is not processed in accordance with Section 6 of the Regulations Governing the Development of NFPA Standards shall not be considered the official position of NFPA or any of its Committees and shall not be considered to be, nor be relied upon as, a Formal Interpretation.

Patents

The NFPA does not take any position with respect to the validity of any patent rights referenced in, related to, or asserted in connection with an NFPA Standard. The users of NFPA Standards bear the sole responsibility for determining the validity of any such patent rights, as well as the risk of infringement of such rights, and the NFPA disclaims liability for the infringement of any patent resulting from the use of or reliance on NFPA Standards.

NFPA adheres to the policy of the American National Standards Institute (ANSI) regarding the inclusion of patents in American National Standards ("the ANSI Patent Policy"), and hereby gives the following notice pursuant to that policy:

NOTICE: The user's attention is called to the possibility that compliance with an NFPA Standard may require use of an invention covered by patent rights. NFPA takes no position as to the validity of any such patent rights or as to whether such patent rights constitute or include essential patent claims under the ANSI Patent Policy. If, in connection with the ANSI Patent Policy, a patent holder has filed a statement of willingness to grant licenses under these rights on reasonable and nondiscriminatory terms and conditions to applicants desiring to obtain such a license, copies of such filed statements can be obtained, on request, from NFPA. For further information, contact the NFPA at the address listed below.

Law and Regulations

Users of NFPA Standards should consult applicable federal, state, and local laws and regulations. NFPA does not, by the publication of its codes, standards, recommended practices, and guides, intend to urge action that is not in compliance with applicable laws, and these documents may not be construed as doing so.

Copyrights

NFPA Standards are copyrighted. They are made available for a wide variety of both public and private uses. These include both use, by reference, in laws and regulations, and use in private self-regulation, standardization, and the promotion of safe practices and methods. By making these documents available for use and adoption by public authorities and private users, the NFPA does not waive any rights in copyright to these documents.

Use of NFPA Standards for regulatory purposes should be accomplished through adoption by reference. The term "adoption by reference" means the citing of title, edition, and publishing information only. Any deletions, additions, and changes desired by the adopting authority should be noted separately in the adopting instrument. In order to assist NFPA in following the uses made of its documents, adopting authorities are requested to notify the NFPA (Attention: Secretary, Standards Council) in writing of such use. For technical assistance and questions concerning adoption of NFPA Standards, contact NFPA at the address below.

For Further Information

All questions or other communications relating to NFPA Standards and all requests for information on NFPA procedures governing its codes and standards development process, including information on the procedures for requesting Formal Interpretations, for proposing Tentative Interim Amendments, and for proposing revisions to NFPA standards during regular revision cycles, should be sent to NFPA headquarters, addressed to the attention of the Secretary, Standards Council, NFPA, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101; email: stds_admin@nfpa.org.

For more information about NFPA, visit the NFPA website at www.nfpa.org. All NFPA codes and standards can be viewed at no cost at www.nfpa.org/docinfo.

NFPA® 80

Standard for

Fire Doors and Other Opening Protectives

2019 Edition

This edition of NFPA 80, *Standard for Fire Doors and Other Opening Protectives*, was prepared by the Technical Committee on Fire Doors and Windows. It was issued by the Standards Council on May 4, 2018, with an effective date of May 24, 2018, and supersedes all previous editions.

This edition of NFPA 80 was approved as an American National Standard on May 24, 2018.

Origin and Development of NFPA 80

The *Standard for Fire Doors and Other Opening Protectives* can be traced to the early days of the NFPA. Reports covering various phases of the problems of protectives for openings were submitted to the Association by several of the committees concerned and were adopted in 1897, 1898, 1899, 1900, 1901, 1902, and 1908. In 1911, a standard on door openings was presented and adopted, and in 1912, *Rules for Fire Protection Coverings for Openings in Walls and Partitions on the Interior of Buildings* was adopted. In 1915, the existing rules were recodified and reorganized. In 1916, the committee in charge of this document was renamed the Committee on Protection of Openings in Walls and Partitions. Revisions recommended by the committee were adopted by the NFPA in 1916, 1917, 1918, 1926, 1927, 1928, 1931, 1937, and 1941.

In 1955, the committee was renamed the Committee on Fire Doors and Windows. In 1959, a complete revision of the 1941 edition, including changing the title to correspond with the name of the committee, was adopted. The standard was revised again in 1961, 1962, 1965, 1966, 1967, 1968, 1970, 1973, 1974, 1975, 1977, 1979, 1981, 1983, 1986, and 1990.

In 1992, the committee changed the title of the document to *Standard for Fire Doors and Fire Windows*. Major changes in the 1992 edition included additions to the standard that recognized the technological changes in glazing materials for fire barrier openings and appendix material on radiant heat transfer. Radiant heat transfer, while not included in the performance requirements for fire doors and fire windows, is a consideration in the design of fire barriers.

The 1995 edition reorganized Chapter 2 for better usability, with many changes to improve consistency. Appendix J was updated to provide more current information on radiant heat transfer.

The chapters were reorganized in the 1999 edition to correlate the section numbers and their requirements. Requirements that are common to all doors, such as clearances and detection, were moved to Chapter 1.

The 2007 edition included a major reorganization in accordance with the *Manual of Style for NFPA Technical Committee Documents* and a title change to accommodate the broader scope of the document. (The 8-year gap between the 1999 and 2007 editions was due to NFPA 80 being returned to committee during the Fall 2002 revision cycle.) New chapters on fabric fire safety curtains and the installation, testing, and maintenance of fire dampers were added. Major technical changes pertained to the maximum clearance permitted under the bottom of doors, new provisions regarding the care and maintenance of fire doors and fire windows, the option for developing performance-based maintenance activities provisions, and provisions regarding chute doors, fire shutters, rolling steel doors, and service counter doors. New information concerning floor fire door assemblies and ratings associated with glazing materials also was added.

The 2010 edition included technical changes for the installation of glazing material in vision panels for new wood doors, installation of glazing and light kits, repair of doors and windows, operation of chute doors, and replacement provisions. The terms *fire protection glazing* and *fire resistance glazing* were made consistent throughout the document to clarify the distinctions between fire protection glazing and fire resistance glazing. Updates also were made to several definitions in

Chapter 3. The document continued to make editorial changes and update terminology to be consistent with industry practices.

The 2013 edition of NFPA 80 included a complete editorial reorganization of Chapter 5 to better organize and present the provisions for the inspection, testing, and maintenance of fire doors. Technical revisions were made to Chapter 5 to clarify its application to include all fire doors, fire shutters, and fire window assemblies, as well as update provisions to field modifications and the requirement that acceptance testing for fire doors must be completed by a qualified person. Multiple annex notes were added to aid in the application of field modifications, generic use of opening protectives, periodic inspections, and inspection and testing reports. A new section on records for acceptance tests was included in Chapter 5.

In addition, the 2013 edition of NFPA 80 included provisions for the installation of fusible links in sleeves, new language to address continuous hinges, and revisions related to power operators for special-purpose horizontally sliding accordion or folding doors. The committee also updated definitions and terminology throughout the document to reflect the current industry practices.

The 2016 edition of NFPA 80 recognized several new technical issues, including provisions for drilling raceways for wires when performed at the job site; detailed provisions for information required to be included on a label for fire doors, fire door frames, fire windows, and oversized doors; provisions for addressing fire doors too large to be fire tested; recognition of the use of products evaluated for fire doors that exceed the maximum allowable bottom clearance; provisions for field labeling procedures and field label information; and new provisions for the maximum allowable clearance between a pair of swinging doors and between the door and frame, depending on the door material. New provisions for the acceptable testing of fire dampers and new detailed requirements for the specific test methods required during periodic tests of fire dampers were also included. A new opening protective was addressed in the new Chapter 21, Fire Protective Curtain Assemblies, which provides requirements related to the installation, inspection, testing, and maintenance of those assemblies installed to protect vertical openings.

Requirements for glazing labeling were included in Chapter 4 and duplicated the information found in model building and life safety codes to make the application of glazing provisions more user friendly. Additional technical updates were made to provisions for actuation devices for fire doors, fire shutters, and fire windows, as well as fire door maintenance procedures. Provisions for chute doors were revised to include extracted text from NFPA 82, *Standard on Incinerators and Waste and Linen Handling Systems and Equipment*. Finally, definitions were added and updated along with referenced publications to maintain the requirements and application of NFPA 80 current with industry trends and practices.

The 2019 edition includes new definitions in Chapter 3 for *inspection mark* and *field label* to assist in the application of inspection, testing, and maintenance provisions in Chapter 5. Chapter 4 contains updated provisions for job site preparation of fire doors for fire pins. Subsection 4.8.4 has been updated with new provisions for measuring clearance under the bottom of fire doors and with a new requirement addressing bottom clearance with the presence of latching hardware devices. Chapter 5 has been updated to include fire protective curtain assemblies in its application and a new section that addresses inspection marks. New subsection 19.2.2 requires damper manufacturer's installation and maintenance instructions be maintained on site for new damper installations. The detailed damper installation criteria from Chapter 19 have been deleted and left with reliance on the damper manufacturer's installation instructions and the damper listing. Chapter 19 also continues to update the requirements for the inspection, testing, and maintenance of fire and combination fire/smoke dampers with the addition of new 19.5.2.3.3 for a remote inspection method. A new 19.5.1.3 clarifies application of inspection requirements for single inaccessible dampers. Annex A contains new and revised figures for typical steel door frame installations. Globally, ANSI UL 10B, *Fire Tests of Door Assemblies*, and ANSI UL 10C, *Standard for Positive Pressure Fire Tests of Door Assemblies*, have been added as equivalent standards to NFPA 252. Editorial updates have been made to Chapter 4 and Chapter 5 to clean up duplicate language and relocate text to the appropriate sections. Referenced publications and extracted sections have been updated as needed.

Technical Committee on Fire Doors and Windows

Keith E. Pardoe, *Chair*
Pardoe Consulting LLC, VA [SE]

Chad E. Beebe, ASHE - AHA, WA [U]

Bruce G. Campbell, JENSEN HUGHES, TX [SE]

William Conner, Bill Conner Associates LLC, IL [SE]
Rep. American Society of Theater Consultants

Richard L. Cravy, Ruskin Company, MO [M]

David Dawdy, Cornell Iron Works, Inc., PA [IM]
Rep. International Door Association

Cheryl L. Domnitch, Won Door Corporation, CA [M]

Luc Durand, Saskatoon Fire Department, Canada [E]

Marty Gissel, Greenheck Fan, WI [M]

Jerrold S. Gorrell, Theatre Safety Programs, AZ [IM]
Rep. U.S. Institute for Theatre Technology, Inc.

Jeffrey E. Gould, FM Global, MA [I]

Anne M. Guglielmo, Liberty Mutual Insurance, IL [I]

Steven C. Hahn, Lawrence Roll-Up Doors, Inc., CA [M]
Rep. Door & Access Systems Manufacturers Assn. International

Harold D. Hicks, Jr., Atlantic Code Consultants, PA [SE]

Thomas R. Janicak, Ceco Door Products, IL [M]
Rep. Steel Door Institute

William E. Koffel, Koffel Associates, Inc., MD [M]
Rep. Glazing Industry Code Committee

Keith Lippincott, University of Maryland, MD [E]

Vernon J. Patton, First Energy Corporation, OH [U]

James S. Peterkin, TLC Engineering, PA [U]
Rep. NFPA Health Care Section

Michael Puls, Intertek, WI [RT]
Rep. Intertek Testing Services

Steven P. Reynolds, The Peelle Company Ltd., Canada [M]
Rep. National Elevator Industry Inc.

Ronald Rispoli, Entergy Corporation, AR [U]

Thomas M. Rubright, William S. Trimble Company, Inc., TN [M]
Rep. Door and Hardware Institute

Michael L. Savage, Sr., City of Rio Rancho, NM [E]

Steve Schreiber, Masonite, TN [M]
Rep. Window & Door Manufacturers Association

Duane R. Smith, National Energy Management Institute Inc., IN [M]

Robert W. Stubblefield, AREVA NP Inc., TX [SE]

Michael Tierney, Kellen Company, CT [M]
Rep. Builders Hardware Manufacturers Association

Garrett S. Tom, International Fire Door Inspector Association, NV [U]

Yunyong Pock Utiskul, Exponent, Inc., MD [SE]

Luke C. Woods, UL LLC, MA [RT]

Anthony W. Yuen, Berkeley Fire Department, CA [E]

Alternates

Joel Bonnell, Raynor Garage Doors, IL [M]
(Alt. to Steven C. Hahn)

Kevin L. Brinkman, National Elevator Industry, Inc., IL [M]
(Alt. to Steven P. Reynolds)

Daniel J. Culhane, Wenger Corporation, MN [IM]
(Alt. to Jerrold S. Gorrell)

Michael F. Daly, FM Global, MA [I]
(Alt. to Jeffrey E. Gould)

Thomas Resciniti Demont, Technical Services Inc., PA [U]
(Alt. to Garrett S. Tom)

William F. Guffey, University of Maryland, MD [E]
(Alt. to Keith Lippincott)

John Hamilton, National Energy Management Institute, MN [SE]
(Voting Alt.)

Daisy R. Harington, City Of Saskatoon Building Standards, Canada [E]
(Alt. to Luc Durand)

Justin Scott Hendricks, Intertek, WI [RT]
(Alt. to Michael Puls)

Daniel Hibbs, Eggers Industries, WI [M]
(Alt. to Steve Schreiber)

Kent Maune, Ruskin Manufacturing, MO [M]
(Alt. to Richard L. Cravy)

Alfredo M. Ramirez, UL LLC, IL [RT]
(Alt. to Luke C. Woods)

Kurt A. Roeper, ASSA ABLOY, CT [M]
(Alt. to Thomas R. Janicak)

Garry Stewart, The Doorman Service Company, Inc., WA [IM]
(Alt. to David Dawdy)

David V. Tomecek, JENSEN HUGHES, CO [SE]
(Alt. to Bruce G. Campbell)

Rodney Weaver, Door and Hardware Institute, NC [M]
(Alt. to Thomas M. Rubright)

John Woestman, Kellen Company, IA [M]
(Alt. to Michael Tierney)

Thomas Zaremba, Roetzel and Andress, OH [M]
(Alt. to William E. Koffel)

Nonvoting

Joseph N. Saino, Memphis, TN [SE]
(Member Emeritus)

Kristin Bigda, NFPA Staff Liaison

This list represents the membership at the time the Committee was balloted on the final text of this edition. Since that time, changes in the membership may have occurred. A key to classifications is found at the back of the document.

NOTE: Membership on a committee shall not in and of itself constitute an endorsement of the Association or any document developed by the committee on which the member serves.

Committee Scope: This Committee shall have primary responsibility for documents on the installation and maintenance of fire doors, windows, shutters, and other equipment used to restrict the spread of fire, including arrangements for automatic operation in case of fire. This includes installation to protect buildings against external fire and to restrict the spread of fire within buildings. Vault and record room doors are covered by the Technical Committee on Record Protection.

Contents

NFPA 80

Standard for

Fire Doors and Other Opening Protectives

2019 Edition

IMPORTANT NOTE: This NFPA document is made available for use subject to important notices and legal disclaimers. These notices and disclaimers appear in all publications containing this document and may be found under the heading "Important Notices and Disclaimers Concerning NFPA Standards." They can also be viewed at www.nfpa.org/disclaimers or obtained on request from NFPA.

UPDATES, ALERTS, AND FUTURE EDITIONS: New editions of NFPA codes, standards, recommended practices, and guides (i.e., NFPA Standards) are released on scheduled revision cycles. This edition may be superseded by a later one, or it may be amended outside of its scheduled revision cycle through the issuance of Tentative Interim Amendments (TIAs). An official NFPA Standard at any point in time consists of the current edition of the document, together with all TIAs and Errata in effect. To verify that this document is the current edition or to determine if it has been amended by TIAs or Errata, please consult the National Fire Codes® Subscription Service or the "List of NFPA Codes & Standards" at www.nfpa.org/docinfo. In addition to TIAs and Errata, the document information pages also include the option to sign up for alerts for individual documents and to be involved in the development of the next edition.

NOTICE: An asterisk (*) following the number or letter designating a paragraph indicates that explanatory material on the paragraph can be found in Annex A.

A reference in brackets [ ] following a section or paragraph indicates material that has been extracted from another NFPA document. As an aid to the user, the complete title and edition of the source documents for extracts in mandatory sections of the document are given in Chapter 2 and those for extracts in informational sections are given in Annex L. Extracted text may be edited for consistency and style and may include the revision of internal paragraph references and other references as appropriate. Requests for interpretations or revisions of extracted text shall be sent to the technical committee responsible for the source document.

Information on referenced publications can be found in Chapter 2 and Annex L.

Chapter 1 Administration

1.1* Scope. This standard regulates the installation and maintenance of assemblies and devices used to protect openings in walls, floors, and ceilings against the spread of fire and smoke within, into, or out of buildings.

1.1.1* With the exception of fabric fire safety curtain assemblies, this standard addresses assemblies that have been subjected to standardized fire tests. *(See Chapter 20.)*

1.1.2* Incinerator doors, record room doors, and vault doors are not covered in this standard.

1.1.3* Requirements for horizontally sliding, vertically sliding, and swinging doors as used in this standard do not apply to hoistway doors for elevators and dumbwaiters.

1.1.4* This standard does not cover fire resistance glazing materials and horizontally sliding accordion or folding assemblies fabricated for use as walls and tested as wall assemblies in accordance with ASTM E119, *Standard Test Methods for Fire Tests of Building Construction and Materials,* or ANSI/UL 263, *Standard for Fire Tests of Building Construction and Materials.*

1.2 Purpose.

1.2.1 The purpose of this document is to set national standards for the installation and maintenance of assemblies used to protect openings in walls, floors, and ceilings to prevent or retard the spread of fire and smoke within, into, or out of buildings.

1.2.2 This document is also intended to give guidance to authorities having jurisdiction (AHJs) so they can determine in the field if an assembly meets the requirements and standards outlined in this document and if maintenance standards have been maintained.

1.2.3* It is not the purpose of this standard to establish the degree of protection required or to constitute the approval of any product.

1.3* Retroactivity.

1.3.1 This standard is based on product and engineering practices recognized as acceptable at the date of issue.

1.3.2 Unless otherwise noted, it is not intended that the provisions of this document be applied to facilities, equipment, structures, or installations that were existing or approved for construction or installation prior to the effective date of the document.

1.3.3 In those cases where it is determined by the AHJ that the existing situation involves a distinct hazard to life or property, retroactive application of the provisions of this document shall be permitted.

1.4 Equivalency.

1.4.1* This standard shall not prohibit the development of new, modified, or improved devices that meet the intent of these requirements.

1.4.2 It shall be the responsibility of the manufacturer to furnish the information necessary to update the requirements pertaining to such new and improved devices.

1.4.3 For devices not described in this standard, the AHJ shall request descriptive information from manufacturers that is provided by a testing laboratory concerning acceptable methods for satisfactory field installation based on fire tests and engineering studies for operation and maintenance considerations, where applicable.

Chapter 2 Referenced Publications

2.1 General. The documents or portions thereof listed in this chapter are referenced within this standard and shall be considered part of the requirements of this document.

2.2 NFPA Publications. National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471.

NFPA 4, *Standard for Integrated Fire Protection and Life Safety System Testing,* 2018 edition.

NFPA 72®, National Fire Alarm and Signaling Code®, 2019 edition.

NFPA 90A, *Standard for the Installation of Air-Conditioning and Ventilating Systems,* 2018 edition.

NFPA 105, *Standard for Smoke Door Assemblies and Other Opening Protectives,* 2019 edition.

NFPA 252, *Standard Methods of Fire Tests of Door Assemblies,* 2017 edition.

NFPA 253, *Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source,* 2015 edition.

NFPA 257, *Standard on Fire Test for Window and Glass Block Assemblies,* 2017 edition.

NFPA 288, *Standard Methods of Fire Tests of Horizontal Fire Door Assemblies Installed in Horizontal Fire Resistance–Rated Assemblies,* 2017 edition.

NFPA 701, *Standard Methods of Fire Tests for Flame Propagation of Textiles and Films,* 2015 edition.

2.3 Other Publications.

2.3.1 ASME Publications. American Society of Mechanical Engineers, Two Park Avenue, New York, NY 10016-5990.

ASME A17.1/CSA B44–2016, *Safety Code for Elevators and Escalators*, 2016.

2.3.2 ASTM Publications. ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.

ASTM A36/A36M, *Standard Specification for Carbon Structural Steel*, 2014.

ASTM D4157, *Standard Test Method for Abrasion Resistance of Textile Fabrics (Oscillatory Cylinder Method)*, 2013 (2017).

ASTM D5034, *Standard Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test)*, 2016.

ASTM D6193, *Standard Practice for Stitches and Seams*, 2016.

ASTM E119, *Standard Test Methods for Fire Tests of Building Construction and Materials*, 2016a.

ASTM E648, *Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source,*2017.

2.3.3 BHMA Publications. Builders Hardware Manufacturers Association, 355 Lexington Avenue, 15th Floor, New York, NY 10017.

ANSI/BHMA A156.1, *Standard for Butts and Hinges*, 2017.

ANSI/BHMA A156.4, *Standard for Door Controls (Closers)*, 2013.

ANSI/BHMA A156.17, *Standard for Self Closing Hinges & Pivots*, 2014.

ANSI/BHMA A156.26, *American National Standard for Continuous Hinges*, 2017.

N **2.3.4 FM Publications.** FM Global, 270 Central Avenue, P.O. Box 7500, Johnston, RI 02919. www.fmglobal.com

FM 3210, *Heat Detectors For Automatic Fire Alarm Signaling*, 2007 edition.

2.3.5 GSA Publications. U.S. General Services Administration, 1800 F Street, NW, Washington, DC 20405.

Federal Specification A-A-1923A, *Shield Expansion (Lag, Machine and Externally Threaded Wedge)*, 1995.

Federal Specification A-A-1924A, *Shield, Expansion (Self Drilling Tubular Expansion Shell Bolt)*, 1995.

Federal Specification A-A-55614, *Shield, Expansion (Non-Drilling Expansion Anchors)*, 1995.

•

Δ **2.3.6 UL Publications.** Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096.

ANSI/UL 9, *Standard for Fire Tests of Window Assemblies*, 2009.

ANSI/UL 10A, *Standard for Tin-Clad Fire Doors*, 2009.

ANSI/UL 10B, *Standard for Fire Tests of Fire Door Assemblies,* 2008.

ANSI/UL 10C, *Standard for Positive Pressure Fire Tests of Door Assemblies,*2016.

ANSI/UL 10D, *Fire Tests for Fire Protective Curtain Assemblies*, 2017.

ANSI/UL 14C, *Swing Hardware for Tin-Clad Fire Doors Mounted Singly and in Pairs*, 2006.

ANSI/UL 33, *Standard for Heat Responsive Links for Fire-Protection Services*, revised 2010.

ANSI/UL 263, *Standard for Fire Tests of Building Construction and Materials*, 2011.

ANSI/UL 555, *Standard for Fire Dampers,*2009.

ANSI/UL 864, *Standard for Control Units and Accessories for Fire Alarm Systems*, 2014.

2.3.7 Other Publications.

Merriam-Webster's Collegiate Dictionary, 11th edition, Merriam-Webster, Inc., Springfield, MA, 2003.

2.4 References for Extracts in Mandatory Sections.

*NFPA 72®, National Fire Alarm and Signaling Code®,*2019 edition.

NFPA 82, *Standard on Incinerators and Waste and Linen Handling Systems and Equipment,*2014 edition.

NFPA *101®, Life Safety Code®,* 2018 edition.

*NFPA 5000®, Building Construction and Safety Code®,*2018 edition.

Chapter 3 Definitions

3.1 General. The definitions contained in this chapter shall apply to the terms used in this standard. Where terms are not defined in this chapter or within another chapter, they shall be defined using their ordinarily accepted meanings within the context in which they are used. *Merriam-Webster's Collegiate Dictionary*, 11th edition, shall be the source for the ordinarily accepted meaning.

3.2 NFPA Official Definitions.

3.2.1* Approved. Acceptable to the authority having jurisdiction.

3.2.2* Authority Having Jurisdiction (AHJ). An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure.