

NFPA 5000®

Building Construction and Safety Code®

2009 Edition



NFPA, 1 Batterymarch Park, Quincy, MA 02169-7471
An International Codes and Standards Organization

IMPORTANT NOTICES AND DISCLAIMERS CONCERNING NFPA DOCUMENTS

NOTICE AND DISCLAIMER OF LIABILITY CONCERNING THE USE OF NFPA DOCUMENTS

NFPA codes, standards, recommended practices, and guides, 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 its codes and 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 this document. The NFPA also makes no guaranty or warranty as to the accuracy or completeness of any information published herein.

In issuing and making this document 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 this document. 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.

ADDITIONAL NOTICES AND DISCLAIMERS

Updating of NFPA Documents

Users of NFPA codes, standards, recommended practices, and guides should be aware that these documents may be superseded at any time by the issuance of new editions or may be amended from time to time through the issuance of Tentative Interim Amendments. An official NFPA document 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 Documents

A statement, written or oral, that is not processed in accordance with Section 6 of the Regulations Governing Committee Projects 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 asserted in connection with any items which are mentioned in or are the subject of NFPA codes, standards, recommended practices, and guides, and the NFPA disclaims liability for the infringement of any patent resulting from the use of or reliance on these documents. Users of these documents are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, is entirely their own responsibility.

NFPA adheres to applicable policies of the American National Standards Institute with respect to patents. For further information contact the NFPA at the address listed below.

Law and Regulations

Users of these documents 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

This document is copyrighted by the NFPA. It is 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 this document available for use and adoption by public authorities and private users, the NFPA does not waive any rights in copyright to this document.

Use of NFPA documents 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 documents, contact NFPA at the address below.

For Further Information

All questions or other communications relating to NFPA codes, standards, recommended practices, and guides 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 documents 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.

For more information about NFPA, visit the NFPA website at www.nfpa.org.

Copyright © 2008 National Fire Protection Association®. All Rights Reserved.

NFPA 5000®

Building Construction and Safety Code®

2009 Edition

This edition of *NFPA 5000, Building Construction and Safety Code*, was prepared by the Committees on the Building Code and released by the Technical Correlating Committee on Building Code, and acted on by NFPA at its June Association Technical Meeting held June 2-5, 2008, in Las Vegas, NV. It was issued by the Standards Council on July 24, 2008, with an effective date of October 10, 2008, and supersedes all previous editions.

Tentative interim amendments (TIAs) to 2.3.7 and Section 41.5 were issued on July 24, 2008. For further information on tentative interim amendments, see Section 5 of the NFPA Regulations Governing Committee Projects available at: <http://www.nfpa.org/assets/files/PDF/CodesStandards/TIAErrataFI/TIARegs.pdf>

This edition of *NFPA 5000* was approved as an American National Standard on October 10, 2008.

Origin and Development of NFPA 5000

The inaugural 2003 edition of *NFPA 5000®*, *Building Construction and Safety Code®*, was issued in 2002 and was the first model building code developed using the full open consensus-based procedures accredited by the American National Standards Institute. The first edition marked the culmination of NFPA's more than 100 years of experience in developing voluntary consensus-based codes and standards related to the built environment. From the *Life Safety Code®* to the *National Electrical Code®*, sprinkler installation, fuel gas, and myriad other occupancy-specific and installation standards, NFPA codes and standards, as well as the codes and standards of other consensus-based standards development organizations, have addressed almost every aspect of the built environment. The significant gap in the code regime for the built environment, however, had been the lack of a model building code developed using the ANSI procedures.

NFPA's *Building Code* endeavors to be responsive to the needs of the enforcement, user, and design communities and to be consistent with the other principles of code development to which NFPA adheres. In addition, the *Code* is updated in response to, and, in some cases, in anticipation of, emerging technologies, or as society looks to code developers to address new hazards. Changes to the 2009 edition are consistent with the established goals and objectives that work to deliver a safe, usable, and functional building at the end of the design process.

In addition to fire, a design hazard that always has been, and always will be, a major component of any building code, *NFPA 5000* provides requirements for other design provisions, including natural hazards, accessibility, and building interior environmental issues.

Consistent with NFPA's performance-based code initiative, *NFPA 5000* establishes a clear set of goals and objectives for specifying the expected outcome for occupant safety, building use, and building performance based on the *Code* requirements. The goals and objectives also extend to the expected outcome for a building, its contents, and its mission, when applicable. The goals and objectives are critical in allowing those affected by codes to exercise the performance-based design approach. In addition, they can be used as a tool for evaluating equivalency provisions on project-specific jobs or designs.

Much of the criteria in *NFPA 5000* is derived from, and is coordinated with, numerous sources, including the American Society of Civil Engineers (ASCE), the Federal Emergency Management Agency (FEMA), and the Access Board, among others. The all-hazard design provisions for *NFPA 5000* are rounded out with the use of criteria that include elements for a range of hazard and design scenarios, design loads, and natural hazard mitigation.

Several changes to this edition of *NFPA 5000* are a direct result of the September 2001 terrorist attacks. Although the 2003 and 2006 editions of *NFPA 5000* addressed numerous issues related to that event and the broader issue of hostile acts in general, many of the initial recommendations have become more refined, and the concepts have matured enough to be considered in the *Code*. The newly introduced concept of *situation awareness* has been added.



This concept codifies the process by which building occupants and first responders process the information at hand. A new adoptable annex dealing with elevators for occupant evacuation has been added. The addition of this section is the preliminary result of an ongoing 4-year, multiple-organization effort to establish the correct set of circumstances and requirements to ensure safe use of elevators for building occupants under certain fire conditions. A related change to Chapter 54 outlines the performance criteria for elevators intended for first responder use. Also related to this category are changes introduced in Chapters 4 and 5 that relate to collapse prevention design under a fire load.

A number of changes relating to specific means of egress criteria have also been included. These include an option for elevator lobby exit access door locking and application of the remoteness concept to all of the major egress components. Provisions have been added to govern an expanded use of locking procedures for health care occupancies, including those necessary for various security purposes.

Finally, a global change to the *Code* has been made concerning the various terms used to describe points of reference for building heights. Numerous sections of the *Code* have been revised to utilize terms such as *grade*, *grade plane*, and *number of stories* on a consistent basis.

ASCE definitions are reprinted with permission from ASCE. ASTM definitions are reprinted, with permission, from ASTM D1079 – 08a, *Standard Terminology Relating to Roofing and Waterproofing*, copyright ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428.



COMMITTEES ON BUILDING CODE

Technical Correlating Committee (BLD-AAC)

Jerry Wooldridge, *Chair*
Reedy Creek Improvement District, FL [E]

Wayne G. Carson, *Secretary*
Carson Associates, Incorporated, VA [SE]

Robert E. Solomon, *Nonvoting Secretary*
National Fire Protection Association, MA

Diane D. Matthews, *Nonvoting Recording Secretary Administrative Secretary*
National Fire Protection Association, MA

Carl F. Baldassarra, Schirmer Engineering Corporation,
IL [U]

Rep. American Hotel & Lodging Association

Robert Bourke, Lynn Fire Department, MA [E]

Rep. International Fire Marshals Association

George Capko, Jr., FM Global, MA [I]

David S. Collins, The Preview Group, Incorporated,
OH [SE]

Rep. American Institute of Architects

Salvatore DiCristina, Rutgers, The State University of
New Jersey, NJ [E]

Rep. Building Code Development Committee

David Frable, U.S. General Services Administration,
IL [U]

Sam W. Francis, American Forest & Paper Association,
PA [M]

Raymond N. Hansen, U.S. Department of the Air Force,
FL [U]

Howard Hopper, Underwriters Laboratories
Incorporated, CA [RT]

Bill Hopple, Tyco/SimplexGrinnell, CA [M]

Rep. National Electrical Manufacturers Association

Jeffrey M. Hugo, National Fire Sprinkler Association,
Inc., MI [M]

Thomas W. Jaeger, Jaeger and Associates, LLC, VA [U]

Rep. American Health Care Association

Joseph M. Jardin, New York City Fire Department, NY [C]

Rep. NFPA Fire Service Section

Gerald H. Jones, Kansas City, MO [E]

Rep. Building Seismic Safety Council/Code Resource
Support Committee

Jerry W. Jones, Louisiana Department of Public Safety,
LA [E]

Rep. National Conference of States on Building Codes
& Standards Incorporated

John E. Kampmeyer, Triad Fire Protection Engineering
Corporation, PA [SE]

Rep. National Society of Professional Engineers

Kenneth E. Lauziere, U.S. Office of the Architect of the
Capitol, DC [E]

Russell B. Leavitt, TVA Fire and Life Safety, Inc., AZ [IM]

Rep. American Fire Sprinkler Association

John V. Loscheider, Loscheider Engineering Company,
WA [SE]

Rep. National Council of Structural Engineers
Associations

Joseph J. Messersmith, Jr., Portland Cement Association,
VA [M]

Michael T. Newman, Johnson & Johnson, NJ [U]

Rep. NFPA Industrial Fire Protection Section

Ronald G. Nickson, National Multi Housing Council,
DC [U]

Jake Pauls, Jake Pauls Consulting Services in Building
Use & Safety, MD [C]

Rep. American Public Health Association

Rober J. Wills, American Iron and Steel Institute, AL [M]

Alternates

John F. Bender, Underwriters Laboratories Inc., MD [RT]
(Alt. to H. Hopper)

Kathleen M. Eckert, Bank of New York, NY [U]
(Alt. to M. T. Newman)

Timothy Edwards, Alcan Cable Company, GA [M]
(Alt. to B. Hopple)

Joshua W. Elvove, U.S. General Service Administration,
CO [U]
(Alt. to D. Frable)

John C. Harrington, FM Global, MA [I]
(Alt. to G. Capko)

Roland J. Huggins, American Fire Sprinkler Association,
Inc., TX [IM]
(Alt. to R. B. Leavitt)

Christopher P. Jones, Christopher P. Jones & Associates,
NC [E]
(Alt. to G. H. Jones)

Bonnie E. Manley, American Iron and Steel Institute,
MA [M]
(Alt. to R. J. Wills)

Thomas M. Moses, Reedy Creek Improvement District,
FL [E]

(Alt. to J. Wooldridge)

Dennis L. Pitts, American Forest & Paper Association,
TX [M]

(Alt. to S. W. Francis)

Joseph A. Simone, U.S. Department of the Navy, DC [U]
(Alt. to R. N. Hansen)

Stephen V. Skalko, Portland Cement Association, GA [M]
(Alt. to J. J. Messersmith)

Daniel M. Troxell, Washington, DC Fire Department,
MD [C]

(Alt. to J. M. Jardin)

Leon F. Vinci, Health Promotion Consultants, NE [C]
(Alt. to J. Pauls)

Nonvoting

Warren D. Bonisch, Schirmer Engineering Corporation, TX [I]

Rep. TC on Residential Occupancies

Kenneth E. Bush, Maryland State Fire Marshals Office, MD [E]

Rep. TC on Mercantile and Business Occupancies

Michael DiMascio, Arup Fire, MA [SE]

Rep. TC on Detention and Correctional Occupancies

William E. Fitch, Phyrefish Enterprises, Inc., FL [SE]

Rep. TC on Furnishings and Contents

Ralph Gerdes, Ralph Gerdes Consultants, LLC, IN [SE]

Rep. TC on Assembly Occupancies and Membrane Structures

Wayne D. Holmes, HSB Professional Loss Control, NC [I]

Rep. TC on Industrial, Storage, and Miscellaneous Occupancies

Morgan J. Hurley, Society of Fire Protection Engineers, MD [U]

Rep. TC on Fundamentals

Philip R. Jose, Guilderland, NY [SE]

Rep. TC on Board and Care Facilities

Richard L. Klinker, Klinker & Associates, Incorporated, MD [SE]

Rep. TC on Building Service and Fire Protection Equipment

James K. Lathrop, Koffel Associates, Incorporated, CT [SE]

Rep. TC on Means of Egress

Daniel J. O'Connor, Schirmer Engineering Corporation, IL [I]

Rep. TC on Health Care Occupancies

James R. Quiter, Arup Fire, CA [SE]

Rep. Safety to Life Correlating Committee

John A. Rickard, Olicon, Inc., TX [SE]

Rep. TC on Building Systems

Eric R. Rosenbaum, Hughes Associates, Incorporated, MD [SE]

Rep. TC on Fire Protection Features

Aleksy L. Szachnowicz, Anne Arundel County Public Schools, MD [U]

Rep. TC on Educational and Day-Care Occupancies

Joseph H. Versteeg, Versteeg Associates, CT [E]

Rep. TC on Building Construction

Peter J. Wilsse, XL Global Asset Protection Services, CT [I]

Rep. TC on Structures, Construction, and Materials

Robert E. Solomon, 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 or portions of documents on the design and construction of every building or structure, including structural design methods and techniques, as well as the design of integrated building systems for health, safety, comfort, and convenience.

Technical Committee on Assembly Occupancies and Membrane Structures (BLD-AXM)

Ralph Gerdes, *Chair*

Ralph Gerdes Consultants, LLC, IN [SE]

Ron Coté, *Nonvoting Secretary*

National Fire Protection Association, MA

Scott W. Adams, Park City Fire Service District, UT [E]

Rep. International Fire Marshals Association

Stanton M. Alexander, North American Testing Company, FL [M]

Scott R. Bartlett, Tyco/Simplex Grinnell, MA [M]

Rep. National Electrical Manufacturers Association

Raymond J. Battalora, Schirmer Engineering Corporation, TX [I]

David L. Bowman, National Fire Sprinkler Association, Inc., FL [M]

George D. Bushey, Rosser International, GA [SE]

William Conner, Bill Conner Associates, LLC, IL [SE]

Rep. American Society of Theater Consultants

Bhola Dhume, City of New Orleans, LA [E]

Ronald R. Farr, Kalamazoo Township Fire Department, MI [E]

Rep. Michigan Fire Inspectors Society

Robert D. Fiedler, City of Lincoln, NE [E]

William E. Fitch, Phyrefish Enterprises, Inc., FL [SE]

Wesley W. Hayes, Polk County Fire Services Division, FL [E]

Rep. International Fire Marshals Association

Jonathan R. Humble, American Iron and Steel Institute, CT [M]

John Lake, Marion County Fire Rescue, FL [E]

Rep. NE Florida Fire Prevention Association

Vern L. Martindale, Church of Jesus Christ of Latter-Day Saints, UT [U]

Gregg R. McManners, City of Madison, WI [U]

Joseph J. Messersmith, Jr., Portland Cement Association, VA [M]

Gregory R. Miller, Code Consultants, Incorporated, MO [U]

Rep. National Association of Theatre Owners

Jake Pauls, Jake Pauls Consulting Services in Building Use & Safety, MD [SE]

Steven W. Peavey, Altamonte Springs Fire Department, FL [E]

Rep. Florida Fire Marshals & Inspectors Association

Ed Roether, HOK SVE, MO [U]

Karl G. Ruling, Entertainment Services & Technology Association, NY [U]

Rep. U.S. Institute for Theatre Technology

Steven J. Scandaliato, Scandaliato Design Group, Inc., CO [IM]

Rep. American Fire Sprinkler Association

Philip R. Sherman, Philip R. Sherman, PE, NH [SE]

Jeffrey S. Tubbs, Arup Fire, MA [SE]

Paul L. Wertheimer, Crowd Management Strategies, CA [SE]



Alternates

Gene Boecker, Code Consultants, Incorporated, MO [U]
(Alt. to G. R. Miller)
David Cook, Ralph Gerdes Consultants, LLC, IN [SE]
(Alt. to R. Gerdes)
Jerrold S. Gorrell, Theatre Safety Programs, AZ [U]
(Alt. to K. G. Ruling)
Dan Hancock, International Association of Assembly Managers, TX [U]
(Alt. to G. R. McManners)
Mike Hayward, Little Tikes Commercial Play Systems Inc., MO [M]
(Voting Alt. to IPEMA Rep.)
Eugene Leitermann, Theatre Projects Consultants, Incorporated, CT [SE]
(Alt. to W. Conner)

Ron Coté, NFPA Staff Liaison

Vern T. Lewis, Church of Jesus Christ of Latter-Day Saints, UT [U]
(Alt. to V. L. Martindale)
Stephen V. Skalko, Portland Cement Association, GA [M]
(Alt. to J. J. Messersmith)
Mark V. Smith, Alachua County Fire Rescue, FL [E]
(Alt. to J. Lake)
Robert B. Treiber, National Fire Sprinkler Association, Incorporated, OH [M]
(Alt. to D. L. Bowman)
Thomas G. Wellen, American Fire Sprinkler Association, Inc., TX [IM]
(Alt. to S. J. Scandalianto)
Robert J. Wills, American Iron and Steel Institute, AL [M]
(Alt. to J. R. Humble)

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 protection of human life and property from fire and other circumstances capable of producing similar consequences, and on the non-emergency and emergency movement of people in assembly occupancies, tents, and membrane structures.

Technical Committee on Board and Care Facilities (BLD-BCF)

Philip R. Jose, *Chair*
Guilderland, NY [SE]

Gregory E. Harrington, *Nonvoting Secretary*
National Fire Protection Association, MA

Gregory J. Austin, Gentex Corporation, MI [M]
Rep. National Electrical Manufacturers Association
Warren D. Bonisch, Schirmer Engineering Corporation, TX [I]
Harry L. Bradley, Maryland State Fire Marshals Office, MD [E]
Rep. International Fire Marshals Association
Laura A. Hoffman, Volunteer State Community College, TN [SE]
Kenneth E. Isman, National Fire Sprinkler Association, Inc., NY [M]

David Ray Kiely, The Charles Lea Center, SC [U]
Rep. American Network of Community Options & Resources
James K. Lathrop, Koffel Associates, Incorporated, CT [SE]
Paul E. Patty, Underwriters Laboratories Incorporated, IL [RT]
Francis G. Reuer, U.S. Department of Health and Human Services, CO [E]
James W. Rice, U.S. Department of Veterans Affairs, MI [U]

Alternates

Kerry M. Bell, Underwriters Laboratories Incorporated, IL [RT]
(Alt. to P. E. Patty)
Margaret R. Engwer, U.S. Department of Veterans Affairs, PA [U]
(Alt. to J. W. Rice)
Oystein F. Husoe, National Fire Sprinkler Association, Inc., CA [M]
(Alt. to K. E. Isman)

Cindy Mahan, Friendship Community Care, Incorporated, AR [U]
(Alt. to D. R. Kiely)
James F. Woodford, Tyco/Simplex Grinnell, MA [M]
(Alt. to G. J. Austin)
Mayer D. Zimmerman, U.S. Department of Health and Human Services, MD [E]
(Alt. to F. G. Reuer)

Nonvoting

Harold E. Nelson, Annandale, VA [SE]
(Member Emeritus)

Gregory E. Harrington, 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 protection of human life and property from fire and other circumstances capable of producing similar consequences, and on the emergency movement of people in residential board and care facilities.

Technical Committee on Building Construction (BLD-BLC)

Joseph H. Versteeg, *Chair*
Versteeg Associates, CT [E]
Rep. International Fire Marshals Association

Hossein Davoodi, *Nonvoting Secretary*
National Fire Protection Association, MA

Jesse J. Beitel, Hughes Associates, Incorporated, MD [SE]
Robert M. Berhinig, Underwriters Laboratories
Incorporated, IL [RT]
David S. Collins, The Preview Group, Incorporated, OH
[SE]
Rep. American Institute of Architects
Richard J. Davis, FM Global, MA [I]
Alan J. Dopart, Willis of New Jersey, NJ [I]
Victor L. Dubrowski, Code Consultants, Incorporated,
MO [SE]
Bruce A. Edwards, Liberty Mutual Property, MA [I]
Rep. Property Casualty Insurers Association of America
David Frable, U.S. General Services Administration, IL [U]
Sam W. Francis, American Forest & Paper Association,
PA [M]
Daniel F. Gemeny, The RJA Group, Incorporated, CA [SE]
Joseph T. Holland, Hoover Treated Wood Products, FL [M]
Jeffrey M. Hugo, National Fire Sprinkler Association,
Inc., MI [M]

Gerald Kelliher, Washington Savannah River Company,
SC [U]
Bonnie E. Manley, American Iron and Steel Institute,
MA [M]
Joe McElvaney, Phoenix Fire Department, AZ [E]
Joseph J. Messersmith, Jr., Portland Cement Association,
VA [M]
Carmen A. Rao, City of Danbury Fire Department, CT [E]
Kathleen Reid, Intel Corporation, NM [U]
Rep. Semiconductor Industry Association
Sarah A. Rice, Schirmer Engineering Corporation, OH [I]
Brad Schiffer, Brad Schiffer/Taxis, Incorporated, FL [SE]
Rick Thornberry, The Code Consortium, Inc., CA [M]
Rep. Alliance for Fire and Smoke Containment and
Control, Inc.
Robert A. Wessel, Gypsum Association, DC [M]
Peter J. Willse, Swiss Re, Global Asset Protection Services,
CT [I]

Alternates

Scott K. Anderson, FM Global, MA [I]
(Alt. to R. J. Davis)
Michael W. Ashley, Alliance for Fire and Smoke
Containment and Control, Inc., GA [M]
(Alt. to R. Thornberry)
Robert G. Backstrom, Underwriters Laboratories
Incorporated, IL [RT]
(Alt. to R. M. Berhinig)
Raymond J. Battalora, Schirmer Engineering
Corporation, TX [I]
(Alt. to S. A. Rice)
David G. Bueche, Hoover Treated Wood Products, CO [M]
(Alt. to J. T. Holland)
Michael A. Gardner, Gypsum Association, DC [M]
(Alt. to R. A. Wessel)

William E. Koffel, Koffel Associates, Incorporated, MD [U]
(Alt. to K. Reid)
Renato R. Molina, The RJA Group, Incorporated, MD [SE]
(Alt. to D. F. Gemeny)
Dennis L. Pitts, American Forest & Paper Association,
TX [M]
(Alt. to S. W. Francis)
Stephen V. Skalko, Portland Cement Association, GA [M]
(Alt. to J. J. Messersmith)
Robert B. Treiber, National Fire Sprinkler Association,
Inc., OH [M]
(Alt. to J. M. Hugo)
Robert J. Wills, American Iron and Steel Institute, AL [M]
(Alt. to B. E. Manley)

Hossein Davoodi, 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 selection and design of types of building construction, exterior walls, building height and area, firewalls, and fire barrier walls, as they relate to the protection of life and property from fire. For the processing of NFPA 5000, Chapter 7, and Sections 8.3 and 8.4, this Committee reports directly to the NFPA 5000 TCC; whereas, for the processing of NFPA 220 and NFPA 221, this Committee does not report to the NFPA 5000 TCC.



Technical Committee on Building Service and Fire Protection Equipment (BLD-BSF)

Richard L. Klinker, *Chair*
Klinker & Associates, Incorporated, MD [SE]

Gregory E. Harrington, *Nonvoting Secretary*
National Fire Protection Association, MA

Keith A. Ball, Tyco/SimplexGrinnell, AR [M]
Harry L. Bradley, Maryland State Fire Marshals Office,
MD [E]
Rep. International Fire Marshals Association
Pat D. Brock, Oklahoma State University, OK [SE]
Phillip A. Brown, American Fire Sprinkler Association,
Incorporated, TX [IM]
Paul M. Donga, Boston Fire Department, MA [E]
Edward A. Donoghue, Edward A. Donoghue Associates,
Incorporated, NY [M]
Rep. National Elevator Industry Incorporated
Brian K. Fabel, Orr Protection Systems, Inc., OH [IM]
Rep. Fire Suppression Systems Association
Thomas P. Hammerburg, Automatic Fire Alarm
Association, Inc., FL [M]
Kenneth E. Isman, National Fire Sprinkler Association,
Inc., NY [M]

Joseph M. Jardin, New York City Fire Department, NY [C]
Rep. NFPA Fire Service Section
Ignatius Kapalczynski, Connecticut Department of Public
Safety, CT [E]
Roy C. Kimball, Brooks Equipment Company,
Incorporated, NC [M]
Rep. Fire Equipment Manufacturers' Association
Peter A. Larrimer, U.S. Department of Veterans Affairs,
PA [U]
Richard R. Osman, Schirmer Engineering Corporation,
IL [I]
Dinesh K. Patel, U.S. Department of the Navy, CA [U]
Martin H. Reiss, The RJA Group, Incorporated, MA [SE]
Lawrence J. Shudak, Underwriters Laboratories
Incorporated, IL [RT]
Carl Dewayne Wren, Austin Fire Department, TX [E]

Alternates

Lisa Marie Bossert, Schirmer Engineering Corporation,
NC [I]
(Alt. to R. R. Osman)
Robert J. Boyer, GE, Security, NJ [M]
(Alt. to T. P. Hammerberg)
James D. Brown, Oklahoma State University, OK [SE]
(Alt. to P. D. Brock)
Bruce Fraser, Fraser Fire Protection Services, MA [M]
(Alt. to K. A. Ball)
Greg Gottlieb, Hauppauge Fire District, NY [C]
(Alt. to J. M. Jardin)
Claudia Hagood, Klinker & Associates, Incorporated,
MD [SE]
(Alt. to R. L. Klinker)
Jeffrey M. Hugo, National Fire Sprinkler Association,
Inc., MI [M]
(Alt. to K. E. Isman)
Michael Kellett, Connecticut Department of Public
Safety, CT [E]
(Alt. to I. Kapalczynski)

Peter Leszczak, U.S. Department of Veterans Affairs,
CT [U]
(Alt. to P. A. Larrimer)
Stephen M. Leyton, Protection Design and Consulting,
CA [IM]
(Alt. to P. A. Brown)
John J. McSheffrey, Jr., MIJA, Incorporated, MA [M]
(Alt. to R. C. Kimball)
Gary L. Nuschler, Otis Elevator Company, CT [M]
(Alt. to E. A. Donoghue)
Andrew M. Schneider, Maryland State Fire Marshals
Office, MD [E]
(Alt. to H. L. Bradley)
Randolph W. Tucker, The RJA Group, Incorporated,
TX [SE]
(Alt. to M. H. Reiss)

Gregory E. Harrington, 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 application of fire protection systems including detection, alarm, and suppression, and the life safety impact of various building systems.

Technical Committee on Building Systems (BLD-BSY)

John A. Rickard, *Chair*

Pi Architects/Foundation Communities, TX [SE]

Allan B. Fraser, *Nonvoting Secretary*

National Fire Protection Association, MA

Stanton M. Alexander, North American Testing Company, FL [U]

William Ambreffe, City of Beverly, MA [E]

Dennis W. Bradshaw, Ralph Gerdes Consultants, LLC, IN [SE]

Edward A. Donoghue, Edward A. Donoghue Associates, Incorporated, NY [M]

Rep. National Elevator Industry Incorporated

Phil Forner, Allendale Heating Company Incorporated, MI [IM]

Rep. Air Conditioning Contractors of America

Joshua D. Greene, The RJA Group, Inc., NV [SE]

Raymond N. Hansen, U.S. Department of the Air Force, FL [U]

A. Hal Key, City of Mesa Fire Department, AZ [E]

Joe McElvaney, Phoenix Fire Department, AZ [E]

John E. Munroe, Earth Tech (Canada) Incorporated, Canada [SE]

Jim Pauley, Square D Company/Schneider Electric, KY [M]
Rep. National Electrical Code Correlating Committee

Michael J. Reeser, Santa Rosa Fire Equipment Service Incorporated, CA [IM]

Rep. California Automatic Fire Alarm Association Incorporated

Shelley Siegel, Accessible Interiors' Network, Incorporated, FL [SE]

Rep. American Society of Interior Designers

Robert Van Becelaere, Ruskin Manufacturing, MO [M]

Rep. American Society of Mechanical Engineers

William A. Webb, Shirmer Engineering Corporation, IL [I]
Rep. American Society for Heating, Refrigeration & Air Conditioning Engineers Incorporated

Alternates

Shane M. Clary, Bay Alarm Company, CA [IM]

(Alt. to M. J. Reeser)

David Cook, Ralph Gerdes Consultants, LLC, IN [SE]

(Alt. to D. W. Bradshaw)

Gary L. Nuschler, Otis Elevator Company, CT [M]

(Alt. to E. A. Donoghue)

Jack Wells, Pass & Seymour/Legrand, NC [M]

(Alt. to J. Pauley)

Allan B. Fraser, 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 application of various building systems and features that relate to convenience, health, comfort, and access to a building.

Technical Committee on Detention and Correctional Occupancies (BLD-DET)

Michael DiMascio, *Chair*

Arup Fire, MA [SE]

Ron Coté, *Nonvoting Secretary*

National Fire Protection Association, MA

James R. Ambrose, Code Consultants, Incorporated, MO [SE]

David L. Bondor, St. Paul Travelers, TX [I]

Rep. American Society of Safety Engineers

Peter J. Collins, U.S. Department of Justice, DC [U]

Randy Gaw, Correctional Service of Canada, Canada [E]

Dale M. Gigandet, Xtralis, Inc., MA [M]

Patrick G. Gordon, Philadelphia Prison System, PA [U]

Kenneth E. Isman, National Fire Sprinkler Association, Inc., NY [M]

Thomas W. Jaeger, Jaeger and Associates, LLC, VA [SE]

William E. Koffel, Koffel Associates, Incorporated, MD [SE]

Jack McNamara, Bosch Security Systems, NY [M]

Rep. National Electrical Manufacturers Association

E. Eugene Miller, Washington, DC [SE]

Robert R. Perry, Robert Perry Associates Incorporated, IL [M]

Rep. Door & Hardware Institute

Kenneth J. Schwartz, Shirmer Engineering Corporation, IL [I]

Wayne S. Smith, Texas State Fire Marshal, TX [E]

Rep. International Fire Marshals Association

David W. Spence, Corrections Corporation of America, TN [U]



Alternates

A. Larry Iseminger, Jr., Maryland State Fire Marshals
Office, MD [E]
(Alt. to W. S. Smith)

Kurt A. Roeper, Ingersoll-Rand Security Technologies,
OH [M]
(Voting Alt. to BHMA Rep.)

Ralph R. Winter, Code Consultants, Incorporated, MO [SE]
(Alt. to J. R. Ambrose)

John Younghusband, Schirmer Engineering Corporation,
CA [I]

(Alt. to K. J. Schwartz)

Doyle G. Sutton, National Fire Sprinkler Association,
Inc., CO [M]

(Alt. to K. E. Isman)

Ron Coté, 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 protection of human life and property from fire and other circumstances capable of producing similar consequences, and on the emergency movement of people in detention and correctional occupancies.

Technical Committee on Educational and Day-Care Occupancies (BLD-END)

Aleksy L. Szachnowicz, *Chair*
Anne Arundel County Public Schools, MD [U]

Ron Coté, *Nonvoting Secretary*
National Fire Protection Association, MA

Scott R. Bartlett, Tyco/SimplexGrinnell, MA [M]

Samuel S. Dannaway, S. S. Dannaway Associates,
Incorporated, HI [SE]

Victor L. Dubrowski, Code Consultants, Incorporated,
MO [SE]

Kenneth S. Frangiamore, Fire Safety Consultants, Inc.,
IL [SE]

Dominick G. Kasmauskas, National Fire Sprinkler
Association, Inc., NY [M]

Vern L. Martindale, Church of Jesus Christ of Latter-Day
Saints, UT [U]

Kurt A. Roeper, Ingersoll-Rand Security Technologies,
OH [M]

Rep. Steel Door Institute

Michael L. Savage, Sr., Middle Department Inspection
Agency, Inc., MD [E]

Michael L. Sinsigalli, West Hartford Fire Department,
CT [E]

Catherine L. Stashak, Office of the Illinois State Fire
Marshal, IL [E]

Billy E. Upton, Ballou Justice Upton Architects, VA [SE]

Alternates

Amy J. Murdock, Code Consultants, Incorporated,
MO [SE]

(Alt. to V. L. Dubrowski)

Terry L. Phillips, National Fire Sprinkler Association,
Inc., WY [M]

(Alt. to D. G. Kasmauskas)

Ron Coté, 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 protection of human life and property from fire and other circumstances capable of producing similar consequences, and on the emergency movement of people in educational occupancies and day-care occupancies.

Technical Committee on Fire Protection Features (BLD-FIR)

Eric R. Rosenbaum, *Chair*

Hughes Associates, Incorporated, MD [SE]

Kristin Collette, *Nonvoting Secretary*

National Fire Protection Association, MA

Robert M. Berhinig, Underwriters Laboratories
Incorporated, IL [RT]

Gregory J. Cahanin, Cahanin Fire and Code Consulting,
FL [U]

Rep. Louisiana State Firemen's Association

Joseph A. Castellano, The RJA Group, Inc., GA [SE]

John F. Devlin, Schirmer Engineering Corporation, MD [I]

Brian L. Eklow, Aon Risk Consultants, IL [I]

Sam W. Francis, American Forest & Paper Association,
PA [M]

Ralph Gerdes, Ralph Gerdes Consultants, LLC, IN [SE]

Wayne D. Holmes, HSB Professional Loss Control, NC [I]

Jonathan R. Humble, American Iron and Steel Institute,
CT [M]

Ignatius Kapalczynski, Connecticut Department of Public
Safety, CT [E]

Marshall A. Klein, Marshall A. Klein & Associates,
Incorporated, MD [SE]

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

David A. Lewis, Code Consultants, Inc., MO [SE]

Vickie J. Lovell, InterCode Incorporated, FL [M]

Rep. Air Movement & Control Association

William J. McHugh, Jr., Firestop Contractors

International Association, IL [IM]

Joseph J. Messersmith, Jr., Portland Cement Association,
VA [M]

Jon W. Pasqualone, Martin County Board of County
Commissioners, FL [E]

Rep. Florida Fire Marshals & Inspectors Association

Kurt A. Roeper, Ingersoll-Rand Security Technologies,
OH [M]

Rep. Steel Door Institute

Andrew M. Schneider, Maryland State Fire Marshals
Office, MD [E]

Rep. International Fire Marshals Association

Kenneth Wood, Office of the Illinois State Fire Marshal,
IL [E]

Alternates

John F. Bender, Underwriters Laboratories Inc., MD [RT]
(Alt. to M. Berhinig)

Edward K. Budnick, Hughes Associates, Incorporated,
MD [SE]

(Alt. to E. R. Rosenbaum)

Richard C. Butcher, Tarpan Springs Fire Rescue, FL [E]
(Alt. to J. W. Pasqualone)

David Cook, Ralph Gerdes Consultants, LLC, IN [SE]
(Alt. to R. Gerdes)

Rick Glenn, Schirmer Engineering Corporation, IL [I]
(Alt. to J. F. Devlin)

Jack Gump, HSB Professional Loss Control, TN [I]
(Alt. to W. D. Holmes)

David M. Hammerman, Marshall A. Klein and Associates,
Incorporated, MD [SE]

(Alt. to M. A. Klein)

Thomas R. Janicak, Ceco Door Products, IL [M]
(Alt. to K. A. Roeper)

Mark Kluver, Portland Cement Association, CA [M]
(Alt. to J. J. Messersmith)

John W. McCormick, Code Consultants, Inc., MO [SE]
(Alt. to D. A. Lewis)

Timothy J. Orris, AMCA International, Inc., IL [M]
(Alt. to V. J. Lovell)

Catherine L. Stashak, Office of the Illinois State Fire
Marshal, IL [E]
(Alt. to K. Wood)

Kathleen Taraba, Rolling Plains Construction, Inc.,
CO [IM]
(Alt. to W. J. McHugh, Jr.)

David P. Tyree, American Forest & Paper Association,
CO [M]

(Alt. to S. W. Francis)

Robert J. Wills, American Iron and Steel Institute, AL [M]
(Alt. to J. Humble)

Nonvoting

Michael Earl Dillon, Dillon Consulting Engineers,
Incorporated, CA [SE]
Rep. TC on Air Conditioning

Kristin Collette, 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 construction compartmentation, including the performance of assemblies, openings, and penetrations, as related to the protection of life and property from fire and other circumstances capable of producing similar consequences.



Technical Committee on Fundamentals (BLD-FUN)

Morgan J. Hurley, *Chair*
Society of Fire Protection Engineers, MD [U]

Ron Coté, *Nonvoting Secretary*
National Fire Protection Association, MA

Robert M. Carasitti Schirmer Engineering Corporation,
MA [I]
Wayne G. Carson, Carson Associates, Incorporated, VA [SE]
Amy Y. Cheng, Clark County Department of
Development Services, NV [E]
Salvatore DiCristina, Rutgers, The State University of
New Jersey, NJ [E]
Barbara Ebstein, Cubellis Incorporated, CT [U]
Rep. American Society of Interior Designers
Robert J. Eugene, Underwriters Laboratories
Incorporated, WA [RT]
Ben Greene, City of Englewood, CO [E]
Norman E. Groner, John Jay College of Criminal Justice,
NY [SE]
David J. Jacoby, Arup Fire, NY [SE]
David P. Klein, U.S. Department of Veterans Affairs,
DC [U]

James K. Lathrop, Koffel Associates, Incorporated, CT [SE]
David C. Lind, North Shore Fire Department, WI [E]
Rep. International Fire Marshals Association
Eric N. Mayl, Triton Real Estate Partners, MD [U]
Jake Pauls, Jake Pauls Consulting Services in Building
Use & Safety, MD [C]
Rep. American Public Health Association
Stephen V. Skalko, Portland Cement Association, GA [M]
Jeffrey B. Stone, American Forest & Paper Association,
FL [M]
Rick Thornberry, The Code Consultant Consortium,
Inc., CA [M]
Rep. Alliance for Fire and Smoke Containment and
Control, Inc.
Victoria B. Valentine, National Fire Sprinkler Association,
Inc., NY [M]
Robert J. Wills, American Iron and Steel Institute, AL [M]
Steven F. Wydeveld, Village of Homer Glen, IL [E]

Alternates

Michael W. Ashley, Alliance for Fire and Smoke
Containment and Control, Inc., GA [M]
(Alt. to R. Thornberry)
Eugene A. Cable, U.S. Department of Veterans Affairs,
NY [U]
(Alt. to D. P. Klein)
Mark Kluver, Portland Cement Association, CA [M]
(Alt. to S. V. Skalko)
John V. Loscheider, Loscheider Engineering Company,
WA [SE]
(Voting Alt. to NCSEA Rep.)
Bonnie E. Manley, American Iron and Steel Institute,
MA [M]
(Alt. to R. J. Wills)

Kimberly A. Marks, The Marks Design Group,
Incorporated, TX [U]
Rep. American Society of Interior Designers
(Alt. to B. Ebstein)
Rodney A. McPhee, Canadian Wood Council, Canada [M]
(Alt. to J. B. Stone)
John R. Wiggins, Underwriters Laboratories
Incorporated, NC [RT]
(Alt. to R. J. Eugene)

Nonvoting

Pichaya Chantranuwat, Fusion Consultants Company
Limited/Thailand, Thailand [SE]

Ron Coté, 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 basic goals, objectives, performance requirements, and definitions for protection of human life and property from fire, earthquake, flood, wind, and other circumstances capable of producing similar consequences, and on the nonemergency and emergency movement of people.

Technical Committee on Furnishings and Contents (BLD-FUR)

William E. Fitch, *Chair*
Phyrefish Enterprises, Inc., FL [SE]

Kristin Collette, *Nonvoting Secretary*
National Fire Protection Association, MA

Vytenis Babrauskas, Fire Science and Technology
Incorporated, WA [SE]
Lisa Bonneville, Bonneville Design, MA [U]
Rep. American Society of Interior Designers
Eugene A. Cable, U.S. Department of Veterans Affairs,
NY [U]
Marcelo M. Hirschler, GBH International, CA [SE]
Alfred J. Hogan, Winter Haven, FL [E]
Rep. New England Association of Fire Marshals

E. Ken McIntosh, Carpet and Rug Institute, GA [M]
Henry Paszczuk, Connecticut Department of Public
Safety, CT [E]
C. Anthony Penaloza, Intertek Testing Services NA, Inc.,
TX [RT]
Dwayne E. Sloan, Underwriters Laboratories Inc., NC [RT]
T. Hugh Talley, Hugh Talley Company, TN [M]
Rep. American Furniture Manufacturers Association

Alternates

James K. Lathrop, Koffel Associates, Incorporated, CT [M]
(Alt. to E. K. McIntosh)
Randall K. Laymon, Underwriters Laboratories Inc.,
IL [RT]
(Alt. to D. E. Sloan)

Shelley Siegel, Accessible Interiors' Network,
Incorporated, FL [U]
(Alt. to L. Bonneville)

Kristin Collette, 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 limiting the impact of furnishings and building contents effect on protection of human life and property from fire and other circumstances capable of producing similar consequences, and on the emergency movement of people.

Technical Committee on Health Care Occupancies (BLD-HEA)

Daniel J. O'Connor, *Chair*
Schirmer Engineering Corporation, IL [I]

Ron Coté, *Nonvoting Secretary*
National Fire Protection Association, MA

James R. Ambrose, Code Consultants, Incorporated,
MO [SE]
Kenneth E. Bush, Maryland State Fire Marshals Office,
MD [E]
Rep. International Fire Marshals Association
Wayne G. Carson, Carson Associates, Incorporated, VA [SE]
Michael A. Crowley, The RJA Group, Incorporated, TX [SE]
Samuel S. Dannaway, S. S. Dannaway Associates,
Incorporated, HI [SE]
Rep. American Society of Safety Engineers
Buddy Dewar, National Fire Sprinkler Association, Inc.,
FL [M]
Douglas P. Erickson, American Society for Healthcare
Engineering, VI [U]
John E. Fishbeck, The Joint Commission, IL [E]
Ken L. Gregory, Smith Seckman Reid, Inc., TN [SE]
Donald W. Harris, California Office of Health Planning
& Development, CA [E]
David R. Hood, Russell Phillips and Associates, LLC,
NY [U]
Rep. NFPA Health Care Section
Thomas W. Jaeger, Jaeger and Associates, LLC, VA [U]
Rep. American Health Care Association

David P. Klein, U.S. Department of Veterans Affairs,
DC [U]
Kirby W. Perry, Kirby W. Perry Architects & Associates
Incorporated, TX [SE]
Rep. American Institute of Architects
Brian Prediger, U.S. Department of the Army, TX [U]
David M. Sine, Safety Logic Systems, TX [U]
Rep. National Association of Psychiatric Health
Systems
George F. Stevens, U.S. Department of Health and
Human Services, AZ [E]
Rep. U.S. Department of Health and Human
Services/IHS
Enrique J. Unanue, Illinois Department of Public Health,
IL [E]
Rep. Association of Health Facility Survey Agencies
Michael D. Widdekink, Zurich Services Corporation,
MD [I]
Mayer D. Zimmerman, U.S. Department of Health and
Human Services, MD [E]
Rep. U.S. Department of Health and Human
Services/CMS



Alternates

Michael R. Durst, National Fire Sprinkler Association,
CO [M]
(Alt. to B. Dewar)
Thomas W. Gardner, Schirmer Engineering Corporation,
GA [I]
(Alt. to D. J. O'Connor)

William E. Koffel, Koffel Associates, Incorporated, MD [U]
(Alt. to D. P. Erickson)
Peter A. Larrimer, U.S. Department of Veterans Affairs,
PA [U]
(Alt. to D. P. Klein)

Nonvoting

Pichaya Chantranuwat, Fusion Consultants Company
Limited/Thailand, Thailand [SE]

Ron Coté, 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 protection of human life and property from fire and other circumstances capable of producing similar consequences, and on the emergency movement of people in health care occupancies.

Technical Committee on Industrial, Storage, and Miscellaneous Occupancies (BLD-IND)

Wayne D. Holmes, *Chair*
HSB Professional Loss Control, NC [I]

Kristin Collette, *Nonvoting Secretary*
National Fire Protection Association, MA

John A. Alderman, RRS Engineering, TX [SE]
Rep. American Society of Safety Engineers
Thomas L. Allison, Washington Savannah River
Company, SC [U]
Raymond E. Arntson, Rayden Research LLC, WI [SE]
Donald C. Birchler, FP&C Consultants Incorporated,
MO [SE]
Joshua W. Elvove, U.S. General Services Administration,
CO [U]
John F. Farney, Jr., Sargent & Lundy Engineers, IL [SE]
Larry L. Fluor, Fluor, Incorporated, CA [M]
Rep. Compressed Gas Association
Larry N. Garrett, Delphi Corporation, IN [U]
Rep. NFPA Industrial Fire Protection Section
James E. Golinveaux, Tyco Fire Suppression & Building
Products, RI [M]
Rep. American Fire Sprinkler Association
Jonathan R. Humble, American Iron and Steel Institute,
CT [M]
A. Hal Key, City of Mesa Fire Department, AZ [E]
Rep. TC on Hazardous Chemicals
Marshall A. Klein, Marshall A. Klein & Associates,
Incorporated, MD [U]
Rep. Automotive Oil Change Association

Richard S. Kraus, PSC Petroleum Safety Consultants,
VA [U]
Rep. American Petroleum Institute
Raymond W. Lonabaugh, National Fire Sprinkler
Association, PA [M]
Patrick A. McLaughlin, McLaughlin & Associates, RI [U]
Rep. Semiconductor Industry Association
Milton L. Norsworthy, Arch Chemicals, Incorporated,
TN [M]
Anthony M. Ordile, Loss Control Associates,
Incorporated, PA [SE]
Rep. TC on Storage and Warehousing of Containers
and Portable Tanks
Phani K. Raj, Technology & Management Systems,
Incorporated, MA [SE]
Rep. TC on Liquefied Petroleum Gases
Jeffrey M. Shapiro, International Code Consultants,
TX [M]
Rep. The Chlorine Institute, Incorporated
Stephen V. Skalko, Portland Cement Association, GA [M]
Cleveland B. Skinker, Bechtel Power Corporation, MD [SE]
Bruce J. Swiecicki, National Propane Gas Association,
IL [IM]
David C. Tabar, The Sherwin-Williams Company, OH [U]
Carl D. Wren, Austin Fire Department, TX [E]

Alternates

Howard M. Bucci, U.S. Department of Energy, WA [U]
(Voting Alt. to USDOE Rep.)
Daniel J. Gengler, National Fire Sprinkler Association, WI [M]
(Alt. to R. W. Lonabaugh)
Jack Gump, HSB Professional Loss Control, TN [I]
(Alt. to W. D. Holmes)
David M. Hammerman, Marshall A. Klein and Associates, Incorporated, MD [U]
(Alt. to M. A. Klein)
Roland J. Huggins, American Fire Sprinkler Association, TX [M]
(Alt. to J. E. Golinveaux)
Mark Kluver, Portland Cement Association, CA [M]
(Alt. to S. V. Skalko)
William E. Koffel, Koffel Associates, Incorporated, MD [U]
(Alt. to P. A. McLaughlin)

Todd D. Matteson, Washington Savannah River Company, SC [U]
(Alt. to T. L. Allison)
Roberto Lozano Rosales, Delphi Corporation, TX [U]
(Alt. to L. N. Garrett)
Mark J. Saric, Jr., The Sherwin-Williams Company, OH [U]
(Alt. to D. C. Tabar)
Roger A. Smith, Compressed Gas Association, Inc., VA [M]
(Alt. to L. L. Fluer)
Gary F. Trojak, The Chlorine Institute, Incorporated, VA [M]
(Alt. to J. M. Shapiro)
Samuel Vanover, Jefferson Parish Fire Department, LA [E]
(Alt. to A. H. Key)
Robert J. Wills, American Iron and Steel Institute, AL [M]
(Alt. to J. R. Humble)

Nonvoting

Matthew I. Chibbaro, U.S. Department of Labor, DC [E]
Rep. Occupational Safety and Health Administration
(Alt. to V. G. Fitzner)

Virginia G. Fitzner, U.S. Department of Labor, DC [E]
Rep. Occupational Safety and Health Administration

Kristin Collette, 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 protection of human life and property from fire and other circumstances capable of producing similar consequences, and on the emergency movement of people in industrial and storage occupancies, special structures, windowless and underground buildings, and high-rise buildings.

Technical Committee on Means of Egress (BLD-MEA)

James K. Lathrop, *Chair*
Koffel Associates, Inc., CT [SE]

Ron Coté, *Nonvoting Secretary*
National Fire Protection Association, MA

Jason D. Averill, U.S. National Institute of Standards and Technology, MD [RT]
Charles V. Barlow, EverGlow NA, Inc., NC [M]
John L. Bryan, Frederick, MD [SE]
Kenneth E. Bush, Maryland State Fire Marshals Office, MD [E]
Rep. International Fire Marshals Association
Joseph M. DeRosier, U.S. Department of Veterans Affairs, MI [U]
David A. deVries, Firetech Engineering, Inc., IL [SE]
Steven Di Pilla, ESIS Global Risk Control Services, [I]
Rep. American Society of Safety Engineers
Edward L. Fixen, Schirmer Engineering Corporation, CA [I]
David Frable, U.S. General Services Administration, IL [U]
Robert E. Goodwin, Jr., Kentucky State Fire Marshal's Office, KY [E]
Rita C. Guest, Carson Guest, Incorporated, GA [U]
Rep. American Society of Interior Designers
Robert L. Leon, Life-Pack Technologies, Inc., PA [M]
Rep. The Safe Evacuation Coalition
Christine McMahon, Easter Seals NH/NY/VT/ME, NH [C]
Gary L. Nuschler, Otis Elevator Company, CT [M]
Rep. National Elevator Industry Incorporated

Steven Orlowski, National Association of Home Builders, DC [U]
Denise L. Pappas, Valcom, Inc., VA [M]
Rep. National Electrical Manufacturers Association
Jake Pauls, Jake Pauls Consulting Services in Building Use & Safety, MD [C]
Rep. American Public Health Association
Robert R. Perry, Robert Perry Associates Incorporated, IL [M]
Rep. Door & Hardware Institute
Eric R. Rosenbaum, Hughes Associates, Incorporated, MD [SE]
Ray W. Schwarzenberg, U.S. Central Intelligence Agency, DC [U]
Michael S. Shulman, Underwriters Laboratories Incorporated, CA [RT]
Michael L. Sinsigalli, West Hartford Fire Department, CT [E]
Leslie Strull, The RJA Group, Incorporated, NY [SE]
Phillip Z. Tapper, U.S. Department of Defense, MD [U]
Michael Tierney, Builders Hardware Manufacturers Association, CT [M]
Michael D. Tomy, Heery International Incorporated, GA [SE]
Rep. American Institute of Architects
Joseph H. Versteeg, Versteeg Associates, CT [E]



Alternates

Ryan Alles, High Rise Escape Systems, Inc., FL [M]
(Alt. to R. L. Leon)

Warren D. Bonisch, Schirmer Engineering Corporation,
TX [I]
(Alt. to E. L. Fixen)

Lawrence Brown, National Association of Home Builders,
DC [U]
(Alt. to S. Orłowski)

Michael A. Crowley, The RJA Group, Incorporated,
TX [SE]
(Alt. to L. Strull)

Edward A. Donoghue, Edward A. Donoghue Associates,
Incorporated, NY [M]
(Alt. to G. L. Nuschler)

Barbara Ebstein, Cubellis Incorporated, CT [U]
(Alt. to R. C. Guest)

Joshua W. Elvove, U.S. General Services Administration,
CO [U]
(Alt. to D. Frable)

Steven D. Holmes, Underwriters Laboratories
Incorporated, CA [RT]
(Alt. to M. S. Shulman)

William E. Koffel, Koffel Associates, Incorporated, MD [SE]
(Alt. to J. K. Lathrop)

R. T. Leicht, State of Delaware, DE [E]
(Alt. to K. E. Bush)

Lawrence J. McGinty, U.S. Central Intelligence Agency,
DC [U]
(Alt. to R. Schwarzenberg)

James A. Milke, University of Maryland, MD [SE]
(Alt. to J. L. Bryan)

Keith E. Pardoe, Door and Hardware Institute, VA [M]
(Alt. to R. R. Perry)

Richard D. Peacock, U.S. National Institute of Standards
and Technology, MD [RT]
(Alt. to J. D. Averill)

Brian T. Rhodes, Hughes Associates, Incorporated,
MD [SE]
(Alt. to E. R. Rosenbaum)

Thomas Stoll, The Bodine Company, Inc., TN [M]
(Alt. to D. L. Pappas)

Nonvoting

Pichaya Chantranuwat, Fusion Consultants Company
Limited/Thailand, Thailand [SE]

Matthew I. Chibbaro, U.S. Department of Labor, DC [E]

Virginia G. Fitzner, U.S. Department of Labor, DC [E]
(Alt. to Nonvoting Member)

Ron Coté, 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 general requirements for safe egress for protection of human life from fire and other circumstances capable of producing similar consequences, and on the nonemergency and emergency movement of people.

Technical Committee on Mercantile and Business Occupancies (BLD-MER)

Kenneth E. Bush, *Chair*

Maryland State Fire Marshals Office, MD [E]
Rep. International Fire Marshals Association

Kristin Collette, *Nonvoting Secretary*

National Fire Protection Association, MA

David A. Dodge, Safety and Forensic Consulting, ME [SE]
Rep. American Society of Safety Engineers

Sam W. Francis, American Forest & Paper Association,
PA [M]

Douglas R. Freels, UT-Batelle at Oak Ridge National Lab,
TN [U]

Daniel J. Gauvin, Tyco/SimplexGrinnell, MA [M]

William Hiotaky, The Taubman Company, MI [U]

Wayne D. Holmes, HSB Professional Loss Control, NC [I]

Jonathan R. Humble, American Iron and Steel Institute,
CT [M]

Michael J. Laderoute, MJL Associates, Incorporated, VA [M]
Rep. Fire Equipment Manufacturers' Association

Brian L. Marburger, St. Paul Travelers, CT [I]

Jeff Martin, Elite Fire Protection, Canada [IM]
Rep. National Association of Fire Equipment
Distributors

Lawrence G. Perry, Building Owners & Managers
Association International, MD [U]

Steven E. Randall, National Fire Sprinkler Association,
FL [M]

Sheldon S. Rucinski, Schirmer Engineering Corporation,
IL [I]

Ed Schultz, Code Consultants, Inc., MO [SE]

David C. Tabar, The Sherwin-Williams Company, OH [U]

Rick Thornberry, The Code Consortium, Incorporated,
CA [SE]

William J. Tomes, TVA Fire and Life Safety, Incorporated,
GA [U]

Rep. The Home Depot

Alternates

Tracey D. Bellamy, TVA Fire and Life Safety,
Incorporated, GA [U]
(Alt. to W. J. Tomes)

Jack Gump, HSB Professional Loss Control, TN [I]
(Alt. to W. D. Holmes)

Raymond W. Lonabaugh, National Fire Sprinkler
Association, Inc., PA [M]
(Alt. to S. E. Randall)

Patrick A. McLaughlin, McLaughlin & Associates, RI [U]
(Alt. to D. C. Tabar)

Richard R. Osman, Schirmer Engineering Corporation,
IL [I]
(Alt. to S. S. Rucinski)

Dennis L. Pitts, American Forest & Paper Association,
TX [M]
(Alt. to S. W. Francis)

Terry Schultz, Code Consultants, Incorporated, MO [SE]
(Alt. to E. Schultz)

Jim Widmer, Potter Roemer, LLC, GA [M]
(Alt. to M. J. Laderoute)

Robert J. Wills, American Iron and Steel Institute, AL [M]
(Alt. to J. R. Humble)

Kristin Collette, 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 protection of human life and property from fire and other circumstances capable of producing similar consequences, and for the emergency movement of people in mercantile and business occupancies.

Technical Committee on Residential Occupancies (BLD-RES)

Warren D. Bonisch, *Chair*
Schirmer Engineering Corporation, TX [I]

Gregory E. Harrington, *Nonvoting Secretary*
National Fire Protection Association, MA

Gordon Bates, Minneapolis Fire Department, MN [E]

James R. Bell, Marriott International, Incorporated,
DC [U]

Rep. American Hotel & Lodging Association

H. Wayne Boyd, U.S. Safety & Engineering Corporation,
CA [M]

Harry L. Bradley, Maryland State Fire Marshals Office,
MD [E]

Rep. International Fire Marshals Association

Byron L. Briese, The RJA Group, Incorporated, VA [U]
Rep. NFPA Lodging Industry Section

Phillip A. Brown, American Fire Sprinkler Association,
TX [IM]

Sam W. Francis, American Forest & Paper Association,
PA [M]

Ralph Gerdes, Ralph Gerdes Consultants, LLC, IN [SE]

Wendy B. Gifford, Invensys Controls, IL [M]

Rep. National Electrical Manufacturers Association

Stanley C. Harbuck, School of Building Inspection, UT [C]
Rep. American Public Health Association

Kenneth E. Isman, National Fire Sprinkler Association,
Inc., NY [M]

Marshall A. Klein, Marshall A. Klein & Associates,
Incorporated, MD [SE]

James K. Lathrop, Koffel Associates, Inc., CT [SE]

Eric N. Mayl, Triton Real Estate Partners, MD [U]

Joseph J. Messersmith, Jr., Portland Cement Association,
VA [M]

Ronald G. Nickson, National Multi Housing Council,
DC [U]

Steven Orłowski, National Association of Home Builders,
DC [U]

Henry Paszczuk, Connecticut Department of Public
Safety, CT [E]

Peter Puhlick, University of Connecticut, CT [U]

Alan Robinson, Tuan and Robinson, Structural

Engineers, Incorporated, CA [E]
Rep. Building Seismic Safety Council/Code Resource
Support Committee

John A. Sharpy, Beakmann Properties, CA [U]

T. Hugh Talley, Hugh Talley Company, TN [M]

Rep. American Furniture Manufacturers Association

Joseph H. Versteeg, Versteeg Associates, CT [SE]

Alternates

Carl F. Baldassarra, Schirmer Engineering Corporation,
IL [I]

(Alt. to W. D. Bonisch)

Lawrence Brown, National Association of Home Builders,
DC [U]

(Alt. to S. Orłowski)

David Cook, Ralph Gerdes Consultants, LLC, IN [SE]
(Alt. to R. Gerdes)

David M. Hammerman, Marshall A. Klein and Associates,
Incorporated, MD [SE]

(Alt. to M. A. Klein)

Mark Kluver, Portland Cement Association, CA [M]

(Alt. to J. J. Messersmith)

Michael F. Meehan, Virginia Sprinkler Company,
Incorporated, VA [IM]

(Alt. to P. A. Brown)



Donald J. Pamplin, National Fire Sprinkler Association, Inc., WA [M]
(Alt. to K. E. Isman)
Jake Pauls, Jake Pauls Consulting Services in Building Use and Safety, MD [C]
(Alt. to S. C. Harbuck)

Dennis L. Pitts, American Forest & Paper Association, TX [M]
(Alt. to S. W. Francis)
Jeffrey L. Shearman, Zurich Services Corporation, PA [U]
(Alt. to B. L. Brieese)

Gregory E. Harrington, 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 protection of human life and property from fire and other circumstances capable of producing similar consequences, and on the emergency movement of people in hotels, dormitories, apartments, lodging and rooming houses, and one- and two-family dwellings.

Technical Committee on Structures, Construction, and Materials (BLD-SCM)

Peter J. Willse, *Chair*
Swiss Re, Global Asset Protection Services, CT [I]

Hossein Davoodi, *Nonvoting Secretary*
National Fire Protection Association, MA

Jesse J. Beitel, Hughes Associates, Inc., MD [SE]
David S. Collins, The Preview Group, Incorporated, OH [SE]
Rep. American Institute of Architects
Ralph Dorio, Insurance Services Office, NJ [I]
Jeffrey Feid, State Farm Insurance Company, IL [I]
Michael A. Gardner, Gypsum Association, DC [M]
Mark S. Graham, National Roofing Contractors Association, IL [M]
John C. Harrington, FM Global, MA [I]
Alfred J. Hogan, Winter Haven, FL [E]
Rep. New England Association of Fire Marshals
Joseph T. Holland, III, Hoover Treated Wood Products, Incorporated, FL [M]
John V. Loscheider, Loscheider Engineering Company, WA [SE]
Rep. National Council of Structural Engineers Associations

Bonnie E. Manley, American Iron and Steel Institute, MA [M]
Joseph J. Messersmith, Jr., Portland Cement Association, VA [M]
Eugene M. Novak, Jr., Commonwealth of Massachusetts, MA [E]
Sarah A. Rice, Schirmer Engineering Corporation, OH [I]
James A. Rossberg, American Society of Civil Engineers, VA [SE]
David P. Tyree, American Forest & Paper Association, CO [M]
Joseph H. Versteeg, Versteeg Associates, CT [E]
Rep. International Fire Marshals Association

Alternates

David G. Bueche, Hoover Treated Wood Products, CO [M]
(Alt. to J. T. Holland)
Richard J. Davis, FM Global, MA [I]
(Alt. to J. C. Harrington)
Dennis L. Pitts, American Forest and Paper Association, TX [M]
(Alt. to D. P. Tyree)

Stephen V. Skalko, Portland Cement Association, GA [M]
(Alt. to J. J. Messersmith, Jr.)
Robert J. Wills, American Iron and Steel Institute, AL [M]
(Alt. to B. E. Manley)

Hossein Davoodi, 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 protection of human life and property from fire and environmental loads through the selection and design of structural elements and assemblies; construction techniques and methodologies; and on the application of building materials used in the construction of buildings, structures, and related facilities.

Contents

Chapter 1 Administration	5000- 24	7.3 Exterior Walls	5000- 91
1.1 Scope	5000- 24	7.4 Height and Area Requirements	5000- 93
1.2 Purpose	5000- 24	7.5 Height Increases Permitted	5000- 97
1.3 Application	5000- 24	7.6 Area Increases Permitted	5000- 98
1.4 Retroactivity. (Reserved)	5000- 24		
1.5 Equivalency	5000- 24	Chapter 8 Fire-Resistive Materials and Construction	5000-100
1.6 Units	5000- 24	8.1 General	5000-100
1.7 Enforcement	5000- 24	8.2 Fire Resistance-Rated Construction ...	5000-100
Chapter 2 Referenced Publications	5000- 32	8.3 High Challenge Fire Walls and Fire Walls	5000-101
2.1 General	5000- 32	8.4 Fire Barrier Walls	5000-107
2.2 NFPA Publications	5000- 32	8.5 Exterior Walls — General	5000-108
2.3 Other Publications	5000- 34	8.6 Horizontal Assemblies	5000-108
2.4 References for Extracts in Mandatory Sections	5000- 41	8.7 Opening Protectives	5000-108
Chapter 3 Definitions	5000- 42	8.8 Penetrations	5000-110
3.1 General	5000- 42	8.9 Joints	5000-112
3.2 NFPA Official Definitions	5000- 42	8.10 Smoke Partitions	5000-112
3.3 General Definitions	5000- 42	8.11 Smoke Barriers	5000-114
Chapter 4 General	5000- 68	8.12 Vertical Openings	5000-115
4.1 Goals and Objectives	5000- 68	8.13 Mezzanine	5000-117
4.2 Assumptions	5000- 70	8.14 Concealed Spaces	5000-117
4.3 Building Design and Life Safety Compliance Options	5000- 70	8.15 Special Hazard Protection	5000-118
4.4 Fundamental Fire and Life Safety Requirements	5000- 70	8.16 Insulating Materials	5000-118
4.5 General Requirements	5000- 71	8.17 Rubbish Chutes and Laundry Chutes ...	5000-119
4.6 Roof Access	5000- 72	Chapter 9 Reserved	5000-119
Chapter 5 Performance-Based Option	5000- 72	Chapter 10 Interior Finish	5000-119
5.1 General Requirements	5000- 72	10.1 General	5000-119
5.2 Performance Criteria	5000- 73	10.2 Use of Interior Finishes	5000-119
5.3 Retained Prescriptive Requirements ...	5000- 74	10.3 Interior Wall or Ceiling Finish Testing and Classification	5000-119
5.4 Performance-Based Design Characteristics and Assumptions	5000- 74	10.4 Specific Materials	5000-120
5.5 Design Scenarios	5000- 75	10.5 Trim and Incidental Finish	5000-121
5.6 Evaluation of Proposed Designs	5000- 77	10.6 Interior Floor Finish Testing and Classification	5000-121
5.7 Safety Factors	5000- 77	10.7 Automatic Sprinklers	5000-121
5.8 Documentation Requirements	5000- 77	Chapter 11 Means of Egress	5000-121
Chapter 6 Classification of Occupancy, Classification of Hazard of Contents, and Special Operations ...	5000- 78	11.1 General	5000-121
6.1 Classification of Occupancy	5000- 78	11.2 Means of Egress Components	5000-123
6.2 Multiple Occupancies	5000- 79	11.3 Capacity of Means of Egress	5000-140
6.3 Hazard of Contents	5000- 80	11.4 Number of Means of Egress	5000-142
6.4 Special Operations	5000- 82	11.5 Arrangement of Means of Egress	5000-143
Chapter 7 Construction Types and Height and Area Requirements	5000- 85	11.6 Measurement of Travel Distance to Exits	5000-144
7.1 General	5000- 85	11.7 Discharge from Exits	5000-144
7.2 Construction Types	5000- 86	11.8 Illumination of Means of Egress	5000-145
		11.9 Emergency Lighting	5000-145
		11.10 Marking of Means of Egress	5000-146

11.11	Special Provisions for Occupancies with High Hazard Contents	5000-148	12.41	Saunas and Steam Rooms	5000-167
11.12	Mechanical Equipment Rooms, Boiler Rooms, and Furnace Rooms	5000-148	12.42	Swimming Pools, Wading Pools, and Spas	5000-167
Chapter 12	Accessibility	5000-148	12.43	Shooting Facilities with Firing Positions	5000-168
12.1	Application	5000-148	12.44	Technical Requirements	5000-168
12.2	Existing Buildings and Facilities	5000-148	12.45	Additional Technical Requirements ...	5000-168
12.3	General Exceptions	5000-149	Chapter 13	Encroachments into the Public Right-of-Way	5000-181
12.4	Protruding Objects	5000-149	13.1	General	5000-181
12.5	Operable Parts	5000-149	13.2	Projection into Alleys	5000-181
12.6	Accessible Routes	5000-150	13.3	Space Below Sidewalk	5000-181
12.7	Accessible Means of Egress	5000-153	13.4	Balconies and Appendages	5000-181
12.8	Parking Spaces	5000-153	13.5	Doors	5000-181
12.9	Passenger Loading Zones and Bus Stops	5000-154	13.6	Roof Drainage	5000-181
12.10	Stairways	5000-155	13.7	Air-Right Structures	5000-181
12.11	Drinking Fountains	5000-155	13.8	Skywalk Bridges	5000-181
12.12	Kitchens and Kitchenettes	5000-155	Chapter 14	Safeguards During Construction	5000-182
12.13	Toilet Facilities and Bathing Facilities ...	5000-155	14.1	Purpose	5000-182
12.14	Washing Machines and Clothes Dryers	5000-156	14.2	Application	5000-182
12.15	Fire Alarm Systems	5000-156	14.3	Protection of Utilities	5000-182
12.16	Signs	5000-156	14.4	Temporary Light and Power	5000-182
12.17	Telephones	5000-157	14.5	Use of Explosives	5000-182
12.18	Transportation Facilities	5000-158	Chapter 15	Building Rehabilitation	5000-182
12.19	Assistive Listening Systems	5000-158	15.1	Administration	5000-182
12.20	Automatic Teller Machines and Fare Machines	5000-159	15.2	Definitions and Chapter Organization	5000-184
12.21	Assembly Areas	5000-159	15.3	Repair	5000-184
12.22	Dressing, Fitting, and Locker Rooms	5000-160	15.4	Renovation	5000-185
12.23	Health Care Occupancies and Residential Board and Care Occupancies	5000-160	15.5	Modification	5000-187
12.24	Hotel and Motel and Lodging and Rooming House Guest Rooms	5000-160	15.6	Reconstruction	5000-189
12.25	Storage	5000-161	15.7	Change of Use and Change of Occupancy Classification	5000-194
12.26	Dining Surfaces and Work Surfaces	5000-161	15.8	Addition	5000-199
12.27	Sales and Service	5000-162	15.9	Damaged or Unsafe Buildings	5000-200
12.28	Depositories, Vending Machines, Change Machines, Mail Boxes, and Fuel Dispensers	5000-162	15.10	Historic Buildings and Structures	5000-200
12.29	Windows	5000-162	Chapter 16	Assembly Occupancies	5000-203
12.30	Two-Way Communication Systems	5000-162	16.1	General Requirements	5000-203
12.31	Judicial Facilities	5000-162	16.2	Means of Egress Requirements	5000-203
12.32	Detention Facilities and Correctional Facilities	5000-163	16.3	Protection	5000-210
12.33	Residential Facilities	5000-163	16.4	Special Provisions	5000-213
12.34	Amusement Rides	5000-165	16.5	Building Services	5000-219
12.35	Recreational Boating Facilities	5000-166	Chapter 17	Educational Occupancies	5000-219
12.36	Exercise Machines and Equipment	5000-166	17.1	General Requirements	5000-219
12.37	Fishing Piers and Platforms	5000-166	17.2	Means of Egress Requirements	5000-220
12.38	Golf Facilities	5000-166	17.3	Protection	5000-222
12.39	Miniature Golf Facilities	5000-166	17.4	Special Provisions	5000-224
12.40	Play Areas	5000-166	17.5	Building Services	5000-224
			Chapter 18	Day-Care Occupancies	5000-224
			18.1	General Requirements	5000-224

18.2	Means of Egress Requirements	5000-225	25.2	Means of Egress Requirements	5000-265
18.3	Protection	5000-226	25.3	Protection	5000-267
18.4	Special Provisions	5000-228	25.4	Special Provisions	5000-269
18.5	Building Services	5000-228	25.5	Building Services	5000-269
18.6	Day-Care Homes	5000-228			
Chapter 19	Health Care Occupancies	5000-230	Chapter 26	Residential Board and Care	
19.1	General Requirements	5000-230		Occupancies	5000-269
19.2	Means of Egress Requirements	5000-232	26.1	General Requirements	5000-269
19.3	Protection	5000-236	26.2	Small Facilities	5000-269
19.4	Special Provisions	5000-239	26.3	Large Facilities	5000-272
19.5	Building Services	5000-240	Chapter 27	Mercantile Occupancies	5000-275
Chapter 20	Ambulatory Health Care		27.1	General Requirements	5000-275
	Occupancies	5000-241	27.2	Means of Egress Requirements	5000-277
20.1	General Requirements	5000-241	27.3	Protection	5000-278
20.2	Means of Egress Requirements	5000-242	27.4	Special Provisions	5000-279
20.3	Protection	5000-243	27.5	Building Services	5000-283
20.4	Special Provisions	5000-244	27.6	Reserved	5000-283
20.5	Building Services	5000-244	Chapter 28	Business Occupancies	5000-283
Chapter 21	Detention and Correctional		28.1	General Requirements	5000-283
	Occupancies	5000-245	28.2	Means of Egress Requirements	5000-284
21.1	General Requirements	5000-245	28.3	Protection	5000-285
21.2	Means of Egress Requirements	5000-246	28.4	Special Provisions	5000-286
21.3	Protection	5000-248	28.5	Building Services	5000-286
21.4	Special Provisions	5000-250	Chapter 29	Industrial Occupancies	5000-286
21.5	Building Services	5000-254	29.1	General Requirements	5000-286
Chapter 22	One- and Two-Family Dwellings	5000-254	29.2	Means of Egress Requirements	5000-287
22.1	General Requirements	5000-254	29.3	Protection	5000-289
22.2	Means of Escape Requirements	5000-255	29.4	Special Provisions	5000-290
22.3	Protection	5000-256	29.5	Building Services	5000-290
22.4	Separation Within Two-Family Dwellings	5000-257	29.6	Special Provisions for Aircraft-Servicing Hangars	5000-290
22.5	Separation Between Townhouses	5000-257	Chapter 30	Storage Occupancies	5000-290
22.6	Building Services	5000-257	30.1	General Requirements	5000-290
Chapter 23	Lodging or Rooming House		30.2	Means of Egress Requirements	5000-291
	Occupancies	5000-257	30.3	Protection	5000-292
23.1	General Requirements	5000-257	30.4	Special Provisions	5000-293
23.2	Means of Escape Requirements	5000-258	30.5	Building Services	5000-293
23.3	Protection	5000-259	30.6	Special Provisions for Aircraft Storage Hangars	5000-293
23.4	Reserved	5000-260	30.7	Special Provisions for Grain or Other Bulk Storage Elevators	5000-294
23.5	Building Services	5000-260	30.8	Special Provisions for Parking Structures	5000-294
Chapter 24	Hotels and Dormitory		Chapter 31	Occupancies in Special Structures ...	5000-297
	Occupancies	5000-260	31.1	General	5000-297
24.1	General Requirements	5000-260	31.2	Underground Structures	5000-297
24.2	Means of Egress Requirements	5000-261	31.3	Limited Access Structures	5000-297
24.3	Protection	5000-262	31.4	Vehicles and Vessels (Mobile Units)	5000-298
24.4	Special Provisions	5000-264	31.5	Open Structures (Outdoor Processing Facilities)	5000-298
24.5	Building Services	5000-264	31.6	Towers	5000-298
Chapter 25	Apartment Buildings	5000-264			
25.1	General Requirements	5000-264			

31.7	Water-Surrounded Structures	5000-299	Chapter 36 Soils, Foundations, and Retaining Walls	5000-345
31.8	Piers	5000-300	36.1	Scope
31.9	Helistops	5000-300	36.2	Excavations
Chapter 32 Special Construction	5000-300	36.3	Investigation and Bearing Capacity of Soil	5000-346
32.1	General	5000-300	36.4	Soil-Bearing Footings
32.2	Membrane Structures	5000-301	36.5	Pile Foundations
32.3	Tents	5000-302	36.6	Foundation Walls
32.4	Awnings and Canopies	5000-303	36.7	Wood Foundation Systems
32.5	Marquees	5000-304	36.8	Waterproofing and Dampproofing
32.6	Outdoor Signs	5000-304	36.9	Retaining Walls
32.7	Grandstands and Bleachers	5000-304	Chapter 37 Exterior Wall Construction	5000-354
32.8	Swimming Pools and Spas	5000-306	37.1	General
32.9	Cooling Towers	5000-306	37.2	Projections
32.10	Temporary Structures	5000-306	37.3	Weather Resistance
32.11	Masonry and Concrete, Chimneys, and Fireplaces	5000-306	37.4	Metal Composite Materials (MCM)
32.12	Masonry Heaters	5000-307	37.5	Exterior Insulation and Finish Systems (EIFS)
32.13	Roof Structures	5000-307	Chapter 38 Roof Assemblies and Roof Structures	5000-357
32.14	Towers and Spires	5000-307	38.1	Scope
32.15	Rooftop Heliports	5000-307	38.2	Exterior Fire Exposure
Chapter 33 High-Rise Buildings	5000-307	38.3	Interior Fire Exposure	5000-358
33.1	General Requirements	5000-307	38.4	Wind Resistance
33.2	Means of Egress Requirements	5000-307	38.5	Hail Resistance
33.3	Protection	5000-308	38.6	Roof Drainage
Chapter 34 High Hazard Contents	5000-309	38.7	Roof Flashing Requirements	5000-360
34.1	General Requirements	5000-309	38.8	Ventilation of Attic Space
34.2	Requirements for All Occupancies Containing High Hazard Contents	5000-321	38.9	Roof Materials and Assemblies
34.3	Requirements for Occupancies Exceeding the Maximum Allowable Quantity (MAQ) per Control Area for High Hazard Contents	5000-322	38.10	Re-Roofing
Chapter 35 Structural Design	5000-336	38.11	Light-Transmitting Plastic Roof Panels, Sloped Glazing, and Skylights	5000-368
35.1	General	5000-336	Chapter 39 Flood-Resistant Design and Construction	5000-368
35.2	Special Definitions	5000-337	39.1	General
35.3	Occupancy Category	5000-339	39.2	Special Definitions
35.4	Construction Documents	5000-339	39.3	Design Flood
35.5	Dead Loads	5000-341	39.4	Flood Hazard Area
35.6	Live Loads	5000-341	39.5	Performance During the Design Flood
35.7	Roof Loads	5000-342	39.6	Design and Construction Requirements
35.8	Snow Loads	5000-343	39.7	Lowest Floor Elevation
35.9	Wind Loads	5000-343	39.8	Foundations
35.10	Earthquake Loads	5000-344	39.9	Materials
35.11	Lateral Soil Loads	5000-344	39.10	Systems
35.12	Flood Loads	5000-344	39.11	Enclosures Below the Design Flood Elevation
35.13	Ice Loads — Atmospheric Icing Loads	5000-344	39.12	Documentation
35.14	Other Minimum Loads	5000-344	39.13	Existing Structures
35.15	Load Combinations	5000-345		
35.16	Building Rehabilitation	5000-345		

39.14	Manufactured Housing	5000-372	44.6	Cold-Formed Steel	5000-385
39.15	Temporary Structures	5000-373	44.7	Cold-Formed Steel Light Frame Construction	5000-385
Chapter 40	Quality Assurance During Construction	5000-373	Chapter 45	Wood	5000-386
40.1	General	5000-373	45.1	Scope	5000-386
40.2	Extent of Quality Assurance	5000-373	45.2	Special Definitions	5000-386
40.3	Quality Assurance for Structural and Geotechnical Components and Assemblies	5000-374	45.3	General	5000-386
40.4	Quality Assurance for Wall Finish Systems	5000-379	45.4	Design Requirements	5000-386
40.5	Quality Assurance for Sprayed Fire-Resistive Materials	5000-379	45.5	Criteria	5000-387
40.6	Quality Assurance for Smoke Control Systems	5000-380	45.6	General Construction Requirements	5000-389
40.7	Quality Assurance for Stairs and Railings	5000-380	Chapter 46	Glass and Glazing	5000-394
40.8	Quality Assurance for Nonstructural Components and Systems	5000-380	46.1	General	5000-394
40.9	Quality Assurance for Penetrations and Joints	5000-381	46.2	Special Definitions	5000-394
Chapter 41	Concrete	5000-381	46.3	Labeling	5000-394
41.1	Scope	5000-381	46.4	Louvered Windows or Jalousies	5000-394
41.2	General	5000-381	46.5	Human Impact Loads	5000-394
41.3	Construction Documents	5000-381	46.6	Glass in Handrails and Guards	5000-396
41.4	Quality Assurance	5000-381	46.7	Glazing in Athletic Facilities	5000-396
41.5	Seismic Requirements	5000-381	46.8	Sloped Glazing and Skylights	5000-397
41.6	Slabs-on-Ground	5000-383	46.9	Glass Supports	5000-398
41.7	Shotcrete	5000-383	46.10	Wind, Snow, and Dead Loads on Glass	5000-398
41.8	Reinforced Gypsum Concrete	5000-383	46.11	Fire Protection Glazing	5000-399
Chapter 42	Aluminum	5000-384	Chapter 47	Gypsum Board, Lath, and Plaster	5000-399
42.1	General	5000-384	47.1	General Requirements	5000-399
Chapter 43	Masonry	5000-384	47.2	Gypsum Board and Gypsum Veneer Plaster	5000-400
43.1	Scope	5000-384	47.3	Gypsum Lath and Gypsum Plaster	5000-401
43.2	General	5000-384	47.4	Lath and Plaster	5000-402
43.3	Design	5000-384	Chapter 48	Plastics	5000-403
43.4	Construction Documents	5000-384	48.1	Scope	5000-403
43.5	Quality Assurance	5000-384	48.2	Special Definitions	5000-403
43.6	Masonry Construction Materials	5000-384	48.3	General Criteria — Foam Plastic Insulation	5000-404
43.7	Masonry Construction	5000-384	48.4	Specific Application Requirements — Foam Plastic Insulation	5000-406
43.8	Seismic Requirements	5000-384	48.5	Specific Requirements — Interior Finish and Trim	5000-407
43.9	Masonry and Concrete Fireplaces and Chimneys	5000-384	48.6	Specific Requirements — Plastic Veneers	5000-407
Chapter 44	Steel	5000-384	48.7	Specific Requirements — Light-Transmitting Plastics	5000-407
44.1	General	5000-384	48.8	Specific Requirements — Plastic Interior Signs	5000-411
44.2	Structural Steel Construction	5000-385	48.9	Specific Requirements — Light-Transmitting Plastics Used in Greenhouses	5000-411
44.3	Steel Joists	5000-385	Chapter 49	Interior Environment	5000-411
44.4	Steel Cable Structures	5000-385	49.1	General	5000-411
44.5	Steel Storage Racks	5000-385	49.2	Ventilation	5000-411
			49.3	Lighting	5000-415

49.4	Sound Transmission	5000-415	54.8	Flood Resistance	5000-418
49.5	Interior Space Dimensions	5000-415	54.9	Vents Required	5000-419
49.6	Access to Attics	5000-416	54.10	Conveying Systems	5000-419
49.7	Design Conditions	5000-416	54.11	Wheelchair Lifts	5000-419
49.8	Special Requirements for Occupancies	5000-416	54.12	First Responders Use Elevator	5000-419
49.9	Vermin Proofing. (Reserved — See Annex B.)	5000-416			
Chapter 50	Mechanical Systems	5000-416	Chapter 55	Fire Protection Systems and Equipment	5000-420
50.1	General	5000-416	55.1	General	5000-420
50.2	Flood Resistance	5000-417	55.2	Fire Detection, Alarm, and Communications Systems	5000-420
50.3	Refrigeration Machinery Room	5000-417	55.3	Automatic Sprinklers	5000-423
Chapter 51	Energy Efficiency	5000-417	55.4	Standpipe Systems	5000-423
51.1	General	5000-417	55.5	Other Automatic Extinguishing Equipment	5000-423
51.2	Commercial	5000-417	55.6	Portable Fire Extinguishers	5000-424
51.3	Residential	5000-417	55.7	Smoke Control	5000-424
51.4	Manufactured Homes	5000-417	55.8	Fire Hydrants	5000-424
51.5	Day Care	5000-417	55.9	Private Fire Service Mains	5000-424
51.6	Residential Board and Care	5000-417	55.10	Protection of Cooking Hazards	5000-424
			55.11	Special Inspections and Tests	5000-424
Chapter 52	Electrical Systems	5000-417	Annex A	Explanatory Material	5000-424
52.1	General	5000-417	Annex B	Vermin Proofing	5000-518
52.2	Flood Resistance	5000-417	Annex C	Flood-Resistant Construction	5000-518
Chapter 53	Plumbing Systems	5000-418	Annex D	Construction Types and Enhanced Fire Compartment Requirements	5000-522
53.1	General	5000-418	Annex E	Elevators for Occupant-Controlled Evacuation Prior to Phase I Emergency Recall Operations	5000-538
53.2	Flood Resistance	5000-418	Annex F	Supplement Evacuation Equipment ...	5000-541
Chapter 54	Elevators and Conveying Systems ..	5000-418	Annex G	In-Building Radio Systems	5000-543
54.1	General	5000-418	Annex H	Informational References	5000-546
54.2	Installation	5000-418	Index		5000-550
54.3	Ambulance Stretcher Accommodation	5000-418			
54.4	Openings to Exit Enclosures	5000-418			
54.5	Elevator Machine Rooms and Machinery Spaces	5000-418			
54.6	Number of Cars in a Hoistway	5000-418			
54.7	Hoistway Enclosure	5000-418			

NFPA 5000®

Building Construction and Safety Code®

2009 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 Documents." They can also be obtained on request from NFPA or viewed at www.nfpa.org/disclaimers.*

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

Changes other than editorial are indicated by a vertical rule beside the paragraph, table, or figure in which the change occurred. These rules are included as an aid to the user in identifying changes from the previous edition. Where one or more complete paragraphs have been deleted, the deletion is indicated by a bullet (•) between the paragraphs that remain.

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 E. Editorial changes to extracted material consist of revising references to an appropriate division in this document or the inclusion of the document number with the division number when the reference is to the original document. 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 E.

Chapter 1 Administration**1.1* Scope.**

1.1.1 General. The *Code* addresses those construction, protection, and occupancy features necessary to minimize danger to life and property.

1.1.2 Code Title. The provisions of this document shall constitute and be known as *NFPA 5000, Building Construction and Safety Code*, hereinafter referred to as "this *Code*" or "the *Code*."

1.2* Purpose. The purpose of the *Code* is to provide minimum design regulations to safeguard life, health, property, and public welfare and to minimize injuries by regulating and controlling the permitting, design, construction, quality of materials, use and occupancy, location, and maintenance of all buildings and structures within the jurisdiction and certain equipment specifically regulated herein.

1.3 Application.

1.3.1 Buildings and Structures. The provisions of the *Code* shall apply to the construction, alteration, repair, equipment, use and occupancy, maintenance, relocation, and demolition of every building or structure, or any appurtenances connected or attached to such buildings or structures within the jurisdiction.

1.3.2 References to Requirements of Other Codes or Standards. Where the requirements of a referenced code or standard differ from the requirements of this *Code*, the requirements of this *Code* shall govern.

1.3.3 Moved Buildings and Structures. The provisions of the *Code* shall apply to buildings and structures moved into or within the jurisdiction.

1.3.4 Existing Buildings and Structures. The provisions of this *Code* shall apply to existing buildings where any one of the following conditions applies:

- (1) A change of use or occupancy classification occurs.
- (2) A repair, renovation, modification, reconstruction, or addition is made.
- (3) The building or structure is relocated.
- (4) The building is considered damaged, unsafe, or a fire hazard.
- (5) A property line that affects compliance with any provision of this *Code* is created or relocated.

1.4 Retroactivity. (Reserved)**1.5 Equivalency.**

1.5.1 General. Nothing in this *Code* shall prohibit methods of construction, materials, and designs not specifically prescribed in this *Code* where equivalent alternatives are approved by the authority having jurisdiction (AHJ).

1.5.2 Approval of Alternatives. Alternative systems, methods, or devices approved as equivalent by the authority having jurisdiction shall be recognized as being in compliance with this *Code*.

1.5.3 Tests.

1.5.3.1 Whenever the authority having jurisdiction determines that there is insufficient evidence of proof of equivalency with the prescribed requirements of this *Code*, the authority having jurisdiction shall be authorized to require tests showing proof of equivalency.

1.5.3.2 Tests required by the authority having jurisdiction shall be provided by the owner at no expense to the jurisdiction.

1.5.3.3 Tests shall be conducted as specified in this *Code* or, where test methods are not specified in this *Code*, they shall be conducted as required by the authority having jurisdiction.

1.5.4 Approval. The authority having jurisdiction shall determine whether the proposed alternate methods of construction, materials, and designs are at least equivalent to the prescribed requirements of this *Code*.

1.6 Units.

1.6.1 SI Units. Metric units in this *Code* are in accordance with the modernized metric system known as the International System of Units (SI).

1.6.2 Primary Values. The inch-pound value for a measurement, and the SI value given in parentheses, shall each be acceptable for use as primary units for satisfying the requirements of this *Code*.

1.7 Enforcement.**1.7.1 Organization.**

1.7.1.1 Creation of Department of Building and Safety. There is hereby created in the jurisdiction a department of building and safety that shall be under the control of the director of building and safety, who shall be the authority having jurisdiction.



1.7.1.2 Delegation of Authority. The authority having jurisdiction is hereby empowered to delegate authority and assignments to subordinate employees. Such employees shall have the authority to carry out duties and assignments, as delegated by the authority having jurisdiction.

1.7.1.3 Right of Entry. Whenever it is necessary to make an inspection to enforce any of the provisions of this *Code*, or whenever the authority having jurisdiction has reason to believe that there exists in any building, or upon any premises, a condition that makes such building or premises unsafe, as specified by 1.7.5.3.1.1, the authority having jurisdiction shall be authorized to enter such building or premises at reasonable times to inspect the same, or to perform any duty imposed on the authority having jurisdiction by this *Code*, under the following conditions:

- (1) The authority having jurisdiction shall first present proper credentials and request entry.
- (2) In the event that entry is refused, or the person authorized to grant entry is unavailable, the authority having jurisdiction shall have recourse to remedy provided by law to secure entry.

1.7.1.4 Concealed Work. The authority having jurisdiction is hereby authorized to order parts of any building or structure to be exposed for inspection when the building or part thereof is in an unsafe or a dangerous condition, when there is willful or negligent concealment of a violation of this *Code*, or when work subject to a required inspection has been covered prior to the required inspection. All costs incurred in making concealed work available for inspection shall be borne by the owner of the building or structure.

1.7.2 Approvals by Other Regulatory Agencies. The authority having jurisdiction shall have the authority to require that the laws, rules, and regulations of other regulatory agencies having jurisdiction are met before a building permit is issued to an applicant.

1.7.2.1 The authority having jurisdiction shall have the authority to require evidence in writing to show that other regulatory agencies having jurisdiction over the design, construction, alteration, repair, equipment, maintenance, demolition, and relocation of buildings and structures in the jurisdiction have approved the proposed construction.

1.7.2.2 The authority having jurisdiction shall not be held responsible for enforcement of the regulations of the regulatory agencies specified in 1.7.2.1, unless authorized to enforce the regulations of such an agency.

1.7.3 Board of Appeals.

1.7.3.1 Creation of Board of Appeals.

1.7.3.1.1 There is hereby established a board of appeals, consisting of at least five members, qualified by training and experience to rule on matters relating to building, who shall be appointed by the jurisdiction. The board shall select one of its members to serve as chair, and the authority having jurisdiction shall be an ex officio member without vote and shall act as secretary to the board.

1.7.3.1.2 Whenever the authority having jurisdiction rejects or refuses to approve the manner of proposed construction or the suitability of alternative materials and methods of construction, the owner of such building or structure or a duly authorized agent shall be permitted to request an appeal from

the decision of the authority having jurisdiction by means of the board of appeals.

1.7.3.2 Term of Office. The jurisdiction shall appoint one member of the board of appeals for a term of 1 year, two members for a term of 2 years, and two members for a term of 3 years, and, thereafter, they shall be appointed for a term of 3 years. The authority shall fill vacancies for an unexpired term.

1.7.3.3 Quorum. Two-thirds, but not less than four members, of the board of appeals shall constitute a quorum. In varying the application of any provision of this *Code*, or in modifying an order of the authority having jurisdiction, a majority vote of the members present shall be required.

1.7.3.4 Meetings and Records. Meetings of the board shall be held at the call of the chair and at such other times as the board determines. All hearings before the board shall be open to the public. The board shall keep minutes of its proceedings showing the vote of each member on every question, or if the member is absent or fails to vote, indicating such actions. The board shall also keep records of its examinations and other official actions. Minutes and records of the board shall be public records.

1.7.3.5 Procedures. The board shall establish rules and regulations for its own procedures consistent with the provisions of this *Code* and applicable laws and statutes.

1.7.3.6 Appeals. An appeal of a decision shall be filed within 30 days from the date of the decision being appealed by filing with the authority having jurisdiction and the board of appeals a notice of appeal, specifying the grounds thereof. In the case of a building or structure that, in the opinion of the authority having jurisdiction, is unsafe or dangerous, the authority having jurisdiction shall be permitted to limit the time for such appeal to a shorter period. The authority having jurisdiction shall transmit to the board all the papers relating to the appeal and shall schedule a public hearing thereon.

1.7.3.7 Authority of the Board.

1.7.3.7.1 The board of appeals shall provide for reasonable interpretation of the provisions of this *Code* and rule on appeals from decisions of the authority having jurisdiction. The ruling of the appeals board shall ensure that the intent of the *Code* is complied with and public safety is secured.

1.7.3.7.2 The board shall be permitted to grant modifications through the procedures outlined for equivalency in Section 1.5.

1.7.3.7.3 A decision of the board to modify an order of the authority having jurisdiction shall be in writing and shall specify the manner in which such modification is made, the conditions upon which it is made, and the reasons therefor.

1.7.3.8 Decisions.

1.7.3.8.1 Every decision of the board shall be entered in the minutes of the board meeting. Every decision shall be promptly filed in the office of the authority having jurisdiction and shall be open for public inspection. A certified copy shall be sent by mail or messenger to the appellant, and a copy shall be publicly posted in the office of the authority having jurisdiction for 2 weeks after filing. The decision of the board shall be final, subject to such remedy as any aggrieved party might have through legal, equity, or other avenues of appeal or petition.

1.7.3.8.2 If a decision of the board reverses or modifies a refusal, order, or disallowance of the authority having jurisdiction, or varies the application of any provision of this *Code*, the authority having jurisdiction shall take action immediately in accordance with such decision.

1.7.4 Liability.

1.7.4.1 Any officer, employee, or member of the board of appeals charged with the enforcement or interpretation of this *Code*, acting for the applicable governing body in the discharge of his/her duties, shall not thereby render himself/herself personally liable. Further, all such persons shall be relieved from all personal liability for any damage they accrue to persons or property as a result of any act required or permitted in the discharge of their duties. Any suit brought against any officer or employee because of such act performed in the course of enforcement of any provision of this *Code* shall be defended by the legal counsel of the jurisdiction until the termination of the proceedings.

1.7.4.2 This *Code* shall not be construed to relieve from, or lessen the responsibility of, any person owning, operating, or controlling any building or structure for any damages to persons or property caused by defects. Further, the *Code* enforcement agency or its parent jurisdiction shall not be held as assuming any such liability by reason of the inspections authorized by this *Code* or any permits or certificates issued under this *Code*.

1.7.5 Compliance of Buildings and Structures.

1.7.5.1 Alterations or Change of Occupancy Classification. Alterations or change of occupancy classification shall be in accordance with Chapter 15.

1.7.5.2 Maintenance of Buildings and Property.

1.7.5.2.1 Buildings. The requirements contained in this *Code* for maintenance of buildings shall apply to all buildings and structures in existence on the date of enactment of this *Code* and those hereafter erected. All buildings and structures and all parts thereof shall be maintained in a safe condition, and all devices and safeguards required by this *Code* shall be maintained in operating condition. The requirements of this paragraph shall not be construed as permitting the removal or nonmaintenance of existing devices or safeguards, unless authorized by the authority having jurisdiction.

1.7.5.2.2 Existing Installations. Buildings in existence at the time of the adoption of this *Code* shall be permitted to have their existing use or occupancy continued if such use or occupancy was legal at the time of the adoption of this *Code*, provided that such continued use is not dangerous to life.

1.7.5.3 Unsafe Buildings and Fire Hazards.

1.7.5.3.1 Descriptions.

1.7.5.3.1.1 Description of Unsafe Building. All buildings that are, or that hereafter become, characterized by the following shall be considered unsafe buildings:

- (1) Existence of unsanitary conditions
- (2) Deficiency in means of egress
- (3) Hazard from fire or natural or man-made threats
- (4) Dangers to human life or public welfare by reason of illegal or improper use, occupancy, or maintenance
- (5) Noncompliance with the provisions of codes applicable at time of construction

- (6) Significant damage by fire or explosion or other natural or man-made cause
- (7) Incompleteness — incomplete buildings for which building permits have expired
- (8) Falling away, hanging loose, or loosening of any siding, block, or other building material, appurtenance, or part thereof of a building
- (9) Existence of unsanitary conditions by reason of inadequate or malfunctioning sanitary facilities or waste disposal systems
- (10)*Existence of structurally unsafe conditions

1.7.5.3.1.2 Description of Building as a Fire Hazard. A building shall be deemed to be a fire hazard and unsafe under the following conditions:

- (1) When vacant and unguarded and open to unauthorized entry at door or window
- (2) When there is an accumulation of combustible dust, debris, or materials therein deemed to be a hazard by the authority having jurisdiction
- (3) When the building does not provide the exits or fire protection required herein for the most recent occupancy
- (4) When electrical or mechanical installations or systems create a hazardous condition

1.7.5.3.2 Authority of the Authority Having Jurisdiction Regarding Unsafe Buildings or Buildings That Are a Fire Hazard. All buildings deemed to be unsafe or to be a fire hazard by the authority having jurisdiction, based on 1.7.5.3.1, are hereby declared to be public nuisances and shall be demolished and removed from the premises concerned or shall be made safe and sanitary in accordance with Chapter 15 of this *Code*.

1.7.5.3.3 Inspection of Unsafe Buildings. The authority having jurisdiction, on his/her own initiative, or as a result of reports filed with the department of building and safety, shall examine or cause to be examined every building appearing to be or reported to be unsafe, and, if such is found to be an unsafe building as defined in 1.7.5.3.1.1, the authority having jurisdiction shall post the property on which the building is located and shall furnish the owner of such building with a written notice of violation. The manner of posting and furnishing written notice shall be as provided in 1.7.5.3.4 and 1.7.5.3.5, inclusive.

1.7.5.3.4 Notice of Violation. At least 14 days prior to posting a noncomplying building, the authority having jurisdiction shall give the owner of the premises written notice by certified mail, addressed to the owner's last known address. If proof of service by certified mail is not completed by signed return receipt, a copy of the written notice shall be affixed to the structure concerned, and such procedure shall be considered proper service, and the time for compliance stipulated in the notice shall commence with the date on which such notice is so affixed. This written notice shall state the defects that constitute a violation of this *Code* and prescribe the action to be taken by the owner of the building to comply with the *Code* and the time within which compliance must be accomplished. Such time shall be reasonable under the circumstances of the case and shall be subject to reasonable extension, when requested in writing, for reasons that the authority having jurisdiction considers as justifying an extension of time. All extensions of time shall be by written approval of the authority having jurisdiction. In addition, this written notice shall explain the right of appeal of the decision of the authority having jurisdiction to the board of appeals and shall state that,



unless there is compliance with the instructions in the notice of violation or an appeal is filed, a public hearing before the board of appeals will be initiated by the authority having jurisdiction after the time period for compliance has expired.

1.7.5.3.5 Recording of Notice of Violation.

1.7.5.3.5.1 If the owner of the property has not complied with the requirements as stated in the notice of violation within the time specified, the authority having jurisdiction shall file an appropriate instrument in the office of the clerk of the circuit court, to be recorded in the public records of the jurisdiction in which the violation occurred, indicating that violations of this *Code*, and of 1.7.5.3.4 thereof, exist upon the property involved.

1.7.5.3.5.2 The recording of the notice of violation shall constitute legal notice to all concerned, as well as to any subsequent purchasers, transferees, grantees, mortgagees, lessees, and all persons claiming or acquiring interest in the property.

1.7.5.3.5.3 When the violation specified in the notice of violation has been corrected and the filing fees incurred have been paid, the authority having jurisdiction shall file a certificate attesting that the violation has been corrected.

1.7.5.3.6 Posting Notice of Violation. The authority having jurisdiction shall post a signed notice in a conspicuous location on the building that has been determined to be unsafe, but not before 14 days after the notice of violation provided in 1.7.5.3.4 has been served. The posted notice shall be dated and shall read as follows:

UNSAFE BUILDING — This building is unsafe based on the provisions of 1.7.5.3 of *NFPA 5000, Building Construction and Safety Code*. This building shall be vacated and shall not be occupied. Action to repair or remove this building shall be taken by the owner as prescribed by written notice previously served. **THIS NOTICE SHALL NOT BE REMOVED EXCEPT BY THE AUTHORITY HAVING JURISDICTION.**

1.7.5.3.7 Emergency Action.

1.7.5.3.7.1 When, in the opinion of the authority having jurisdiction, an imminent danger exists, the authority having jurisdiction shall be authorized to order the occupants to vacate, or temporarily close for use or occupancy, the rights-of-way, sidewalks, streets, or adjacent buildings or nearby areas. The authority having jurisdiction shall have the authority to institute such other temporary safeguards as deemed necessary. The authority having jurisdiction shall be authorized to employ the necessary labor and materials to perform the required work. The authority having jurisdiction shall promptly notify the local emergency services of buildings posted as unsafe and ordered to be vacated. The authority having jurisdiction shall also notify the emergency services when unsafe conditions have been remedied and the building is safe for occupancy and use.

1.7.5.3.7.2 Costs incurred in the performance of emergency work shall be paid by the governmental authority having jurisdiction. Upon recording in the public records of the county in which such emergency work was completed, a certificate, executed by the authority having jurisdiction, certifying the amount expended and the reasons therefor shall be issued, and the cost shall become a lien against the property on which such emergency work was required.

1.7.5.3.8 Appeal and Review. The owner of, or anyone having an interest in, a building that has been determined to be un-

safe, concerning which a notice of violation has been served by the authority having jurisdiction as stated in the notice of violation, shall be permitted to appeal to the board of appeals, and such appeal shall be filed in accordance with the provisions of 1.7.3.6 and 1.7.3.7 prior to the expiration of the time allowed for compliance specified in such notice. In no case shall the appeal period be less than 15 days.

1.7.6 Building Permits, Construction Documents, and Inspections.

1.7.6.1 Permits.

1.7.6.1.1 Permits Required.

1.7.6.1.1.1 No person, firm, or corporation shall move a property line that affects an existing structure or erect, construct, enlarge, alter, repair, relocate, improve, convert, or demolish any building, structure, or part thereof in the jurisdiction, or cause the same to be done, without first obtaining from the authority having jurisdiction a separate building permit for the work to be accomplished for each such building, structure, or temporary structure. Permits shall not be required for the following:

- (1) Painting, papering, tiling, and carpeting, and cabinets, countertops, and similar finish work
- (2) Temporary motion picture, television, and theater stage sets and scenery
- (3) Window awnings supported by an exterior wall for one- and two-family residential use
- (4) One-story detached accessory structures used as tool and storage sheds or playhouses or for other similar uses, provided that the floor area does not exceed 120 ft² (11.1 m²)
- (5) Fences not over 6 ft (1830 mm) high
- (6) Movable cases, counters, and partitions not over 6 ft (1830 mm) high

1.7.6.1.1.2 Permits shall be required for plumbing, air-conditioning, heating, and ventilating systems; elevators, escalators, and transporting assemblies; and gas, sprinkler, roofing, electrical, and show/ride installations.

1.7.6.1.1.3 Special building permits for temporary structures placed in flood hazard areas shall comply with Section 39.15.

1.7.6.1.1.4 A previously issued lawful permit shall be valid on the terms of the *Code* under which it was issued, provided that no such permit shall be subject to the limitations specified in 1.7.6.1.

1.7.6.1.1.5 A special building permit that remains in effect for a limited time shall be obtained before the erection of temporary structures such as construction sheds, seats, canopies, tents, and fences used in construction work or for temporary purposes such as reviewing stands. Temporary structures shall be completely removed upon the expiration of the time limit stated in the permit.

1.7.6.1.2 Other Jurisdictions. Permits required for work to be accomplished under the jurisdiction of other departments shall be issued only on presentation of written proof of compliance with 1.7.2 of this *Code*.

1.7.6.2 Applications.

1.7.6.2.1 Application Requirements. To obtain a permit, the applicant shall first file an application therefor in writing on a form supplied for that purpose by the department of building and safety. Such application shall include the following:

- (1) Identification and description of the work to be covered by the permit for which application is made
- (2) Description of the land on which the proposed work is to be done by lot, block, tract, and street address, or similar description that will locate specifically the proposed building or work
- (3) Indication of the use or occupancy of all parts of the building
- (4) Construction documents as required in 1.7.6.3
- (5) Valuation of the proposed work
- (6) Signature of the permittee or his/her authorized agent
- (7) Provision of other information as required by the authority having jurisdiction

1.7.6.2.2 Surveyor's Certificate Requirements. Application for permit for new construction and additions shall be accompanied by a registered land surveyor's certificate and plan in duplicate on which shall be indicated clearly the following:

- (1) Property corner stakes
- (2) Property line dimensions
- (3) Existing structures and their location
- (4) Existing rights-of-way
- (5) Sidewalks
- (6) Easements
- (7) Street zoning and property zoning of record
- (8) Critical elevations and building setbacks required by law
- (9) General block plan
- (10) Other pertinent survey data

1.7.6.2.3 Waiver of Surveyor's Certificate Requirement. The authority having jurisdiction shall be granted authority to waive the requirements for the surveyor's certificate when property line stakes are known to be in place and when the work contemplated is minor and is clearly within building lines.

1.7.6.2.4 Requirements for Relocation of Buildings. Application for permit for relocating a building within the jurisdiction shall be submitted in the form that the authority having jurisdiction requests. The application shall be accompanied by plans or other data that, in the opinion of the authority having jurisdiction, are necessary to show compliance with this *Code* and the zoning and other regulations of the jurisdiction. A physical examination of the structure shall be made by the authority having jurisdiction before it issues a permit for relocation. (*See also 1.7.6.6.*)

1.7.6.2.5 Requirements for Demolition of Buildings and Structures. Application for permits for the work of demolition of buildings or structures shall be accepted only from persons or firms qualified to do the work. The qualifications of persons or firms permitted to demolish a building or structure shall be in accordance with the requirements of the jurisdiction providing for qualification and certification of construction tradespeople.

1.7.6.3 Construction Documents.

1.7.6.3.1 Requirements for Construction Documents.

1.7.6.3.1.1 Each application for a permit shall be accompanied by a minimum of two sets of construction documents and calculations when required by the authority having jurisdiction.

1.7.6.3.1.2 When compliance with this *Code* can be determined without the submittal or review of plans, specifications, and calculations, the authority having jurisdiction shall be per-

mitted to issue a permit without construction documents and calculations being submitted for review.

1.7.6.3.1.3 The construction documents shall be prepared by a registered design professional where required by statutes of the jurisdiction in which the construction site is located.

1.7.6.3.1.4 Unless otherwise provided in 1.7.6.3.1.5, plans shall be drawn to scale, shall be identified by name of designer and owner on every sheet, and shall be mechanically reproduced prints on substantial paper or cloth. A plot plan shall show all occupied and unoccupied parts of the lot or lots and shall delineate the accessible route(s) between structures and features that are required to be accessible in accordance with Chapter 12 of this *Code*. The use, name, and occupancy of all parts of the building shall be shown, including all foundations, wall sections, floor plans, elevations, and structural details. Mechanical, plumbing, electrical, fire sprinkler, and fire alarm details shall be shown on the plans and represent the designs for those disciplines, along with such other information to show clearly the nature, character, and location of the proposed work.

1.7.6.3.1.5 For tenant improvements or building repairs, renovations, modifications, or reconstruction in accordance with Chapter 15, plans shall be drawn to scale, shall be identified by name of designer and owner on every sheet, and shall be mechanically reproduced prints on substantial paper or cloth. The use, name, and occupancy of the work area shall be shown. Construction documents shall indicate the location, nature, and extent of the proposed work and shall show in detail that the proposed work will conform to the provisions of this *Code*.

1.7.6.3.1.6 Construction documents for all buildings shall indicate required smoke-resistant-rated and fire resistance-rated construction and how the required structural integrity, fire resistance ratings, and smoke resistance will be maintained where a joint or penetration of a required fire- or smoke-resistant wall, floor, or partition will be made for electrical, gas, or mechanical work; plumbing and communications conduits; pipes; and systems. Construction documents shall also indicate in sufficient detail how the fire integrity will be maintained where required fire-resistant floors intersect the exterior walls.

1.7.6.3.1.7 The classification of fire resistance-rated floor and roof construction shall be identified on the plans as restrained or unrestrained. Only where a registered design professional (RDP) has furnished documentation satisfactory to the authority having jurisdiction verifying that the construction is restrained as specified in 8.2.1.4 shall the construction be considered restrained.

1.7.6.3.1.8 The construction documents and shop drawings submitted to the authority having jurisdiction shall contain sufficient detail for evaluation of the protected hazards and the effectiveness of the system. The shop drawings for the installation of fire protection systems shall be submitted for review and approval prior to the installation of a fire protection system.

1.7.6.3.1.9 For high-rise buildings, mall buildings, and buildings containing atriums, the construction documents shall include a description of the fire protection systems in the building. This description shall include the basic concepts used for suppression, alarm, notification, egress, compartmentation, smoke control, and other related systems, as well as the coor-

dination of those systems. Upon completion of the project, a copy of the approved documentation shall be maintained at the site.

1.7.6.3.2 Examination of Construction Documents.

1.7.6.3.2.1 The authority having jurisdiction shall examine all construction documents and applications for permits and amendments thereto for their compliance with this *Code*. If the applications or the construction documents do not conform to the requirements of this *Code*, the authority having jurisdiction shall reject such application for a building permit in writing, stating the reasons therefor. Construction documents that are rejected shall be returned for corrections. If, upon examination, the application and construction documents are found to comply with the requirements of this *Code*, the construction documents shall be signed by the authority having jurisdiction or its deputy and shall be stamped “approved.”

1.7.6.3.2.2 When practical difficulties are involved in carrying out the requirements of this *Code*, the authority having jurisdiction shall be permitted to grant modifications for individual cases. Such permission shall require, first, a finding that a special individual reason makes strict compliance impractical and, second, that the modification is in conformance with the intent and purpose of the *Code*. Fire protection and structural integrity shall not be lessened.

1.7.6.3.3 Partial Approval.

1.7.6.3.3.1 Pending the completion of checking of construction documents, and on payment of the fee required, the authority having jurisdiction, at its discretion, shall be permitted to authorize the issuance of a partial permit for site preparation, excavation, and construction; foundation, structural, or show/ride installations; or any combination thereof. The holder of such partial permit shall proceed at his/her own risk and without assurance that a completion permit will be granted.

1.7.6.3.3.2 Whenever there is a delay in approval of construction documents under special circumstances, the authority having jurisdiction shall be permitted to allow the builder to place tool sheds, materials, batterboards, and construction equipment on the site prior to actual construction, or to permit exploratory uncovering of concealed structural elements of existing buildings for design information, pending completion of construction documents for proposed alterations.

1.7.6.3.3.3 The construction documents for each phase shall be complete in themselves, so that review and inspection can properly be made. Preliminary plans of the total building shall be submitted with the construction documents, and with sufficient detail, so that proper evaluation can be made. Areas and items not included in the phase to be permitted shall be shown as not included.

1.7.6.3.3.4 Deferred submittal of construction documents shall be approved by the authority having jurisdiction prior to the issuance of a building permit. The RDP for design shall identify all deferred submittals in writing with the application for permit. Construction documents for deferred submittal items shall be reviewed by the RDP for design for general conformance to the RDP’s design and then submitted to the authority having jurisdiction. Deferred submittal items shall not be installed until their performance requirements and construction documents have been approved by the authority having jurisdiction.

1.7.6.3.4 Approved Construction Documents.

1.7.6.3.4.1 The authority having jurisdiction shall retain one set of the approved construction documents and calculations. The other set shall be kept at the building site, open to inspection at all times when the offices of the jurisdiction are open.

1.7.6.3.4.2 After permit issuance, all changes and deviations from the approved construction documents shall be submitted and approved by the authority having jurisdiction prior to implementing the changes on site.

1.7.6.3.4.3 Approved construction documents and amendments thereto that are retained by the authority having jurisdiction shall become public record, provided that they shall be considered as confidential records of their author, that they shall be open to the public only for inspection, and that the authority having jurisdiction shall permit bona fide owners or designers employed by such owners to inspect the construction documents when not available from their author. Upon written application, the authority having jurisdiction shall permit the construction documents to be copied by the owner in the event of the author’s death or the inability of the author to supply copies of the construction documents.

1.7.6.3.4.4 At the time a certificate of occupancy is issued, an updated set of construction documents shall be submitted, and a permit fee shall be paid to reflect increased costs.

1.7.6.3.5 Multitenant Buildings.

1.7.6.3.5.1 Buildings that are to be completed in phases due to occupancy by tenants shall be permitted to be completed by the owner to a “rough-in” status. The individual tenant area shall then have a permit issued, and, upon completion of all work, a certificate of occupancy shall be issued for that area only. The authority having jurisdiction shall approve the certificate of occupancy by stages before starting construction and shall be permitted to require special conditions to provide safety during the completion.

1.7.6.3.5.2 Buildings that will later be occupied by multiple tenants (lessees) shall be permitted to have certain areas constructed to an unfinished rough-in condition without affecting the certificate of occupancy issued for the finished portions of the buildings. Future construction to accommodate individual tenants shall be approved upon submittals of acceptable construction documents for permit purposes. Certificates of occupancy shall be granted on a case-by-case basis when *Code* compliance has been achieved.

1.7.6.4 Permit Fees.

1.7.6.4.1 Fee Requirements. Any person requiring a building permit, in addition to filing an application therefor and before such permit is issued, shall pay such permit fee and plan check fee as required by the jurisdiction.

1.7.6.4.2 Basis of Permit Fee. The jurisdiction shall establish a fee schedule listing all applicable fees and the method of their calculation. The authority having jurisdiction shall be permitted to require an estimate of cost and other descriptive data as a basis for determining the permit fee.

1.7.6.5 Conditions of Permit.

1.7.6.5.1 Permit. When construction documents and application for permit have been approved and the required fee has been paid, the authority having jurisdiction shall issue a permit for the work. With each permit, the authority having jurisdiction shall issue a permit bearing the legal description of the

property, the nature of the work being done, the names of the owner and builder or contractor, and other pertinent information. The permit shall be posted and maintained in legible condition in a conspicuous place within the construction area during the entire time period the work authorized by the permit is in progress.

1.7.6.5.2 Compliance with the Code.

1.7.6.5.2.1 Issuing or granting of a permit or approval of construction documents by the authority having jurisdiction shall not be construed to be a permit for, or an approval of, any violations of any of the provisions of this *Code*. No permit presuming to give authority to violate or cancel any of the provisions of this *Code* shall be valid, except insofar as the performance of the work that it authorizes is lawful.

1.7.6.5.2.2 When construction documents have been approved, the issuance of a permit shall not prevent the authority having jurisdiction from thereafter requiring correction of errors in such construction documents, or from preventing building operations being carried on thereunder in violation of this *Code* or of any other regulations of the jurisdiction applicable thereto. Compliance with this *Code* is the responsibility of the owner or his/her authorized agent.

1.7.6.5.3 Time Limitation.

1.7.6.5.3.1 Permits shall expire if the work authorized by such permit is not commenced within 6 months from the date of the permit, or, if after commencing, the work is suspended or abandoned for a period of 6 months at any time during construction operations. The authority having jurisdiction shall be permitted to extend such permit for a period of 90 days from the date of expiration if the work has not commenced, or for a period of 90 days from the date of the last recorded inspection if written application for such extension is received and approved by the authority having jurisdiction prior to the date of expiration of the initial permit, and provided that the proposed work complies with all requirements of the *Code* in effect at the time of such renewal.

1.7.6.5.3.2 A previously issued lawful permit shall be valid under the terms of the *Code* under which it was issued, provided that such permit shall be subject to the limitations specified in 1.7.6.5.3.

1.7.6.5.3.3 Before the work for which a building permit that has become void can be recommended, a new permit shall be required. The work for which the new permit is issued shall conform to the provisions of this *Code* at the time of reissuance of the permit. The fee shall be based on the amount of work remaining to be done.

1.7.6.6 Inspection.

1.7.6.6.1 Inspection Requirements.

1.7.6.6.1.1 Before issuing a permit, the authority having jurisdiction shall be permitted to inspect any building or structure for which an application has been received for a permit to enlarge, alter, repair, relocate, demolish, or change the occupancy thereof. The authority having jurisdiction shall inspect all buildings and structures from time to time during the work for which a permit was issued and on completion of the work. The authority having jurisdiction shall cause to be kept a record of every inspection and of all violations of this *Code* and of the correction and disposition of such violations.

1.7.6.6.1.2 Before a permit for moving a building or structure within or into the jurisdiction is issued, the authority having jurisdiction shall be authorized to inspect such building or structure for the purpose of ascertaining that the building being relocated complies with the requirements of this *Code* and all other applicable laws or regulations of the jurisdiction.

1.7.6.6.1.3 All construction or work for which a permit is required shall be subject to mandatory inspections by the authority having jurisdiction, as prescribed in 1.7.6.6.3, and certain types of construction shall have quality assurance, as specified in Chapter 40. Prior to issuance of a certificate of occupancy, a final inspection shall be made by the authority having jurisdiction of all construction or work for which a permit has been issued.

1.7.6.6.1.4 When required by the authority having jurisdiction, it shall make an inspection of materials or assemblies at the place of manufacture or fabrication. A record shall be maintained of every such inspection and of all violations of this *Code* noted during the inspection.

1.7.6.6.1.5 The authority having jurisdiction shall make or cause to be made the inspections required in 1.7.6.6.1. Written reports of inspectors employed by approved inspection services shall be permitted, provided that, after investigation, the authority having jurisdiction is satisfied as to the qualifications and reliability of the inspection service. Costs of such inspections shall be borne by the owner. No certificate called for by any of these requirements shall be based on such reports, unless the reports are in writing and are certified by the officer of the agency who made the inspection. Reports issued by inspection services engaged by the owner or the registered design professional of a building shall be promptly forwarded to the authority having jurisdiction for its information and records.

1.7.6.6.1.6 Work requiring a building permit shall not be commenced until the permit holder or the holder's agent shall have posted the building permit in accordance with the requirements of 1.7.6.5.1. This permit shall be maintained in such position by the permit holder until the certificate of occupancy has been issued by the authority having jurisdiction.

1.7.6.6.2 Inspection of Structural Units. Where a building or part thereof is a structural unit, the integral parts of which have been built or assembled prior to incorporation into the building, such building or part thereof shall conform to the requirements of this *Code*. Inspections shall be made by the authority having jurisdiction as required in this *Code* for the materials and types of construction used in the prefabricated assemblies. The inspection shall be permitted to be waived during prefabrication if the approved agency certifies to the compliance of the construction with this *Code* and supplies evidence of such compliance in writing by an RDP or an approved agency or laboratory.

1.7.6.6.3 Mandatory Inspections.

1.7.6.6.3.1 Work requiring mandatory inspections shall not be covered or concealed in any manner without first obtaining the approval of the authority having jurisdiction.

1.7.6.6.3.2 Work shall not be done on any part of a building or structure beyond the stage of work indicated in each of the successive mandatory inspections until inspection has been completed and written approval has been given by the authority having jurisdiction or its deputy.

1.7.6.6.3.3 The permit holder or permit holder's agent shall notify the authority having jurisdiction of the time when a

given stage of construction will be ready for inspection. The authority having jurisdiction shall then make such called inspection and other inspection as necessary, and it either shall approve in writing that stage of the construction as completed or shall notify the permit holder or permit holder's agent specifically wherein the work fails to comply with the provisions of this *Code*.

1.7.6.6.3.4 Inspections shall be conducted for each building element as described in 1.7.6.6.3.4(A) through (P).

(A) Foundations. Inspections for foundations shall be conducted when the excavation for footings is complete, and when footing forms and when required anchorage and reinforcing steel are in place, but before concrete is placed.

(B) Reinforcing Steel. Inspections of reinforcing steel shall be conducted after all reinforcing steel is in place and supported, and when forms are braced, but before the concrete is placed. Reinforcing steel in walls shall be inspected after the steel is in place, with one side of wall forms in place and braced, but before the concrete is placed.

(C)* Lowest Floor. Inspections for the lowest floor for buildings and structures located wholly or partly within the flood hazard area established by 39.4.2 shall be made after the lowest floor level is set. No further vertical construction shall take place until the lowest floor inspection has been completed and the lowest floor elevation has been approved by the authority having jurisdiction. An elevation certificate identifying the lowest floor elevation, as required by 39.12.3.1.3 or 39.12.3.2.3, shall be submitted to the authority having jurisdiction immediately after the floor level is set. The lowest floor inspection shall be in addition to other flood-related special inspections in 1.7.6.6.3.4(N) (5).

(D) Framing. Inspections for framing shall be made at each floor level after all floor, wall, roof framing, and fire blocking are complete, after welds and clip connections are made, and after all pipes, chimneys, vents, ductwork, rough plumbing, and rough electrical work are in place.

(E) Insulation. Inspections for insulation shall be made before lathing, wallboard, or other finishes are applied.

(F) Lathing and Wallboard. Inspections for lathing and wallboard shall be conducted when supports, backing, lath, or wallboard, or any combination thereof, are in place and ready for plaster and other finish work, and all plastering materials are delivered on the job, but before any finish is applied and before wallboard joints and fasteners are taped and finished.

(G) Roofing. Inspections for roofing shall be conducted after the anchor sheet(s) is on and secured and before the installation of capsheet or other finish course.

(H) Masonry. Inspections for masonry shall be conducted after units are set and reinforcing steel is placed and prior to grouting.

(I) Structural Steel. Inspections for structural steel shall be conducted when structural steel members and required connections are complete, but before concealing any members or connections.

(J) Electrical Systems. Inspections for electrical systems shall be made in accordance with the requirements of Chapter 52.

(K) Mechanical Systems. Inspections for mechanical systems shall be made in accordance with the requirements of Chapter 50.

(L) Plumbing Systems. Inspections for plumbing systems shall be made in accordance with the requirements of Chapter 53.

(M) Fire Protection Systems. Inspections for fire protection systems shall be in accordance with applicable standards.

(N) Special Inspections. Special inspections shall be made immediately after completion and at such intervals during the progress of the work as required by the authority having jurisdiction and as follows:

- (1) Inspections for elevators and conveying systems shall be made in accordance with the requirements of ASME A17.1/CSA B44, *Safety Code for Elevators and Escalators*, ASME A18.1, *Safety Standard for Platform Lifts and Stairway Chairlifts*, and ASME B20.1, *Safety Standard for Conveyors and Related Equipment*.
- (2) Inspections for swimming pools shall be made in accordance with the requirements of this *Code*.
- (3) Inspections for signs shall be made in accordance with the requirements of this *Code*.
- (4) Inspections shall be made to confirm that stairways, except those used in the means of escape, comply with 11.2.2.3.5 and 11.2.2.3.6 of this *Code* before the installation of carpeting and after the installation of carpeting, provided that measurements made after the installation of carpeting are made to the uncompressed walking surface of the carpet.
- (5) For buildings and structures located wholly or partly within the flood hazard area established by 39.4.2, the following criteria shall be met:
 - (a) Inspections shall be made to determine the lowest elevation of machinery and equipment servicing the building, adjacent grade elevations, and flood-opening information.
 - (b) An elevation certificate identifying the information specified in 1.7.6.6.3.4(N)(5)(a), as required by 39.12.3.1.3 or 39.12.3.2.3, shall be submitted to the authority having jurisdiction before a certificate of occupancy is issued.

(O) Other Inspections. Other inspections shall be permitted. Prefabricated assemblies shall be permitted to be inspected at the place of manufacture.

(P) Final Inspection. A final inspection shall be made when the building or structure is completed and is ready for use or occupancy.

1.7.6.6.3.5 Requests for final inspections shall be made to the office of the authority having jurisdiction, and a reasonable time shall be allowed for such inspection to be made. Rejection or refusal to approve the work for reasons of incompleteness, violation of the provisions of this *Code*, or inadequacy of the construction shall nullify the request for final inspection. The work shall be made to comply with the *Code*, and the request for inspection shall be repeated as required herein.

1.7.6.6.4 Inspection Reports. The authority having jurisdiction shall keep a record of all inspections made, results, plans filed, surveys made, and certificates of occupancy issued.

1.7.6.7 Certificate of Occupancy.

1.7.6.7.1 Certificate Requirements.

1.7.6.7.1.1 No building hereafter erected, altered, enlarged, or relocated, or for which a change of occupancy has been

made, shall be used in whole or in part until a certificate of occupancy has been issued by the authority having jurisdiction certifying that the building and occupancy are in accordance with the provisions of this *Code* and all other laws and regulations applying thereto. When the building or part thereof complies with the provisions of all pertinent laws and regulations, the authority having jurisdiction shall issue the certificate of occupancy for the building or part thereof. A certificate of occupancy for places of assembly shall indicate thereon, and make record of, the number of persons for whom such certificate is issued. In all manufacturing, commercial, storage, or warehouse occupancies, the design live loads shall be plainly posted.

1.7.6.7.1.2 When, in the opinion of the authority having jurisdiction, any building rehabilitated, altered, or enlarged, or any combination thereof, is in compliance with this *Code* the owner shall be issued a certificate of compliance affirming substantial compliance with the requirements of this *Code* in lieu of a certificate of occupancy.

1.7.6.7.2 Existing Occupancy. The authorized occupancy of any structure existing on the date of adoption of this *Code* shall be permitted to continue without change, except as is specifically covered in this *Code* or as is deemed necessary by the authority having jurisdiction for the general safety and welfare of the occupants and public.

1.7.6.7.3 Temporary Certificate of Occupancy. A temporary certificate of occupancy shall be permitted to be issued by the authority having jurisdiction for the use of parts of a building prior to completion of the entire building.

1.7.6.7.4 Connection of Services. It shall be unlawful for a public service corporation or agency to begin utility service to a building or structure, including temporary service for use during building construction or testing operations, until such connection of service has been approved by the authority having jurisdiction.

1.7.6.7.5 Conditions of Certificate of Occupancy. Certificate of occupancy shall be conditioned upon the following:

- (1) The completed project meets the conditions of the construction permit; the approved construction documents, including all amendments; and all prior approvals.
- (2) All required fees have been paid.
- (3) All necessary inspections have been completed, and the completed project meets the requirements of this *Code*.
- (4) All violations have been corrected, and any assessed penalties have been paid.
- (5) All protective devices and equipment required to be installed by this *Code* continue to be operational, as required by this *Code*.
- (6) All quality assurance programs required by Chapter 40 have been completed.

1.7.7 Stop-Work Orders and Revocation of Permit or Certificate.

1.7.7.1 Stop-Work Orders. Whenever any work is being done contrary to the provisions of this *Code*, the authority having jurisdiction shall be authorized to order such work stopped. Such work shall immediately stop until authorized by the authority having jurisdiction to proceed.

1.7.7.1.1 Written notice of violations leading to the stop-work order shall be mailed or given to the permit holder or permit holder's agent. Upon issuance of a stop-work order, the work

cited shall immediately cease according to the time limitation specified on the order.

1.7.7.1.2 When the violation(s) has been corrected, the authority having jurisdiction shall provide the permit holder or permit holder's agent written notice that the violation(s) has been corrected and that the stop-work order has been lifted.

1.7.7.1.3 Any person continuing work after being served a stop-work order, except work to correct the cited violation(s) or work not included within the scope of the stop-work order, shall be subject to the provisions of 1.7.7.2 and other penalties as prescribed by law.

1.7.7.2 Revocation of Permit. The authority having jurisdiction shall be hereby granted authority to revoke a permit or approval issued under the provisions of this *Code* when any false statement or misrepresentation of fact is made in the application, or on the plans on which the permit or approval was based, or for failure to honor any stop-work order issued under 1.7.7.1 of this *Code*.

1.7.7.2.1 The authority having jurisdiction shall notify the contractor or owner or owner's agent in writing that the permit is revoked. Work performed by a person or persons in or about the building or structure, except work required for the correction of violations, shall be prohibited. Any person continuing work after having a permit suspended, except work to correct the cited violation(s), shall be subject to the provisions of 1.7.5.3.4 and 1.7.5.3.5 and any other penalties prescribed by law. If, in the judgment of the authority having jurisdiction, there is imminent danger that requires immediate action, the permit shall be permitted to be revoked verbally, and written notice shall be served later.

1.7.7.2.2 When a permit has been revoked, it shall not be reinstated until all violations leading to the revocation of the permit have been corrected. Written notice of reinstatement shall be given to the permit holder when requested.

1.7.7.3 Revocation of Certificate. When any building or part thereof is being used contrary to the provisions of this *Code*, or any other laws or regulations of the jurisdiction, the authority having jurisdiction shall be authorized to revoke a certificate of occupancy and order such use or occupancy discontinued and the building or part thereof vacated. The authority having jurisdiction shall provide written notice of the revocation of the certificate to the person(s) using or causing to be used such buildings or parts thereof. Continued use of the building or part thereof after the certificate of occupancy has been revoked shall be in violation of this *Code* and subject to the penalties prescribed by law.

Chapter 2 Referenced Publications

2.1 General. The documents or portions thereof listed in this chapter are referenced within this code 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 1, *Fire Code*, 2009 edition.

NFPA 10, *Standard for Portable Fire Extinguishers*, 2007 edition.

NFPA 11, *Standard for Low-, Medium-, and High-Expansion Foam*, 2005 edition.

- NFPA 12, *Standard on Carbon Dioxide Extinguishing Systems*, 2008 edition.
- NFPA 12A, *Standard on Halon 1301 Fire Extinguishing Systems*, 2009 edition.
- NFPA 13, *Standard for the Installation of Sprinkler Systems*, 2007 edition.
- NFPA 13D, *Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes*, 2007 edition.
- NFPA 13R, *Standard for the Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height*, 2007 edition.
- NFPA 14, *Standard for the Installation of Standpipe and Hose Systems*, 2007 edition.
- NFPA 15, *Standard for Water Spray Fixed Systems for Fire Protection*, 2007 edition.
- NFPA 16, *Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems*, 2007 edition.
- NFPA 17, *Standard for Dry Chemical Extinguishing Systems*, 2009 edition.
- NFPA 17A, *Standard for Wet Chemical Extinguishing Systems*, 2009 edition.
- NFPA 24, *Standard for the Installation of Private Fire Service Mains and Their Appurtenances*, 2007 edition.
- NFPA 30, *Flammable and Combustible Liquids Code*, 2008 edition.
- NFPA 30A, *Code for Motor Fuel Dispensing Facilities and Repair Garages*, 2008 edition.
- NFPA 30B, *Code for the Manufacture and Storage of Aerosol Products*, 2007 edition.
- NFPA 31, *Standard for the Installation of Oil-Burning Equipment*, 2006 edition.
- NFPA 32, *Standard for Drycleaning Plants*, 2007 edition.
- NFPA 33, *Standard for Spray Application Using Flammable or Combustible Materials*, 2007 edition.
- NFPA 34, *Standard for Dipping and Coating Processes Using Flammable or Combustible Liquids*, 2007 edition.
- NFPA 35, *Standard for the Manufacture of Organic Coatings*, 2005 edition.
- NFPA 36, *Standard for Solvent Extraction Plants*, 2004 edition.
- NFPA 37, *Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines*, 2006 edition.
- NFPA 40, *Standard for the Storage and Handling of Cellulose Nitrate Film*, 2007 edition.
- NFPA 42, *Code for the Storage of Pyroxylin Plastic*, 2002 edition.
- NFPA 45, *Standard on Fire Protection for Laboratories Using Chemicals*, 2004 edition.
- NFPA 51, *Standard for the Design and Installation of Oxygen-Fuel Gas Systems for Welding, Cutting, and Allied Processes*, 2007 edition.
- NFPA 51A, *Standard for Acetylene Cylinder Charging Plants*, 2006 edition.
- NFPA 52, *Vehicular Fuel Systems Code*, 2006 edition.
- NFPA 54/ANSI 223.1, *National Fuel Gas Code*, 2006 edition.
- NFPA 55, *Standard for the Storage, Use, and Handling of Compressed Gases and Cryogenic Fluids in Portable and Stationary Containers, Cylinders, and Tanks*, 2005 edition.
- NFPA 58, *Liquefied Petroleum Gas Code*, 2008 edition.
- NFPA 59A, *Standard for the Production, Storage, and Handling of Liquefied Natural Gas (LNG)*, 2009 edition.
- NFPA 61, *Standard for the Prevention of Fires and Dust Explosions in Agricultural and Food Processing Facilities*, 2008 edition.
- NFPA 69, *Standard on Explosion Prevention Systems*, 2008 edition.
- NFPA 70®, *National Electrical Code®*, 2008 edition.
- NFPA 72®, *National Fire Alarm Code®*, 2007 edition.
- NFPA 75, *Standard for the Protection of Information Technology Equipment*, 2009 edition.
- NFPA 80, *Standard for Fire Doors and Other Opening Protectives*, 2007 edition.
- NFPA 82, *Standard on Incinerators and Waste and Linen Handling Systems and Equipment*, 2004 edition.
- NFPA 85, *Boiler and Combustion Systems Hazards Code*, 2007 edition.
- NFPA 88A, *Standard for Parking Structures*, 2007 edition.
- NFPA 90A, *Standard for the Installation of Air-Conditioning and Ventilating Systems*, 2009 edition.
- NFPA 90B, *Standard for the Installation of Warm Air Heating and Air-Conditioning Systems*, 2009 edition.
- NFPA 91, *Standard for Exhaust Systems for Air Conveying of Vapors, Gases, Mists, and Noncombustible Particulate Solids*, 2004 edition.
- NFPA 92A, *Standard for Smoke-Control Systems Utilizing Barriers and Pressure Differences*, 2009 edition.
- NFPA 92B, *Standard for Smoke Management Systems in Malls, Atria, and Large Spaces*, 2009 edition.
- NFPA 96, *Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations*, 2008 edition.
- NFPA 99, *Standard for Health Care Facilities*, 2005 edition.
- NFPA 99B, *Standard for Hypobaric Facilities*, 2005 edition.
- NFPA 101®, *Life Safety Code®*, 2009 edition.
- NFPA 105, *Standard for the Installation of Smoke Door Assemblies and Other Opening Protectives*, 2007 edition.
- NFPA 110, *Standard for Emergency and Standby Power Systems*, 2005 edition.
- NFPA 111, *Standard on Stored Electrical Energy Emergency and Standby Power Systems*, 2005 edition.
- NFPA 120, *Standard for Fire Prevention and Control in Coal Mines*, 2004 edition.
- NFPA 140, *Standard on Motion Picture and Television Production Studio Soundstages, Approved Production Facilities, and Production Locations*, 2008 edition.
- NFPA 150, *Standard on Fire and Life Safety in Animal Housing Facilities*, 2007 edition.
- NFPA 170, *Standard for Fire Safety and Emergency Symbols*, 2006 edition.
- NFPA 204, *Standard for Smoke and Heat Venting*, 2007 edition.
- NFPA 211, *Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances*, 2006 edition.
- NFPA 214, *Standard on Water-Cooling Towers*, 2005 edition.
- NFPA 220, *Standard on Types of Building Construction*, 2009 edition.
- NFPA 241, *Standard for Safeguarding Construction, Alteration, and Demolition Operations*, 2004 edition.
- NFPA 251, *Standard Methods of Tests of Fire Resistance of Building Construction and Materials*, 2006 edition.
- NFPA 252, *Standard Methods of Fire Tests of Door Assemblies*, 2008 edition.
- NFPA 253, *Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source*, 2006 edition.
- NFPA 256, *Standard Methods of Fire Tests of Roof Coverings*, 2003 edition.
- NFPA 257, *Standard on Fire Test for Window and Glass Block Assemblies*, 2007 edition.
- NFPA 259, *Standard Test Method for Potential Heat of Building Materials*, 2008 edition.
- NFPA 262, *Standard Method of Test for Flame Travel and Smoke of Wires and Cables for Use in Air-Handling Spaces*, 2007 edition.

NFPA 265, *Standard Methods of Fire Tests for Evaluating Room Fire Growth Contribution of Textile Coverings on Full Height Panels and Walls*, 2007 edition.

NFPA 268, *Standard Test Method for Determining Ignitability of Exterior Wall Assemblies Using a Radiant Heat Energy Source*, 2007 edition.

NFPA 285, *Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components*, 2006 edition.

NFPA 286, *Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth*, 2006 edition.

NFPA 288, *Standard Methods of Fire Tests of Floor Fire Door Assemblies Installed Horizontally in Fire Resistance-Rated Floor Systems*, 2007 edition.

NFPA 303, *Fire Protection Standard for Marinas and Boatyards*, 2006 edition.

NFPA 307, *Standard for the Construction and Fire Protection of Marine Terminals, Piers, and Wharves*, 2006 edition.

NFPA 318, *Standard for the Protection of Semiconductor Fabrication Facilities*, 2009 edition.

NFPA 407, *Standard for Aircraft Fuel Servicing*, 2007 edition.

NFPA 409, *Standard on Aircraft Hangars*, 2004 edition.

NFPA 415, *Standard on Airport Terminal Buildings, Fueling Ramp Drainage, and Loading Walkways*, 2008 edition.

NFPA 418, *Standard for Heliports*, 2006 edition.

NFPA 423, *Standard for Construction and Protection of Aircraft Engine Test Facilities*, 2004 edition.

NFPA 430, *Code for the Storage of Liquid and Solid Oxidizers*, 2004 edition.

NFPA 432, *Code for the Storage of Organic Peroxide Formulations*, 2002 edition.

NFPA 434, *Code for the Storage of Pesticides*, 2002 edition.

NFPA 484, *Standard for Combustible Metals*, 2009 edition.

NFPA 490, *Code for the Storage of Ammonium Nitrate*, 2002 edition.

NFPA 495, *Explosive Materials Code*, 2006 edition.

NFPA 501, *Standard on Manufactured Housing*, 2005 edition.

NFPA 502, *Standard for Road Tunnels, Bridges, and Other Limited Access Highways*, 2008 edition.

NFPA 560, *Standard for the Storage, Handling, and Use of Ethylene Oxide for Sterilization and Fumigation*, 2007 edition.

NFPA 654, *Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids*, 2006 edition.

NFPA 655, *Standard for Prevention of Sulfur Fires and Explosions*, 2007 edition.

NFPA 664, *Standard for the Prevention of Fires and Explosions in Wood Processing and Woodworking Facilities*, 2007 edition.

NFPA 701, *Standard Methods of Fire Tests for Flame Propagation of Textiles and Films*, 2004 edition.

NFPA 704, *Standard System for the Identification of the Hazards of Materials for Emergency Response*, 2007 edition.

NFPA 750, *Standard on Water Mist Fire Protection Systems*, 2006 edition.

NFPA 801, *Standard for Fire Protection for Facilities Handling Radioactive Materials*, 2008 edition.

NFPA 804, *Standard for Fire Protection for Advanced Light Water Reactor Electric Generating Plants*, 2006 edition.

NFPA 805, *Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants*, 2006 edition.

NFPA 820, *Standard for Fire Protection in Wastewater Treatment and Collection Facilities*, 2008 edition.

NFPA 853, *Standard for the Installation of Stationary Fuel Cell Power Systems*, 2007 edition.

NFPA 900, *Building Energy Code*, 2007 edition.

NFPA 909, *Code for the Protection of Cultural Resource Properties — Museums, Libraries, and Places of Worship*, 2005 edition.

NFPA 914, *Code for Fire Protection of Historic Structures*, 2007 edition.

NFPA 1124, *Code for the Manufacture, Transportation, Storage, and Retail Sales of Fireworks and Pyrotechnic Articles*, 2006 edition.

NFPA 1125, *Code for the Manufacture of Model Rocket and High Power Rocket Motors*, 2007 edition.

NFPA 1144, *Standard for Reducing Structure Ignition Hazards from Wildland Fire*, 2008 edition.

NFPA 1221, *Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems*, 2007 edition.

NFPA 2001, *Standard on Clean Agent Fire Extinguishing Systems*, 2008 edition.

2.3 Other Publications.

2.3.1 AA Publications. Aluminum Association, Inc., 1525 Wilson Blvd., Suite 600, Arlington, VA 22209.

Aluminum Design Manual: Part 1A, *Aluminum Structures, Allowable Stress Design*, and Part 1-B, *Aluminum Structures, Load and Resistance Factor Design of Buildings and Similar Type Structures*, 2000.

2.3.2 ACI Publications. American Concrete Institute, P.O. Box 9094, Farmington Hills, MI 48333-9094.

ACI 216.1/TMS 0216.1, *Code Requirements for Determining Fire Resistance of Concrete and Masonry Construction Assemblies*, 2008.

ACI 318, *Building Code Requirements for Structural Concrete*, (ACI 318, 2005) and *Commentary* (ACI 318R, 2005), 2008.

ACI 506.2, *Specification for Materials, Proportioning, and Application of Shotcrete*, 1995.

ACI 530/ASCE 5/TMS 402, *Building Code Requirements for Masonry Structures*, 2005.

ACI 530.1/ASCE 6/TMS 602, *Specification for Masonry Structures*, 2005.

2.3.3 AF&PA Publications. American Forest & Paper Association, 1111 19th Street, NW, Suite 800, Washington, DC 20036.

ANSI/AF&PA NDS, *National Design Specifications (NDS) for Wood Construction*, 2005.

AF&PA NDS Supplement, *NDS Supplement — Design Values for Wood Construction*, 2005.

AF&PA SDPWS, *Special Design Provisions for Wind and Seismic*, 2005.

Span Tables for Joists and Rafters, 1993.

Technical Report No. 7, *Permanent Wood Foundation System*, 1987.

Wood Construction Data No. 4, *Plank and Beam Framing for Residential Buildings*, 2003.

ANSI/AF&PA WFCM, *Wood Frame Construction Manual for One- and Two-Family Dwellings*, 2001.

2.3.4 AISC Publications. American Institute of Steel Construction, One East Wacker Drive, Suite 3100, Chicago, IL 60601-2001.

ANSI/AISC 341, *Seismic Provisions for Structural Steel Buildings*, 2005.

ANSI/AISC 360, *Specification for Structural Steel Buildings*, 2005.



2.3.5 AISI Publications. American Iron and Steel Institute, 1401 Connecticut Avenue, Suite 705, Washington, DC 20036.

AISI-S100, *North American Specification for the Design of Cold-Formed Steel Structural Members*, 2007.

AISI-S200, *North American Standard for Cold-Formed Steel Framing — General Provisions*, 2007.

AISI-S210, *North American Standard for Cold-Formed Steel Framing — Floor and Roof System Design*, 2007.

AISI-S211, *North American Standard for Cold-Formed Steel Framing — Wall Stud Design*, 2007.

AISI-S212, *North American Standard for Cold-Formed Steel Framing — Header Design*, 2007.

AISI-S213, *North American Standard for Cold-Formed Steel Framing — Lateral Design*, 2007.

AISI-S214, *North American Standard for Cold-Formed Steel Framing — Truss Design*, including Supplement 2 (June 2008).

AISI-S230, *Standard for Cold-Formed Steel Framing — Prescriptive Method for One- and Two-Family Dwellings*, including Supplement 2 (June 2008).

AISI S 214 and S230 references have been updated by a tentative interim amendment (TIA). See page 1.

2.3.6 AITC Publications. American Institute of Timber Construction, 7012 S. Revere Parkway, Suite 140, Centennial, CO 80112.

ANSI/AITC A190.1, *American National Standard, Structural Glued Laminated Timber*, 2002.

2.3.7 ANSI Publications. American National Standards Institute, Inc., 25 West 43rd Street, 4th floor, New York, NY 10036.

ANSI A14.3, *Safety Requirements for Fixed Ladders*, 2002.

ANSI A208.1, *Standard for Particleboard*, 1999.

ANSI A1264.1, *Safety Requirements for Workplace Floor and Wall Openings, Stairs and Railing Systems*, 2007.

ANSI Z 97.1, *Glazing Materials Used in Buildings, Safety Performance Specifications and Methods of Test*, 2004.

2.3.8 APSP Publications. The Association of Pool and Spa Professionals, 211 Eisenhower Avenue, Alexandria, VA 22314.

ANSI/NSPI-1, *Standard for Public Swimming Pools*, 2003.

ANSI/NSPI-2, *Standard for Public Spas*, 1999.

ANSI/NSPI-3, *Standard for Permanently Installed Residential Spas*, 1999.

ANSI/NSPI-4, *Standard for Aboveground/Onground Residential Swimming Pools*, 1999, with Addendum 2003.

ANSI/NSPI-5, *Standard for Residential Inground Swimming Pools*, 2003.

ANSI/NSPI-6, *Standard for Residential Portable Spas*, 1999.

ANSI/NSPI-8, *Model Barrier Code for Residential Swimming Pools, Spas, and Hot Tubs*, 2005.

2.3.9 ASCE Publications. American Society of Civil Engineers, 1801 Alexander Bell Drive, Reston, VA 20191-4400.

ASCE/SEI 3, *Standard for the Structural Design of Composite Slabs*, 1991.

ASCE/SEI 7, *Minimum Design Loads for Buildings and Other Structures*, 2005 with Supplement 1 and Supplement 2.

ASCE/SEI 8, *Standard Specification for the Design of Cold-Formed Stainless Steel Structural Members*, 2003.

ASCE/SEI 17, *Air Supported Structures*, 1997.

ASCE/SEI 19, *Structural Applications of Steel Cables for Buildings*, 1997.

ASCE/SEI 23, *Specification for Structural Steel Beams with Web Openings*, 1999.

ASCE/SEI 24, *Flood Resistant Design and Construction*, 2006.

ASCE/SFPE 29, *Standard Calculation Methods for Structural Fire Protection*, 2005.

ASCE/SEI 31, *Seismic Evaluation of Existing Buildings*, 2002.

2.3.10 ASHRAE Publications. American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc., 1791 Tullie Circle, NE, Atlanta, GA 30329-2305.

ASHRAE, *Handbook of Fundamentals*, 2001.

ASHRAE 55, *Thermal Environmental Conditions for Human Occupancy*, 1992.

ASHRAE 62, *Ventilation for Acceptable Indoor Air Quality*, 2001.

ASHRAE/IESNA 90.1, *Energy Standard for Buildings Except Low Rise Residential Buildings*, 2007.

ASHRAE 90.2, *Energy-Efficient Design of Low-Rise Residential Buildings*, 2007.

ANSI/ASHRAE 15, *Safety Standard for Refrigeration Systems*, 2004.

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

ASME A17.1/CSA B 44, *Safety Code for Elevators and Escalators*, 2007.

ASME A18.1, *Safety Standard for Platform Lifts and Stairway Chairlifts*, 2003.

ASME B20.1, *Safety Standard for Conveyors and Related Equipment*, 2003.

ASME B31.3, *Process Piping*, 2002.

2.3.12 ASSE Publications. American Society of Safety Engineers, 1800 East Oakton Street, Des Plaines, IL 60018.

ANSI/ASSE A1264.1, *Safety Requirements for Workplace Floor and Wall Openings, Stairs and Railing Systems*, 2007.

2.3.13 ASTM Publications. American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM A 153/A 153M, *Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware*, 2005.

ASTM A 463/A 463 M, *Standard Specification for Steel Sheet, Aluminum-Coated, by the Hot-Dip Process*, 2006.

ASTM A 653/A 653M, *Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process*, 2007a.

ASTM A 706/A 706M, *Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement*, 2006b.

ASTM A 755/A 755M, *Standard Specification for Steel Sheet, Metallic Coated by the Hot-Dip Process and Prepainted by the Coil-Coating Process for Exterior Exposed Building Products*, 2003.

ASTM A 792/A 792M, *Standard Specification for Steel Sheet, 55 % Aluminum-Zinc Alloy-Coated by the Hot-Dip Process*, 2006a.

ASTM A 875/A 875M, *Standard Specification for Steel Sheet, Zinc-5 % Aluminum Alloy-Coated by the Hot-Dip Process*, 2006a.

ASTM A 924/A 924M, *Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process*, 2007.

ASTM B 101, *Standard Specification for Lead-Coated Copper Sheet and Strip for Building Construction*, 2002.

ASTM B 209, *Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate*, 2006.

ASTM C 28/C 28M, *Standard Specification for Gypsum Plasters*, 2005.

ASTM C 35, *Standard Specification for Inorganic Aggregates for Use in Gypsum Plaster*, 2005.

ASTM C 59/C 59M, *Standard Specification for Gypsum Casting Plaster and Gypsum Molding Plaster*, 2006.

ASTM C 61/C 61M, *Standard Specification for Gypsum Keenes Cement*, 2006.

ASTM C 90, *Standard Specification for Loadbearing Concrete Masonry Units*, 2006b.

ASTM C 91, *Standard Specification for Masonry Cement*, 2005.

ASTM C 150, *Standard Specification for Portland Cement*, 2007.

ASTM C 206, *Standard Specification for Finishing Hydrated Lime*, 2003.

ASTM C 208, *Standard Specification for Cellulosic Fiber Insulating Board*, 2001.

ASTM C 317/C 317M, *Standard Specification for Gypsum Concrete*, 2005.

ASTM C 406, *Standard Specification for Roofing Slate*, 2006 e1.

ASTM C 472, *Standard Test Methods for Physical Testing of Gypsum, Gypsum Plasters and Gypsum Concrete*, 2004.

ASTM C 475/C 475M, *Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board*, 2002.

ASTM C 476, *Standard Specification for Grout for Masonry*, 2002.

ASTM C 514, *Standard Specification for Nails for the Application of Gypsum Board*, 2004.

ASTM C 552, *Standard Specification for Cellular Glass Thermal Insulation*, 2003.

ASTM C 557, *Standard Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing*, 2003 e1.

ASTM C 578, *Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation*, 2007.

ASTM C 587, *Standard Specification for Gypsum Veneer Plaster*, 2004.

ASTM C 588/C 588M, *Standard Specification for Gypsum Base for Veneer Plasters*, 2003 e1.

ASTM C 591, *Standard Specification for Unfaced Preformed Rigid Cellular Polyisocyanurate Thermal Insulation*, 2007.

ASTM C 595, *Standard Specification for Blended Hydraulic Cements*, 2007.

ASTM C 631, *Standard Specification for Bonding Compounds for Interior Gypsum Plastering*, 1995a (2004).

ASTM C 645, *Standard Specification for Nonstructural Steel Framing Members*, 2007.

ASTM C 726, *Standard Specification for Mineral Fiber Roof Insulation Board*, 2005.

ASTM C 728, *Standard Specification for Perlite Thermal Insulation Board*, 2005.

ASTM C 836, *Standard Specification for High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane for Use with Separate Wearing Course*, 2006.

ASTM C 840, *Standard Specification for Application and Finishing of Gypsum Board*, 2007.

ASTM C 841, *Standard Specification for Installation of Interior Lathing and Furring*, 2003.

ASTM C 842, *Standard Specification for Application of Interior Gypsum Plaster*, 2005.

ASTM C 843, *Standard Specification for Application of Gypsum Veneer Plaster*, 2006.

ASTM C 844, *Standard Specification for Application of Gypsum Base to Receive Gypsum Veneer Plaster*, 2006.

ASTM C 847, *Standard Specification for Metal Lath*, 2006.

ASTM C 887, *Standard Specification for Packaged, Dry, Combined Materials for Surface Bonding Mortar*, 2005.

ASTM C 897, *Standard Specification for Aggregate for Job-Mixed Portland Cement-Based Plasters*, 2005.

ASTM C 920, *Standard Specification for Elastomeric Joint Sealants*, 2005.

ASTM C 926, *Standard Specification for Application of Portland Cement-Based Plaster*, 2006.

ASTM C 932, *Standard Specification for Surface-Applied Bonding Compounds for Exterior Plastering*, 2006.

ASTM C 933, *Standard Specification for Welded Wire Lath*, 2005.

ASTM C 946, *Standard Practice for Construction of Dry-Stacked, Surface-Bonded Walls*, 1991 (2001).

ASTM C 954, *Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Steel Studs from 0.033 in. (0.84 mm) to 0.112 in. (2.84 mm) in Thickness*, 2004.

ASTM C 955, *Standard Specification for Load-Bearing (Transverse and Axial) Steel Studs, Runners (Tracks), and Bracing or Bridging for Screw Application of Gypsum Panel Products and Metal Plaster Bases*, 2006.

ASTM C 956, *Standard Specification for Installation of Cast-in-Place Reinforced Gypsum Concrete*, 2004.

ASTM C 957, *Standard Specification for High-Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane with Integral Wearing Surface*, 2006.



- ASTM C 1002, *Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs*, 2004.
- ASTM C 1029, *Standard Specification for Spray-Applied Rigid Cellular Polyurethane Thermal Insulation*, 2005a.
- ASTM C 1032, *Standard Specification for Woven Wire Plaster Base*, 2006.
- ASTM C 1047, *Standard Specification for Accessories for Gypsum Wallboard and Gypsum Veneer Base*, 2005.
- ASTM C 1167, *Standard Specification for Clay Roof Tiles*, 2003.
- ASTM C 1177/C 1177M, *Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing*, 2006.
- ASTM C 1178/C 1178M, *Standard Specification for Glass Mat Water-Resistant Gypsum Backing Panel*, 2006.
- ASTM C 1278/C 1278M, *Standard Specification for Fiber-Reinforced Gypsum Panel*, 2006 e1.
- ASTM C 1280, *Standard Specification for Application of Gypsum Sheathing*, 2004.
- ASTM C 1289, *Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board*, 2006.
- ASTM C 1328, *Standard Specification for Plastic (Stucco) Cement*, 2005.
- ASTM C 1396/C 1396M, *Standard Specification for Gypsum Board*, 2006a.
- ASTM C 1491, *Standard Specification for Concrete Roof Pavers*, 2003.
- ASTM C 1492, *Standard Specification for Concrete Roof Tile*, 2003.
- ASTM D 25, *Standard Specification for Round Timber Piles*, 1999 (2005).
- ASTM D 41, *Standard Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing*, 2005.
- ASTM D 43, *Standard Specification for Coal Tar Primer Used in Roofing, Dampproofing, and Waterproofing*, 2006.
- ASTM D 86, *Standard Test Method for Distillation of Petroleum Products at Atmospheric Pressure*, 2007a.
- ASTM D 225, *Standard Specification for Asphalt Shingles (Organic Felt) Surfaced with Mineral Granules*, 2004.
- ASTM D 226, *Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing*, 2006.
- ASTM D 227, *Standard Specification for Coal-Tar-Saturated Organic Felt Used in Roofing and Waterproofing*, 2003.
- ASTM D 312, *Standard Specification for Asphalt Used in Roofing*, 2006.
- ASTM D 450, *Standard Specification for Coal-Tar Pitch Used in Roofing, Dampproofing, and Waterproofing*, 1996 (2007).
- ASTM D 635, *Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position*, 2006.
- ASTM D 1079, *Standard Terminology Relating to Roofing, Waterproofing, and Bituminous Materials*, 2007a.
- ASTM D 1143, *Standard Test Method for Piles Under Static Axial Compressive Load*, 2007.
- ASTM D 1227, *Standard Specification for Emulsified Asphalt Used as a Protective Coating for Roofing*, 1995 (2007).
- ASTM D 1761, *Standard Test Methods for Mechanical Fasteners in Wood*, 1988 (2006) e1.
- ASTM D 1863, *Standard Specification for Mineral Aggregate Used on Built-Up Roofs*, 2005.
- ASTM D 1929, *Standard Test Method for Determining Ignition Temperature of Plastics*, 1996 (2001) e1.
- ASTM D 1970, *Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection*, 2001.
- ASTM D 2178, *Standard Specification for Asphalt Glass Felt Used in Roofing and Waterproofing*, 2004.
- ASTM D 2487, *Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System)*, 2006.
- ASTM D 2626, *Standard Specification for Asphalt-Saturated and Coated Organic Felt Base Sheet Used in Roofing*, 2004.
- ASTM D 2823, *Standard Specification for Asphalt Roof Coatings*, 2005.
- ASTM D 2843, *Standard Test Method for Density of Smoke from the Burning or Decomposition of Plastics*, 1999 (2004).
- ASTM D 2859, *Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials*, 2006.
- ASTM D 2898, *Standard Test Methods for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing*, 1994 (2007).
- ASTM D 3019, *Standard Specification for Lap Cement Used with Asphalt Roll Roofing, Non Fibered, Asbestos Fibered, and Non Asbestos Fibered*, 1994 (2007) e1.
- ASTM D 3161, *Standard Test Method for Wind-Resistance of Asphalt Shingles (Fan-Induced Method)*, 2006.
- ASTM D 3201, *Standard Test Method for Hygroscopic Properties of Fire-Retardant Wood and Wood-Base Products*, 1994 (2007).
- ASTM D 3462, *Standard Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules*, 2007.
- ASTM D 3468, *Standard Specification for Liquid-Applied Neoprene and Chlorosulfonated Polyethylene Used in Roofing and Waterproofing*, 1999 (2006) e1.
- ASTM D 3737, *Standard Practice for Establishing Allowable Properties for Structural Glued Laminated Timber (Glulam)*, 2007.
- ASTM D 3746, *Standard Test Method for Impact Resistance of Bituminous Roofing Systems*, 1985 (2002).
- ASTM D 3747, *Standard Specification for Emulsified Asphalt Adhesive for Adhering Roof Insulation*, 1979 (2007) e1.
- ASTM D 3909, *Standard Specification for Asphalt Roll Roofing (Glass Felt) Surfaced with Mineral Granules*, 1997b (2004) e1.
- ASTM D 4022, *Standard Specification for Coal Tar Roof Cement, Asbestos Containing*, 1994 (2007) e1.
- ASTM D 4318, *Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils*, 2005.
- ASTM D 4434, *Standard Specification for Poly (Vinyl Chloride) Sheet Roofing*, 2006.
- ASTM D 4479, *Standard Specification for Asphalt Roof Coatings — Asbestos-Free*, 2007.

ASTM D 4586, *Standard Specification for Asphalt Roof Cement, Asbestos-Free*, 2007.

ASTM D 4601, *Standard Specification for Asphalt-Coated Glass Fiber Base Sheet Used in Roofing*, 2004.

ASTM D 4637, *Standard Specification for EPDM Sheet Used in a Single-Ply Roof Membrane*, 2004.

ASTM D 4869, *Standard Specification for Asphalt-Saturated Organic Felt Underlayment Used in Steep Slope Roofing*, 2005 e1.

ASTM D 4897, *Standard Specification for Asphalt-Coated Glass-Fiber Venting Base Sheet Used in Roofing*, 2001.

ASTM D 4990, *Standard Specification for Coal Tar Glass Felt Used in Roofing and Waterproofing*, 1997a (2005)e1.

ASTM D 5019, *Standard Specification for Reinforced Non-Vulcanized Polymeric Sheet Used in Roofing Membrane*, 2007.

ASTM D 5055, *Standard Specification for Establishing and Monitoring Structural Capacities of Prefabricated Wood I-Joists*, 2005.

ASTM D 5456, *Standard Specification for Evaluation of Structural Composite Lumber Products*, 2006.

ASTM D 5516, *Standard Test Method for Evaluating the Flexural Properties of Fire-Retardant Treated Softwood Plywood Exposed to Elevated Temperatures*, 2003.

ASTM D 5643, *Standard Specification for Coal Tar Roof Cement, Asbestos Free*, 1994 (2006) e1.

ASTM D 5664, *Standard Test Method for Evaluating the Effects of Fire-Retardant Treatments and Elevated Temperatures on Strength Properties of Fire-Retardant Treated Lumber*, 2002.

ASTM D 5665, *Standard Specification for Thermoplastic Fabrics Used in Cold-Applied Roofing and Waterproofing*, 2006.

ASTM D 5726, *Standard Specification for Thermoplastic Fabrics Used in Hot-Applied Roofing and Waterproofing*, 1998 (2005).

ASTM D 6083, *Standard Specification for Liquid Applied Acrylic Coating Used in Roofing*, 2005 e1.

ASTM D 6162, *Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements*, 2000a.

ASTM D 6163, *Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements*, 2000 e1.

ASTM D 6164, *Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements*, 2005.

ASTM D 6222, *Standard Specification for Atactic Polypropylene (APP) Modified Bituminous Sheet Materials Using Polyester Reinforcements*, 2002 e1.

ASTM D 6223, *Standard Specification for Atactic Polypropylene (APP) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements*, 2002.

ASTM D 6298, *Standard Specification for Fiberglass Reinforced Styrene-Butadiene-Styrene (SBS) Modified Bituminous Sheet with a Factory Applied Metal Surface*, 2005.

ASTM D 6305, *Standard Practice for Calculating Bending Strength Design Adjustment Factors for Fire-Retardant-Treated Plywood Roof Sheathing*, 2002 e1.

ASTM D 6380, *Standard Specification for Asphalt Roll Roofing (Organic Felt)*, 2003.

ASTM D 6381, *Standard Test Method for Measurement of Asphalt Shingle Mechanical Uplift Resistance*, 2003b.

ASTM D 6694, *Standard Specification for Liquid-Applied Silicone Coating Used in Spray Polyurethane Foam Roofing*, 2007.

ASTM D 6754, *Standard Specification for Ketone Ethylene Ester Based Sheet Roofing*, 2002.

ASTM D 6757, *Standard Specification for Steep-Slope Underlayment Felt Containing Inorganic Fibers*, 2007.

ASTM D 6841, *Standard Practice for Calculating Design Valve Treatment Adjustment Factors for Fire-Retardant-Treated Lumber*, 2003.

ASTM D 6878, *Standard Specification for Thermoplastic Polyolefin Based Sheet Roofing*, 2006a.

ASTM E 84, *Standard Test Method for Surface Burning Characteristics of Building Materials*, 2007.

ASTM E 90, *Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements*, 2004.

ASTM E 96, *Standard Test Methods for Water Vapor Transmission of Materials*, 2005.

ASTM E 108, *Standard Test Methods for Fire Tests of Roof Coverings*, 2007a.

ASTM E 119, *Standard Test Methods for Fire Tests of Building Construction and Materials*, 2007a.

ASTM E 136, *Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C*, 2004.

ASTM E 492, *Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine*, 2004.

ASTM E 605, *Standard Test Methods for Thickness and Density of Sprayed Fire-Resistive Material (SFRM) Applied to Structural Members*, 1993 (2006).

ASTM E 648, *Standard Test Method for Critical Radiant Flux of Floor-Covering Systems Using a Radiant Heat Energy Source*, 2006a.

ASTM E 736, *Standard Test Method for Cohesion/Adhesion of Sprayed Fire-Resistive Materials Applied to Structural Members*, 2006.

ASTM E 814, *Standard Test Method for Fire Tests of Through-Penetration Fire Stops*, 2006.

ASTM E 970, *Standard Test Method for Critical Radiant Flux of Exposed Attic Floor Insulation Using a Radiant Heat Energy Source*, 2000.

ASTM E 1300, *Standard Practice for Determining Load Resistance of Glass in Buildings*, 2004 e1.

ASTM E 1591, *Standard Guide for Obtaining Data for Deterministic Fire Models*, 2007.

ASTM E 1592, *Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference*, 2005.

ASTM E 1602, *Standard Guide for Construction of Solid Fuel Burning Masonry Heaters*, 2003.



ASTM E 1966, *Standard Test Method for Fire-Resistive Joint Systems*, 2001.

ASTM E 2174, *Standard Practice for On-Site Inspection of Installed Fire Stops*, 2004.

ASTM E 2307, *Standard Test Method for Determining Fire Resistance of Perimeter Fire Barrier Systems Using Intermediate-Scale, Multi-story Test Apparatus*, 2004.

ASTM E 2393, *Standard Practice for On-Site Inspection of Installed Fire Resistive Joint Systems and Perimeter Fire Barriers*, 2004.

ASTM F 547, *Standard Terminology of Nails for Use with Wood and Wood-Base Materials*, 2006.

ASTM F 851, *Standard Test Method for Self-Rising Seat Mechanisms*, 1987 (2005).

ASTM F 1292, *Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment*, 2004.

ASTM F 1292, *Standard Specification for Impact Attenuation of Surfacing Materials Within the Use Zone of Playground Equipment*, 2004.

ASTM F 1577, *Standard Test Methods for Detention Locks for Swinging Doors*, 2005.

ASTM F 1667, *Standard Specification for Driven Fasteners: Nails, Spikes, and Staples*, 2005.

ASTM F 1951, *Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment*, 1999.

2.3.14 AWWA Publications. American Wood Preservers Association, P.O. Box 388, Selma, AL 36702-0388.

C1, *Standard for Preservative Treatment of All Timber Products by Pressure Processes*, 2003.

C2, *Standard for the Preservative Treatment of Lumber, Timber, Bridge Ties, and Mine Ties by Pressure Processes*, 2002.

C3, *Piles—Preservative Treatment by Pressure Processes*, 2003.

C4, *Poles—Preservative Treatment by Pressure Processes*, 2003.

C9, *Plywood—Preservative Treatment by Pressure Processes*, 2003.

C14, *Wood for Highway Construction — Preservative Treatment by Pressure Processes*, 2003.

C15, *Wood for Commercial-Residential Construction — Preservative Treatment by Pressure Processes*, 2003.

C16, *Wood Used on Farms — Preservative Treatment by Pressure Processes*, 2003.

C22, *Lumber and Plywood for Permanent Wood Foundations — Preservative Treatment by Pressure Processes*, 2003.

C23, *Round Poles and Posts Used in Building Construction — Preservative Treatment by Pressure Processes*, 2003.

C24, *Sawn Timber Piles Used for Residential and Commercial Building*, 2003.

C28, *Standard for Preservative Treatment of Structural Glued Laminated Members and Lamination Before Gluing of Southern Pine, Coastal Douglas Fir, Hemfir, and Western Hemlock by Pressure Processes*, 2003.

C31, *Lumber Used Out of Contact with the Ground and Continuously Protected from Liquid Water—Treatment by Pressure Processes*, 2002.

C33, *Standard for Preservative Treatment of Structural Composite Lumber by Pressure Processes*, 2003.

M4, *Standard for the Care of Preservative-Treated Wood Products*, 2006.

P1/P13, *Standard for Creosote Preservative*, 2006.

P2, *Standard for Creosote Solutions*, 2006.

P5, *Standard for Waterborne Preservatives*, 2006.

P8, *Standard for Oil-borne Preservatives*, 2006.

P9, *Standards for Solvents and Formulations for Organic Preservative Systems*, 2006.

2.3.15 BHMA Publications. Builders Hardware Manufacturers Association, 355 Lexington Avenue, 17th floor, New York, NY 10017-6603.

BHMA/ANSI A156.19, *American National Standard for Power Assist and Low Energy Power Operated Doors*, 2002.

2.3.16 CGSB Publications. Canadian General Standards Board, CGSB Sales Centre, 11 Laurier St., Gatineau, PQ, Canada K1A 1G6.

37-GP-52M, *Roofing and Waterproofing Membrane, Sheet Applied, Elastomeric*, 2005.

37-GP-56M, *Membrane, Modified, Bituminous, Prefabricated, and Reinforced for Roofing*, 1985.

CAN/CGSB-37.54, *Polyvinyl Chloride Roofing and Waterproofing Membrane*, 1995.

2.3.17 Composite Panel Association Publications. Composite Panel Association, Composite Wood Council, 18922 Premiere Court, Gaithersburg, MD 20879-1574.

ANSI/AHAA135.4, *Basic Hardboard*, 2004.

ANSI/AHAA135.5, *Prefinished Hardboard Paneling*, 2004.

ANSI/AHAA135.6, *Hardboard Siding*, 2006.

2.3.18 DASMA Publications. Door and Access Systems Manufacturers Association, International, 1300 Summer Avenue, Cleveland, OH 44115-2851.

ANSI/DASMA 107, *Room Fire Test Standard for Garage Doors Using Foam Plastic Insulation*, 2004.

2.3.19 EIMA Publications. EIFS Industry Members Association, 3000 Corporate Center Drive, Suite 270, Morrow, GA 30260.

ANSI/EIMA 99A, *Exterior Insulation and Finish Systems (EIFS)*, 2001.

2.3.20 FM Global Publications. FM Global, 1301 Atwood Avenue, P.O. Box 7500, Johnston, RI 02919.

FM 4411, *Insulated Wall Constructions*, 1974.

FM 4435, *Approval Standard for Roof Perimeter Flashing*, 2004.

FM 4450, *Approval Standard for Class I Insulated Steel Deck Roofs*, 1989.

FM 4470, *Approval Standard for Class I Roof Covers*, 1986.

FM 4471, *Approval Standard for Class I Panel Roofs*, 1995.

FM 4473, *Test Standard for Specification Test Protocol for Impact Resistance Testing of Rigid Roofing Materials by Impacting with Freezer Ice Balls*, 2005.

FM 4880, *Approval Standard for Class I Fire Rating of Insulated Wall or Wall and Roof/Ceiling Panels, Interior Finish Materials or Coating, and Exterior Wall Systems*, 2005.

2.3.21 FRSA/RTI Publications. Florida Roofing, Sheet Metal and Air Conditioning Contractors Association, 4111 Metric Drive, Suite 6, Winter Park, FL 32792.

07320/1, *Concrete and Clay Roof Tile Installation Manual*, fourth edition, 2001.

2.3.22 GA Publications. Gypsum Association, 810 First Street, NE, #510, Washington, DC 20002.

GA-216, *Application and Finishing of Gypsum Panel Products*, 2004.

GA-600, *Fire Resistance Design Manual*, 2006.

2.3.23 HPVA Publications. Hardwood Plywood and Veneer Association, P.O. Box 2789, Reston, VA 20195.

ANSI/HPVA HP-1, *American National Standard for Hardwood and Decorative Plywood*, 2004.

2.3.24 IAPMO Publications. International Association of Plumbing and Mechanical Officials, 20001 Walnut Drive South, Walnut, CA 91789.

UMC, *Uniform Mechanical Code*, 2006.

UPC, *Uniform Plumbing Code*, 2006.

2.3.25 ICC Publications. International Code Council, 500 New Jersey Avenue, NW, 6th Floor, Washington, DC 20001-2070.

ICC/ANSI A117.1, *American National Standard for Accessible and Usable Buildings and Facilities*, 2003.

SSTD-10, *Standard for Hurricane-Resistant Construction*, 1999.

IRC, *International Residential Code*, 2006.

2.3.26 IME Publications. Institute of Makers of Explosives, 1120 19th Street, NW, Suite 310, Washington, DC 20036-3605.

Safety Library Publication No. 2, "The American Table of Distances," June 1991.

2.3.27 NAAMM Publications. National Association of Architectural Metal Manufacturers, 8 South Michigan Avenue, Suite 1000, Chicago, IL 60603.

ANSI/NAAMM FP 1001, *Guide Specifications for Design of Metal Flagpoles Manual*, 1997.

2.3.28 NCMA Publications. National Concrete Masonry Association, 13750 Sunrise Valley Drive, Herndon, VA 20171.

Design Manual for Segmental Retaining Walls, 2000.

2.3.29 PCA Publications. Portland Cement Association, 5420 Old Orchard Road, Skokie, IL 60077-1083.

PCA 100, *Prescriptive Design of Exterior Concrete Walls for One- and Two-Family Dwellings*, 2007.

2.3.30 PTI Publications. Post-Tensioning Institute, 8601 North Black Canyon Highway, Suite 103, Phoenix, AZ 85021.

Design and Construction of Post-Tensioned Slabs-on-Ground, 3rd edition, 2004.

2.3.31 RMI Publications. Rack Manufacturers Institute, 8720 Red Oak Boulevard, Suite 201, Charlotte, NC 28217.

RMI/ANSI MH16.1, *Specification for the Design, Testing and Utilization of Industrial Steel Storage Racks*, 2005.

2.3.32 SJI Publications. Steel Joist Institute, 3127 Mr. Joe White Avenue, Myrtle Beach, SC 29577-6760.

Standard Specifications for Composite Steel Joist, C-J Series, 2006.

Standard Specifications for Joist Girders, 2005.

Standard Specifications, Load Tables and Weight Tables for Steel Joists and Joist Girders, 2005.

Standard Specifications for Longspan Steel Joists, LH Series and Deep Longspan Steel Joists, DLH Series, 2005.

Standard Specifications for Open Web Steel Joists, K Series, 2005.

2.3.33 SPC Publications. Southern Pine Council, P.O. Box 641700, Kenner, LA 70064-1700.

Permanent Wood Foundations: Design & Construction Guide, 2000.

2.3.34 SPRI Publications. SPRI, 77 Rumford Avenue, Suite 3B, Waltham, MA 02453.

ANSI/SPRI ES-1, *Wind Design Guide for Edge Systems Used with Low Slope Roofing Systems*, 2003.

ANSI/SPRI RP-4, *Wind Design Standard for Ballasted Single-Ply Roofing Systems*, 2002.

2.3.35 TIA Publications. Telecommunications Industry Association, 2500 Wilson Boulevard, Suite 300, Arlington, VA 22201.

ANSI/TIA/EIA-222-F, *Structural Standards for Steel Antenna Towers and Antenna Structures*, 1996 (R2003).

2.3.36 TPI Publications. Truss Plate Institute, Inc., 583 D'Onofrio Drive, Suite 200, Madison, WI 53719.

ANSI/TPI 1, *National Design Standard for Metal Plate Connected Wood Truss Construction*, 2002.

2.3.37 UL Publications. Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062-2096.

ANSI/UL 10C, *Standard for Positive Pressure Fire Tests of Door Assemblies*, 2001.

ANSI/UL 217, *Standard for Single and Multiple Station Smoke Alarms*, 2006, Revised 2007.

ANSI/UL 263, *Standard for Fire Tests of Building Construction and Materials*, 2003.

UL 294, *Standard for Access Control System Units*, 2004.

ANSI/UL 555, *Standard for Fire Dampers*, 2006.

ANSI/UL 555C, *Standard for Ceiling Dampers*, 2006.

ANSI/UL 555S, *Standard for Smoke Dampers*, 1999, Revised 2006.

UL 580, *Standard for Tests for Uplift Resistance of Roof Assemblies*, 2006.

ANSI/UL 723, *Standard for Test for Surface Burning Characteristics of Building Materials*, 2003, Revised 2005.

ANSI/UL 790, *Standard for Standard Test Methods for Fire Tests of Roof Coverings*, 2004.

ANSI/UL 924, *Standard for Emergency Lighting and Power Equipment*, 2006.

ANSI/UL 1040, *Standard for Fire Test of Insulated Wall Construction*, 2001.



ANSI/UL 1256, *Standard for Fire Test of Roof Deck Constructions*, 2007.

UL 1286, *Standard for Office Furnishings*, 2004.

ANSI/UL 1479, *Standard for Fire Tests of Through-Penetration Firestops*, 2006, Revised 2007.

ANSI/UL 1715, *Standard for Fire Test of Interior Finish Material*, 2004.

ANSI/UL 1820, *Standard for Safety Fire Test of Pneumatic Tubing for Flame and Smoke Characteristics*, 2004.

ANSI/UL 1887, *Standard for Safety Fire Test of Plastic Sprinkler Pipe for Visible Flame and Smoke Characteristics*, 2004.

ANSI/UL 1897, *Standard for Uplift Tests for Roof Covering Systems*, 2004.

UL 1975, *Standard for Fire Tests for Foamed Plastics Used for Decorative Purposes*, 2006.

UL, 1994, *Standard for Luminous Egress Path Marking Systems*, 2005.

UL 2024, *Standard for Optical-Fiber and Communications Cable Raceway*, 2004.

UL 2043, *Standard for Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-Handling Spaces*, 2001.

ANSI/UL 2079, *Standard for Tests for Fire Resistance of Building Joint Systems*, 2004, Revised 2006.

UL 2218, *Standard for Impact Resistance of Prepared Roof Covering Materials*, 2002.

ANSI/UL 2390, *Standard for Tests for Wind Resistant Asphalt Shingles with Sealed Tabs*, 2004.

CAN/ULC S102.2, *Standard Method of Test for Surface Burning Characteristics of Floor Coverings and Miscellaneous Materials and Assemblies*, 2003.

2.3.38 U.S. Government Publications. U.S. Government Printing Office, Washington, DC 20402.

ADA/ABA Accessibility Guidelines, 2007.

Federal Specification UUB-790a, *Specification for Building Paper, Vegetable Fiber: Kraft, Waterproofed, Water Repellent, and Fiber Resistant*, 1992.

FEMA 356, *Prestandard and Commentary for the Seismic Rehabilitation of Buildings*, 2000.

Title 18, United States Code, Chapter 40, "Importation, Manufacture, Distribution and Storage of Explosive Materials."

Title 28, Code of Federal Regulations, Part 35 and Part 36, Americans with Disabilities Act Accessibility Guidelines (ADAAG).

Title 36, Code of Federal Regulations, Part 1192.

Title 49, Code of Federal Regulations, Part 37.41, Part 37.43, and Part 37.45.

USDOC PS 1, *U.S. Product Standard for Construction and Industrial Plywood*, 1995.

USDOC PS 2, *Performance Standard for Wood-based Structural-Use Panels*, 1992.

USDOC PS 20, *American Softwood Lumber Standard*, 1999.

CPSC, 16 CFR 1201, *Safety Standard for Architectural Glazing Materials*, 1977.

CPSC, 16 CFR 1209, *Interim Safety Standard for Cellulose Insulation*, 1979.

CPSC, 16 CFR 1404, *Cellulose Insulation*, 1979.

2.3.39 WRI/CRSI Publications. Wire Reinforcement Institute, 301 East Sandusky Street, Findlay, OH 45839-0450.

Design of Slab-on-Ground Foundations, 1996.

2.4 References for Extracts in Mandatory Sections.

NFPA 1, *Fire Code*, 2009 edition.

NFPA 13, *Standard for the Installation of Sprinkler Systems*, 2007 edition.

NFPA 14, *Standard for the Installation of Standpipe and Hose Systems*, 2007 edition.

NFPA 30, *Flammable and Combustible Liquids Code*, 2008 edition.

NFPA 30B, *Code for the Manufacture and Storage of Aerosol Products*, 2007 edition.

NFPA 32, *Standard for Drycleaning Plants*, 2007 edition.

NFPA 55, *Standard for the Storage, Use, and Handling of Compressed Gases and Cryogenic Fluids in Portable and Stationary Containers, Cylinders, and Tanks*, 2005 edition.

NFPA 58, *Liquefied Petroleum Gas Code*, 2008 edition.

NFPA 61, *Standard for the Prevention of Fires and Dust Explosions in Agricultural and Food Processing Facilities*, 2008 edition.

NFPA 68, *Standard on Explosion Protection by Deflagration Venting*, 2007 edition.

NFPA 72[®], *National Fire Alarm Code[®]*, 2007 edition.

NFPA 80, *Standard for Fire Doors and Other Opening Protectives*, 2007 edition.

NFPA 88A, *Standard for Parking Structures*, 2007 edition.

NFPA 90A, *Standard for the Installation of Air-Conditioning and Ventilating Systems*, 2009 edition.

NFPA 99, *Standard for Health Care Facilities*, 2005 edition.

NFPA 101[®], *Life Safety Code[®]*, 2009 edition.

NFPA 102, *Standard for Grandstands, Folding and Telescopic Seating, Tents, and Membrane Structures*, 2006 edition.

NFPA 140, *Standard on Motion Picture and Television Production Studio Soundstages, Approved Production Facilities, and Production Locations*, 2008 edition.

NFPA 221, *Standard for High Challenge Fire Walls, Fire Walls, and Fire Barrier Walls*, 2009 edition.

NFPA 252, *Standard Methods of Fire Tests of Door Assemblies*, 2008 edition.

NFPA 288, *Standard Methods of Fire Tests of Floor Fire Door Assemblies Installed Horizontally in Fire Resistance-Rated Floor Systems*, 2007 edition.

NFPA 301, *Code for Safety to Life from Fire on Merchant Vessels*, 2008 edition.

NFPA 307, *Standard for the Construction and Fire Protection of Marine Terminals, Piers, and Wharves*, 2006 edition.

NFPA 318, *Standard for the Protection of Semiconductor Fabrication Facilities*, 2009 edition.

NFPA 418, *Standard for Heliports*, 2006 edition.

NFPA 432, *Code for the Storage of Organic Peroxide Formulations*, 2002 edition.

NFPA 495, *Explosive Materials Code*, 2006 edition.

NFPA 501, *Standard on Manufactured Housing*, 2005 edition.

NFPA 654, *Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids*, 2006 edition.

NFPA 909, *Code for the Protection of Cultural Resource Properties — Museums, Libraries, and Places of Worship*, 2005 edition.

NFPA 914, *Code for Fire Protection of Historic Structures*, 2007 edition.

NFPA 921, *Guide for Fire and Explosion Investigations*, 2008 edition.

NFPA 1124, *Code for the Manufacture, Transportation, Storage, and Retail Sales of Fireworks and Pyrotechnic Articles*, 2006 edition.

NFPA 1144, *Standard for Reducing Structure Ignition Hazards from Wildland Fire*, 2008 edition.

Chapter 3 Definitions

3.1 General. The definitions contained in this chapter shall apply to the terms used in this code. 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.

3.2.3* Code. A standard that is an extensive compilation of provisions covering broad subject matter or that is suitable for adoption into law independently of other codes and standards.

3.2.4 Labeled. Equipment or materials to which has been attached a label, symbol, or other identifying mark of an organization that is acceptable to the authority having jurisdiction and concerned with product evaluation, that maintains periodic inspection of production of labeled equipment or materials, and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.

3.2.5* Listed. Equipment, materials, or services included in a list published by an organization that is acceptable to the authority having jurisdiction and concerned with evaluation of products or services, that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services, and whose listing states that either the equipment, material, or service meets appropriate designated standards or has been tested and found suitable for a specified purpose.

3.2.6 Shall. Indicates a mandatory requirement.

3.2.7 Should. Indicates a recommendation or that which is advised but not required.

3.3 General Definitions.

3.3.1 Accessible (Accessibility). A site, building, facility, or portion thereof that complies with this *Code*.

3.3.2 Accessible Area of Refuge. See 3.3.33.1.

3.3.3 Accessible Means of Egress. See 3.3.394.1.

3.3.4 Accessible Route (Accessibility). A continuous unobstructed path that complies with this *Code* and ICC/ANSI A117.1.

3.3.5 Accessory Building. See 3.3.64.1.

3.3.6 Accreditation Body. An approved, third-party organization that is independent of the grading and inspection agencies,

and the lumber mills, and that initially accredits and subsequently monitors, on a continuing basis, the competency and performance of a grading or inspection agency related to carrying out specific tasks.

3.3.7 Active Sub-Slab Depressurization System. See 3.3.616.4.1.

3.3.8 Actual Start of Construction (Flood Resistance). See 3.3.115.1.

3.3.9* Actuating Member or Bar. The activating mechanism of a panic hardware or fire exit hardware device located on the egress side of a door.

3.3.10 Addition. An increase in the building area, aggregate floor area, building height, or number of stories of a structure.

3.3.11 Aerosol. A product that is dispensed from an aerosol container by a propellant. [30B, 2007]

3.3.12 Aerosol Container. See 3.3.119.1.

3.3.13 Agricultural Building. See 3.3.64.2.

3.3.14 Agricultural Dust. See 3.3.170.1.

3.3.15 Aircraft Engine Test Facility. See 3.3.202.2.

3.3.16 Air-Inflated Structure. See 3.3.607.2.

3.3.17 Air-Right Structure. See 3.3.607.3.

3.3.18 Air-Supported Structure. See 3.3.607.4.

3.3.19* Aisle. An unenclosed path of travel that forms part of the exit access and provides an open and unobstructed path of egress travel to another aisle, a corridor, a vomitory, or an exit.

3.3.20* Aisle Accessway. The initial portion of an exit access that leads to an aisle.

3.3.21 Alarm.

3.3.21.1 Single Station Alarm. A detector comprising an assembly that incorporates a sensor, control components, and an alarm notification appliance in one unit operated from a power source either located in the unit or obtained at the point of installation. [72, 2007]

3.3.21.2 Smoke Alarm. A single or multiple station alarm responsive to smoke. [72, 2007]

3.3.22 Alley. Public space or thoroughfare less than 20 ft (6.1 m) wide, but not less than 10 ft (3050 mm) wide, that has been deeded or dedicated to the public for permanent public use.

3.3.23 Allowable Stress Design. See 3.3.146.1.

3.3.24 Alter/Aleration. See 3.3.25.1.

3.3.25 Alteration.

3.3.25.1 Alter/Alteration. A modification, replacement, or other physical change to an existing facility.

3.3.25.2* Alteration (Accessibility). A change to a building or facility that affects or could affect the accessibility of the building or facility or part thereof.

3.3.26 Alternative Calculation Procedure. A calculation procedure that differs from the procedure originally employed by the design team but that provides predictions for the same variables of interest.

3.3.27 Aluminum Composite Material (ACM). See 3.3.391.10, Metal Composite Material (MCM).

3.3.28 Ambulatory Health Care Occupancy. See 3.3.427.1.

3.3.29 Analysis.

3.3.29.1 Sensitivity Analysis. An analysis performed to determine the degree to which a predicted output will vary given a specified change in an input parameter, usually in relation to models.

3.3.29.2 Uncertainty Analysis. An analysis performed to determine the degree to which a predicted value will vary.

3.3.30 Anchor Building. See 3.3.64.3.**3.3.31 Apartment Building.** See 3.3.64.4.**3.3.32 Area.**

3.3.32.1 Assembly Area (Accessibility). For the purposes of this Code, a building or facility, or portion thereof, used for the purpose of entertainment, educational or civic gatherings, or similar purposes including, but not limited to, classrooms, lecture halls, courtrooms, public meeting rooms, public hearing rooms, legislative chambers, motion picture houses, auditoria, theaters, playhouses, dinner theaters, concert halls, centers for the performing arts, amphitheaters, arenas, stadiums, grandstands, or convention centers.

3.3.32.2 Building Area. The area included within surrounding exterior walls (or exterior walls and fire walls) exclusive of vent shafts and courts. Areas of the building not provided with surrounding walls shall be included in the building areas if such areas are included within the horizontal projection of the roof or floor above.

3.3.32.3 Control Area. A building or portion of a building within which hazardous materials are allowed to be stored, dispensed, used, or handled in quantities not exceeding the maximum allowable quantities (MAQ).

3.3.32.4 Detention and Correctional Residential Housing Area. Sleeping areas and any contiguous day room, group activity space, or other common space for customary access of residents.

3.3.32.5* Fabrication Area (Fab Area). An area within a semiconductor fabrication facility and related research and development areas in which there are processes using hazardous production materials.

3.3.32.6 Fire Area. The aggregate gross floor area contained within fire walls, fire barriers, or exterior walls of a building.

3.3.32.7 Flood Hazard Area. The greater of either (1) the special flood hazard area shown on the flood insurance rate map or (2) the area subject to flooding during the design flood and shown on a jurisdiction's flood hazard map, or otherwise legally designated.

3.3.32.7.1 Special Flood Hazard Area. The land area subject to flooding by the base flood, and depicted on the flood insurance rate map or other flood hazard map as Zone A, Zone AE, Zone A1-30, Zone A99, Zone AO, Zone AR, Zone AH, Zone V, Zone VE, Zone V1-30, or Zone VO. (See also 3.3.98, Coastal A Zone.)

3.3.32.8 Floor Area.

3.3.32.8.1* Gross Floor Area. The floor area within the inside perimeter of the outside walls of the building under consideration with no deduction for hallways, stairs, closets, thickness of interior walls, columns, or other features.

3.3.32.8.2 Net Floor Area. The floor area within the inside perimeter of the outside walls, or the outside walls and fire walls of the building under consideration with deductions for hallways, stairs, closets, thickness of interior walls, columns, or other features.

3.3.32.9 Gross Leasable Area. The total floor area designated for tenant occupancy and exclusive use. The area of tenant occupancy is measured from the centerlines of joint partitions to the outside of the tenant walls. All tenant areas, including areas used for storage, are part of the gross leasable area.

3.3.32.10* Hazardous Area. An area of a structure or building that poses a degree of hazard greater than that normal to the general occupancy of the building or structure.

3.3.32.11 Living Area. Any normally occupiable space in a residential occupancy, other than sleeping rooms or rooms that are intended for combination sleeping/living, bathrooms, toilet compartments, kitchens, closets, halls, storage or utility spaces, and similar areas.

3.3.32.12 Work Area.

3.3.32.12.1* Employee Work Area (Accessibility). All or any portion of a space used only by employees and used only for work, not including corridors, toilet rooms, kitchenettes, and break rooms.

3.3.32.12.2* Rehabilitation Work Area. That portion of a building affected by any renovation, modification, or reconstruction work as initially intended by the owner and indicated as such in the permit.

3.3.33* Area of Refuge. An area that is either (1) a story in a building where the building is protected throughout by an approved, supervised automatic sprinkler system and has not less than two accessible rooms or spaces separated from each other by smoke-resisting partitions; or (2) a space located in a path of travel leading to a public way that is protected from the effects of fire, either by means of separation from other spaces in the same building or by virtue of location, thereby permitting a delay in egress travel from any level.

3.3.33.1 Accessible Area of Refuge. An area of refuge that complies with the accessible route requirements of ICC/ANSI A117.1, *American National Standard for Accessible and Usable Buildings and Facilities*.

3.3.34 Area of Sport Activity (Accessibility). That portion of a room or space where the play or practice of a sport takes place.

3.3.35 Assembly.

3.3.35.1 Door Assembly. Any combination of a door, frame, hardware, and other accessories that is placed in an opening in a wall that is intended primarily for access or for human entrance or exit. [252, 2008]

3.3.35.1.1 Fire Door Assembly. Any combination of a fire door, a frame, hardware, and other accessories that together provide a specific degree of fire protection to the opening. [80, 2007]

3.3.35.1.2 Floor Fire Door Assembly. A combination of a fire door, a frame, hardware, and other accessories installed in a horizontal plane, which together provide a specific degree of fire protection to a through-opening in a fire resistance-rated floor. [288, 2007]

3.3.35.2 Fire Window Assembly. A window or glass block assembly having a fire protection rating. [80, 2007]

3.3.35.3 Roof Assembly. The component(s) above the roof structural framing including the roof deck, vapor barrier, insulation, roof cover, coatings, toppings, or any combination thereof.

3.3.36 Assembly Area (Accessibility). See 3.3.32.1.

3.3.37 Assembly Occupancy. See 3.3.427.2.

3.3.38 Assistive Listening Systems (ALS) (Accessibility). See 3.3.616.1.

3.3.39 Atmosphere.

3.3.39.1 Common Atmosphere. The atmosphere that exists between rooms, spaces, or areas within a building that are not separated by an approved smoke barrier.

3.3.39.2 Separate Atmosphere. The atmosphere that exists between rooms, spaces, or areas that are separated by an approved smoke barrier.

3.3.40* Atrium. A large-volume space created by a floor opening or series of floor openings connecting two or more stories that is covered at the top of the series of openings and is used for purposes other than an enclosed stairway; an elevator hoistway; an escalator opening; or as a utility shaft used for plumbing, electrical, air-conditioning, or communications facilities.

3.3.41* Attic. The space located between the ceiling of a story and the roof directly above the habitable story.

3.3.42 Automatic. That which provides a function without the necessity of human intervention.

3.3.43 Automatic-Closing Door. See 3.3.163.1.

3.3.44 Balcony (Exterior). An exterior floor projecting from, and supported by, a structure without additional independent supports.

3.3.45* Barricade. The effective screening of a building containing explosive materials from the magazine or another building, a railway, or a highway by a natural or an artificial barrier. A straight line from the top of any sidewall of the building containing explosive materials to the eave line of any magazine or other building or to a point 12 ft (3660 mm) above the center of a railway or highway shall pass through such barrier.

3.3.46 Barrier.

3.3.46.1* Fire Barrier. A continuous membrane or a membrane with discontinuities created by protected openings with a specified fire protection rating, where such membrane is designed and constructed with a specified fire resistance rating to limit the spread of fire, that also restricts the movement of smoke.

3.3.46.2* Smoke Barrier. A continuous membrane, or a membrane with discontinuities created by protected openings, where such membrane is designed and constructed to restrict the movement of smoke.

3.3.46.3* Thermal Barrier. A material that limits the average temperature rise of an unexposed surface to not more than 250°F (139°C) for a specified fire exposure complying with the standard time-temperature curve of NFPA 251, *Standard Methods of Tests of Fire Resistance of Building Construction and Materials*.

3.3.47 Base Flood. See 3.3.243.1.

3.3.48 Base Flood Elevation (BFE). See 3.3.246.1.

3.3.49 Basement. Any story of a building wholly or partly below grade plane that is not considered the first story above grade plane. (*Also see 3.3.278.1, First Story Above Grade Plane.*)

3.3.49.1 Basement (Flood Resistance). For all matters related to flood-resistant design and construction, the portion of a building having its floor below the finished ground level on all sides.

3.3.50 Basic Wind Speed (*V*). Three-second gust speed at 33 ft (10 m) above the ground in Exposure C (see ASCE/SEI 7, Section 6.5.6.3) as determined in accordance with ASCE/SEI 7, Section 6.5.4. [ASCE/SEI 7:6.2]

3.3.51 Bay Window. See 3.3.662.1.

3.3.52 Bearing Wall. See 3.3.651.1.

3.3.53 Bearing Wall System. See 3.3.616.2.

3.3.54* Birth Center. A facility in which low-risk births are expected following normal, uncomplicated pregnancies, and in which professional midwifery care is provided to women during pregnancy, birth, and postpartum.

3.3.55 Bleachers. A grandstand in which the seats are not provided with backrests.

3.3.56 Board and Care. See 3.3.427.12, Residential Board and Care Occupancy.

3.3.57 Boarding Pier (Accessibility). A portion of a pier where a boat is temporarily secured for the purpose of embarking or disembarking.

3.3.58 Boat Slip (Accessibility). That portion of a pier, main pier, finger pier, or float where a boat is moored for the purpose of berthing, embarking, or disembarking.

3.3.59 Boiler. A closed vessel in which water is heated, steam is generated, or steam is superheated, or in which any combination thereof takes place by the application of heat from combustible fuels, in a self-contained or attached furnace.

3.3.60 Boiler Room. See 3.3.538.1.

3.3.61 Boiling Point. See 3.3.479.1.

3.3.62 Building Area. See 3.3.32.2.

3.3.63 Building Height. See 3.3.309.1.

3.3.64* Buildings. Structures, usually enclosed by walls and a roof, constructed to provide support or shelter for an intended occupancy. [ASCE/SEI 7:1.2]

3.3.64.1 Accessory Building. Any building or structure used incidentally to another building or structure.

3.3.64.2 Agricultural Building. A building located on agricultural property used for sheltering farm implements, hay, grain, livestock, or other farm produce or equipment in which there is no human habitation and that is not used by the public.

3.3.64.3 Anchor Building. A building housing any occupancies having low or ordinary hazard contents and having direct access to a mall building, but having all required means of egress independent of the mall.



3.3.64.4* Apartment Building. A building or portion thereof containing three or more dwelling units with independent cooking and bathroom facilities.

3.3.64.5 Bulk Merchandising Retail Building. A building in which the sales area includes the storage of combustible materials on pallets, in solid piles, or in racks in excess of 12 ft (3660 mm) in storage height.

3.3.64.6 Detached Building. A separate building that is separated from other structures or uses as required by this *Code* for a freestanding structure.

3.3.64.7* Existing Building. A building erected or officially authorized prior to the effective date of the adoption of this edition of the *Code* by the agency or jurisdiction.

3.3.64.7.1 Existing Building (Flood Resistance). For all matters related to flood-resistant design and construction, a building for which the *start of construction* commenced before the effective date of the jurisdiction's first floodplain management ordinance, code, or standard.

3.3.64.8* Flexible Plan and Open Plan Educational or Day-Care Building. A building or portion of a building designed for multiple teaching stations.

3.3.64.9 Frangible Building. A detached building containing high hazard contents that is not anticipated to survive a fire, deflagration, or explosion and located to limit damage to surrounding structures.

3.3.64.10* High-Rise Building. A building where the floor of an occupiable story is greater than 75 ft (23 m) above the lowest level of fire department vehicle access.

3.3.64.11 Historic Building (Flood Resistance). A building or structure that is (1) listed or preliminarily determined to be eligible for listing in the National Register of Historic Places, or (2) determined by the secretary of the U.S. Department of Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined to qualify as an historic district, or (3) designated as historic under a state or local historic preservation program approved by the U.S. Department of Interior.

3.3.64.12* Mall Building. A single building enclosing a number of tenants and occupancies wherein two or more tenants have a main entrance into one or more malls. For the purpose of this *Code*, anchor buildings shall not be considered as a part of the mall building.

3.3.64.13* Mini-Storage Building. A storage occupancy partitioned into individual storage units that are rented or leased for the purposes of storing personal or business items where all of the following apply: (1) the storage units are separated from each other by less than a 1-hr fire resistance rated barrier; (2) the owner of the facility does not have unrestricted access to the storage units; and (3) the items being stored are concealed from outside the storage unit.

3.3.64.14 Private Building. Any building or that portion of a building that is normally not frequented by, and not open to, the public.

3.3.64.15 Public Building. A building or part of a building that is not a private building.

3.3.64.16* Special Amusement Building. A building that is temporary, permanent, or mobile and contains a device or system that conveys passengers or provides a walkway

along, around, or over a course in any direction as a form of amusement arranged so that the egress path is not readily apparent due to visual or audio distractions or an intentionally confounded egress path, or is not readily available due to the mode of conveyance through the building or structure.

3.3.65 Built-Up Roofing. A continuous, semiflexible membrane consisting of plies of saturated felts, coated felts, fabrics or mats assembled in place with alternate layers of bitumen, and surfaced with mineral aggregate, bituminous materials, or a granule surfaced sheet (abbreviation, BUR). [ASTM D 1079: 2.1]

3.3.66 Bulk Merchandising Retail Building. See 3.3.64.5.

3.3.67 Bulkhead. (1) The exterior walls of a store building that support show windows; (2) a structure above the roof of a building, enclosing elevator machinery, tanks, stairs, or the like, or the part of a shaft extending above the roof; (3) a retaining structure intended to withstand lateral pressure; or (4) a vertical structural wall, usually of stone, timber, metal, concrete, or synthetic material, constructed along, and generally parallel to, the shoreline to retain earth as an extension of the upland, and often to provide suitable water depth at the waterside face.

3.3.68 Business Occupancy. See 3.3.427.3.

3.3.69 Canopy. Any fixed roof-like structure that is self-supporting in whole or in part, but having no sidewalls or curtains other than valances not exceeding 18 in. (455 mm) in depth.

3.3.70 Catch Pool (Accessibility). See 3.3.480.1.

3.3.71 Categories of Rehabilitation Work. The nature and extent of rehabilitation work undertaken in an existing building.

3.3.72 Cavity Wall. See 3.3.651.2.

3.3.73 Ceiling Limit. See 3.3.356.1.

3.3.74 Ceiling Radiation Damper. See 3.3.133.1.

3.3.75 Cellular or Foamed Plastic. See 3.3.474.1.

3.3.76 Change of Occupancy Classification. A change of use involving a change in the occupancy classification of a structure or portion of a structure.

3.3.77 Change of Use. See 3.3.641.3.

3.3.78 Children's Use (Accessibility). See 3.3.641.1.1.

3.3.79 Chimney. A structure containing one or more vertical or nearly vertical passageways for conveying flue gases to the outside atmosphere. [211, 2006]

3.3.80 Circulation Path (Accessibility). An exterior or interior way of passage from one place to another for pedestrians including, but not limited to, walks, hallways, courtyards, stairways, and stair landings.

3.3.81 Class II Combustible Liquid. See 3.3.362.1.1.

3.3.82 Class IIIA Combustible Liquid. See 3.3.362.1.2.

3.3.83 Class IIIB Combustible Liquid. See 3.3.362.1.3.

3.3.84 Class I Organic Peroxide. See 3.3.443.1.

3.3.85 Class II Organic Peroxide. See 3.3.443.2.

3.3.86 Class III Organic Peroxide. See 3.3.443.3.

3.3.87 Class IV Organic Peroxide. See 3.3.443.4.

3.3.88 Class V Organic Peroxide. See 3.3.443.5.

3.3.89 Class 1 Oxidizer. See 3.3.448.1.

3.3.90 Class 2 Oxidizer. See 3.3.448.2.

3.3.91 Class 3 Oxidizer. See 3.3.448.3.

3.3.92 Class 4 Oxidizer. See 3.3.448.4.

3.3.93 Cleanroom. A room in which the concentration of airborne particles is controlled to specified limits, including areas below the raised floor and above the ceiling grid if these areas are part of the air path and within the rated construction.

3.3.94 Closed System Use (Material). See 3.3.641.2.1.

3.3.95 Closed-Circuit Telephone (Accessibility). A telephone with a dedicated line, such as a house phone, courtesy phone, or phone that must be used to gain entry to a facility.

3.3.96 Coal Preparation Plant. See 3.3.472.1.

3.3.97 Coal Tar. A dark brown to black cementitious material produced by the destructive distillation of coal. [ASTM D 1079: 2.1]

3.3.98* Coastal A Zone. An area within the special flood hazard area, landward of a V zone or landward of an open coast without mapped V zones. In a Coastal A Zone, the principal source of flooding must be astronomical tides, storm surges, seiches, or tsunamis, not riverine flooding. During the base flood, the potential for breaking wave heights shall be greater than or equal to 1.5 ft (455 mm). (See also 3.3.32.7.1, *Special Flood Hazard Area*.)

3.3.99 Combination Fire and Smoke Damper. See 3.3.133.2.

3.3.100 Combustible (Material). See 3.3.391.1.

3.3.101 Combustible Dust. See 3.3.170.2.

3.3.102 Combustible Liquid. See 3.3.362.1.

3.3.103 Combustion. A chemical process of oxidation that occurs at a rate fast enough to produce heat and usually light in the form of either a glow or flame.

3.3.104 Common Atmosphere. See 3.3.39.1.

3.3.105* Common Path of Travel. The portion of exit access that must be traversed before two separate and distinct paths of travel to two exits are available.

3.3.106 Common Use (Accessibility). See 3.3.641.1.

3.3.107 Compartment.

3.3.107.1* Fire Compartment. A space within a building that is enclosed by fire barriers on all sides, including the top and bottom.

3.3.107.2* Smoke Compartment. A space within a building enclosed by smoke barriers on all sides, including the top and bottom.

3.3.108 Complex Rehabilitation Project Involving Multiple Codes. A rehabilitation project or portion thereof that involves two or more construction codes and either (1) is an addition, a change of occupancy, or a reconstruction; or (2) is in any category of work and involves the installation of sprinklers.

3.3.109 Component. A part or element of an architectural, electrical, mechanical, or structural system. [ASCE/SEI 7:11.2]

3.3.110 Components and Cladding. Elements of the building envelope that do not qualify as part of the main wind-force resisting system. [ASCE/SEI 7:6.2]

3.3.111 Composite Wood Structural Panel. See 3.3.450.3.1.

3.3.112 Compressed Gas. See 3.3.269.1.

3.3.113 Compressed Gas Container. See 3.3.119.2.

3.3.114 Concrete.

3.3.114.1 Plain Concrete. Concrete that either is unreinforced or contains less reinforcement than the minimum amount specified in ACI 318 for reinforced concrete. [ASCE/SEI 7:11.2].

3.3.114.2 Reinforced Concrete. Concrete reinforced with no less than the minimum amount required by ACI 318, prestressed or nonprestressed, and designed on the assumption that the two materials act together in resisting forces. [ASCE/SEI 7:11.2]

3.3.115 Construction. Work or operations necessary or incidental to land clearing, grading, excavation, and filling; or erection, demolition, assembling, installing, or equipping of buildings or structures; or alterations incidental thereto, or to the finished product of construction operations.

3.3.115.1 Start of Construction (Flood Resistance). For all matters related to flood-resistant design and construction, the date of permit issuance for new construction or substantial improvements to an existing structure, provided the actual start of construction, repair, reconstruction, rehabilitation, addition placement, or other improvement is within 180 days after the date of issuance.

3.3.115.1.1* Actual Start of Construction (Flood Resistance). For all matters related to flood-resistant design and construction, the first placement of permanent construction of a building (including a manufactured home) on a site, such as the pouring of a slab or footings, installation of pilings, or construction of columns. Permanent construction does not include land preparation (such as clearing, excavation, grading, or filling); or the installation of streets and walkways; or the excavation for a basement, footings, piers, or foundations; or the erection of temporary forms; or the installation of accessory buildings such as garages or sheds not occupied as dwelling units and not part of the main building. For a substantial improvement, the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of the building, whether or not that alteration affects the exterior dimensions of the building.

3.3.116* Construction Documents. The plans and specifications required to be submitted to the authority having jurisdiction for examination prior to issuance of a building permit, including quality assurance plans where required.

3.3.117 Construction Type. The combination of materials used in the construction of a building or structure, based on the varying degrees of fire resistance and combustibility.

3.3.118 Consumer Fireworks, 1.4G. See 3.3.230.1.

3.3.119 Container.

3.3.119.1 Aerosol Container. A metal can, up to a maximum size of 33.8 fl oz (1000 ml), or a glass or plastic bottle, up to a maximum size of 4 fl oz (118 ml), that is designed and intended to dispense an aerosol. [30B, 2007]



3.3.119.2 Compressed Gas Container. A pressure vessel designed to hold compressed gases at pressures greater than 1 atmosphere at 68°F (20°C) that includes cylinders, containers, and tanks.

3.3.120 Contents and Furnishings. Any movable objects in a building for functional, operational, or decorative reasons, excluding parts of the building structure, building service equipment, and items meeting the definition of interior finish.

3.3.121 Continuous Gas Detection System. See 3.3.616.3.

3.3.122 Contractor. One who contracts on predetermined terms to provide labor and materials and who is responsible for performance of a construction job in accordance with construction documents.

3.3.123 Control Area. See 3.3.32.3.

3.3.124 Corrosion Resistance. The ability of a material to withstand deterioration of its surface or its properties when exposed to its environment.

3.3.125 Corrosive Material. See 3.3.391.2.

3.3.126 Court. An open, uncovered, unoccupied space, unobstructed to the sky, bounded on three or more sides by exterior building walls.

3.3.126.1 Enclosed Court. A court bounded on all sides by the exterior walls of a building or by the exterior walls and lot lines on which walls are permitted.

3.3.126.2 Food Court. A public seating area located in a mall that serves adjacent food preparation tenant spaces.

3.3.127 Cripple Wall. See 3.3.651.3.

3.3.128* Critical Radiant Flux. The level of incident radiant heat energy on a floor-covering system at the most distant flameout point.

3.3.129 Cross Slope (Accessibility). The slope that is perpendicular to the direction of travel.

3.3.130 Cryogenic Fluid. A fluid with a boiling point lower than -130°F (-90°C) at an absolute pressure of 14.7 psia (101.325 kPa).

3.3.131 Cultural Resource Properties. Buildings, structures, sites, or portions thereof that are culturally significant or that house culturally significant collections for museums, libraries, and places of worship. [909, 2005].

3.3.132 Dalle Glass. See 3.3.273.1.

3.3.133 Damper.

3.3.133.1 Ceiling Radiation Damper. A listed device installed in a ceiling membrane of a fire resistance-rated floor-ceiling or roof-ceiling assembly to automatically limit the radiative heat transfer through an air inlet/outlet opening.

3.3.133.2 Combination Fire and Smoke Damper. A device that meets both the fire damper and smoke damper requirements.

3.3.133.3* Fire Damper. A device, installed in an air-distribution system, that is designed to close automatically upon detection of heat to interrupt migratory airflow and to restrict the passage of flame.

3.3.133.4 Smoke Damper. A device within an air-distribution system to control the movement of smoke.

3.3.134 Dangerous. That situation where the stresses in any member due to dead and live loads exceed 150 percent of the stresses allowed in the member or material.

3.3.135 Dash-Bond Coat (of plaster). A thick, wet mixture of aggregate and portland cement mixed in proportions of two parts aggregate to one part portland or plastic cement, dashed onto a monolithic surface to improve the mechanical key for subsequent plaster coats.

3.3.136 Data Conversion. The process of developing the input data set for the assessment method of choice.

3.3.137 Day-Care Home. See 3.3.322.1.

3.3.138 Day-Care Occupancy. See 3.3.427.4.

3.3.139 Dead Loads. See 3.3.369.1.

3.3.140 Deck. An exterior floor supported on at least two opposing sides by an adjacent structure and/or posts, piers, or other independent supports.

3.3.141 Decorative Glass. See 3.3.273.2.

3.3.142 Deferred Submittals. Those portions of the construction documents and calculations that are not submitted to the authority having jurisdiction with the application for permit, but which are to be submitted at a specified time after the application for permit.

3.3.143 Deflagration. Propagation of a combustion zone at a velocity that is less than the speed of sound in the unreacted medium. [68, 2007]

3.3.144 Demolition. Dismantling or razing of all or part of a building and all operations incidental thereto.

3.3.145 Depressurization System. See 3.3.616.4.

3.3.146 Design.

3.3.146.1 Allowable Stress Design. A method of proportioning structural members such that elastically computed stresses produced in the members by nominal loads do not exceed specified allowable stresses (also called *working stress design*). [ASCE/SEI 7:1.2]

3.3.146.2* Proposed Design. A design developed by a design team and submitted to the authority having jurisdiction for approval.

3.3.146.3 Strength Design. A method of proportioning structural members such that the computed forces produced in the members by the factored loads do not exceed the member design strength (also called *load and resistance factor design*). [ASCE/SEI 7:1.2]

3.3.147 Design Earthquake. The earthquake effects that are two-thirds of the corresponding maximum considered earthquake. [ASCE/SEI 7:11.2]

3.3.148 Design Fire Scenario. See 3.3.223.1.

3.3.149 Design Flood. See 3.3.243.2.

3.3.150 Design Flood Elevation (DFE). See 3.3.246.2.

3.3.151 Design Pressure (*p*). Equivalent static pressure to be used in the determination of wind loads for buildings. [ASCE/SEI 7:6.2]

3.3.152 Design Specification. See 3.3.584.1.

3.3.153 Design Strength. See 3.3.599.1.