

NFPA 5000[®]

Building Construction and Safety Code[®]

2021



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NFPA 5000®

Building Construction and Safety Code

2021 Edition

This edition of *NFPA 5000®*, *Building Construction and Safety Code®*, was prepared by the Technical Committees on Building Code and released by the Correlating Committee on Building Code. It was issued by the Standards Council on June 12, 2020, with an effective date of July 2, 2020, and supersedes all previous editions.

This edition of *NFPA 5000* was approved as an American National Standard on July 2, 2020.

Origin and Development of *NFPA 5000*

The inaugural 2003 edition of *NFPA 5000®*, *Building Construction and Safety Code®*, was issued in 2002 and was (and still is) 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 *Fire 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 5000 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 2015 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 U.S. 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.

Changes to the 2012 edition of *NFPA 5000* included the typical updating required for other referenced codes and standards, including those from other standard-developing organizations. Changes to defined terms in Chapter 3 were made to allow conformance with NFPA's Glossary of Terms project, whereby NFPA documents utilize consistent terminology when appropriate. Criteria dealing with elevators for occupant evacuation was relocated from Annex E to the main body of the Code in Chapter 11. Work on this concept has continued with the ASME A17/CSA B44 *Safety Code for Elevators and Escalators* Task Groups on Use of Elevators by Firefighters and Occupant Egress. These elevator provisions have matured enough to introduce this concept as a set of mainstream requirements. Related changes derived from the same ASME initiative resulted in further modifications to the Chapter 54 requirements for fire service access elevators. The 2012 Code also

recognized use of thermal pins in fire-rated doors; offered further rules and revisions applicable to locking arrangements for some egress doors; added a fundamental set of rules for installation of carbon monoxide alarms; and applied a global revision to recognize newly updated provisions of the 2010 edition of ASCE/SEI 7, *Minimum Design Loads for Buildings and Other Structures*.

The 2015 edition marked the first time that the various committees involved with *NFPA 5000* utilized the tools, enhancements, and procedures (*Regulations Governing the Development of NFPA Standards*) associated with the new code development process. The technical committees and the correlating committee benefitted from the availability of a complete draft to see the changes in context and to respond more readily to areas needing future revision or changes.

The 2015 edition incorporated many changes that have application across the board or only to certain occupancies and conditions. Numerous changes worked to align *NFPA 5000* with the accessibility definitions and scoping provisions that are contained in the Department of Justice ABA/ADA criteria (2010 edition). Related accessibility changes provided scoping for one- and two-family dwellings, as well as deferring to the technical provisions of ICC/ANSI 2009, *Standard on Accessible and Usable Buildings and Facilities*. Several provisions relating to building construction techniques and materials were updated, including the detailed requirements for plenum space construction in Chapter 7, which were removed as those provisions are now contained in NFPA 90A; recognition of new wood structural composites [cross laminated timber (CLT)], which was added to Chapter 7 as an option for heavy timber construction of walls, floors, and roof decks; new requirements were added for steel used in pile foundations; a series of changes were made to Chapter 44 to coordinate updates to ASCE/SEI 7, ASCE/SEI 19, and ACI 318; and the requirements for fire-retardant-treated wood (FRTW) were reformatted and repositioned from Chapter 3 to Chapter 45. These provisions were largely extracted from NFPA 703, *Standard for Fire-Retardant-Treated Wood and Fire-Retardant Coatings for Building Materials*.

A series of changes that have a broad impact on the various occupancy rules of the *Code* were accepted. These included the allowance to use an atrium wall to serve as part of the separation for creating separated occupancies where permitted by an occupancy chapter, a change that is permitted for use by almost all occupancy chapters; the addition of explicit rules for security access turnstiles; the revision of occupant load factors for business use and ambulatory health care use, based on a review of how these spaces are actually utilized; the increase of options for the protection of vertical openings involving escalators; the addition of provisions for expanded use and placement of alcohol-based hand-rub (ABHR) dispensers in various occupancies; the addition of provisions to address smoke alarm and smoke detector installation in the vicinity of cooking equipment; the mandated installation of carbon monoxide detectors and alarms found in the educational and day care chapters; and the expansion of the Life Safety Evaluation provisions (including further changes that were accepted with a TIA that was issued concurrently with the *Code*) to address facility management duties.

The day care and residential board and care occupancies provisions were revised to permit additional floor levels to be considered part of the level of exit discharge, and the board and care occupancy provisions were revised to permit door locking for the clinical needs of the residents. The health care occupancy provisions were further revised, as was begun in 2012, to permit the health care setting to be made more homelike; nursing home minimum corridor width was reduced within small smoke compartments under certain conditions; provisions were added to permit exit doors to be disguised with murals for certain settings like memory care units; additional termination point options were added for the travel distance measurement in suites; options were added for increasing the size of non-sleeping suites; and the allowable size for smoke compartments in hospitals was increased. The ambulatory health care chapters were reformatted into stand-alone chapters so as not to require the use of the business occupancy chapters.

Finally, numerous revisions were made in Chapter 34 to start to ensure that *NFPA 5000* is aligned with and extracts the appropriate information from NFPA 400, *Hazardous Materials Code*. An interrelated change (made by way of a TIA) impacting Chapter 34 (and other portions of the *Code*) involved removal of all information that relates to consumer fireworks and NFPA 1124, *Code for the Manufacture, Transportation, and Storage of Fireworks and Pyrotechnic Articles*.

The 2018 edition expanded on certain types of hazards and emerging subjects that must be addressed in this current era. These topics included integration of new provisions dealing with building and occupant security as well as provisions dealing with normal building use that address minimizing trips and falls in a building.

Initiatives at NFPA included a need to address the overlap between building security and traditional fire code, life safety code, and building code provisions. The addition of a goal in Chapter 4 of the 2018 edition required an assurance that any imposed security features would not interfere with the other compliance requirements. A series of related prescriptive changes included new terms used for certain types of door locking arrangements that rely on an electrical power component to release under different circumstances. A further allowance was added to several of the occupancy chapters that expanded on the type of door locking configurations that are permitted. In each of these cases, the code specifies certain criteria, such as the door doesn't have to be open to engage the lock, the allowable height of the release mechanism for the lock, and the ability to unlock the door from the opposite side are among the limitations imposed. A related security issue dealt with the need to conduct a risk assessment to determine whether a mass notification system (MNS) is necessary for certain occupancies. If it is determined that a system is needed, the risk assessment will also be used to determine the type of MNS.

The addition of requirements for grab bars in showers and bath tubs was included for certain occupancies with the base provisions being contained in Chapter 22. This was an example of where building code provisions must address normal use of the building or structure. A measurable number of injuries are potentially prevented by adding this type of requirement.

Other significant changes included the following: A reference was added to require compliance with NFPA 4, *Standard for Integrated Fire Protection and Life Safety System Testing*, to address the ever complex arrangements between different types of fire protection systems; the maximum size of the smoke compartment in a hospital and ambulatory health care occupancy was increased from 22,500 ft² to 40,000 ft²; additional provisions were added for attic protection in the chapters dealing with apartments and hotels that use NFPA 13R, *Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies*; mandates for carbon monoxide detection in assembly occupancies and residential board and care occupancies were added; and, finally, a series of newly introduced terms and definitions were included for mall buildings. The requirements dealing with flame propagation on exterior non-load-bearing walls in buildings were expanded to address composite designs that included water-resistant barriers; a new section was added to the chapter on roof assemblies that addressed both the fire and structural design parameters that must be included for roof-mounted PV panels.

Two new annex sections were added to address structural hardening of the exterior wall of a building exit, and a provision recommending basic design criteria for storm shelters was included. Text extracted from NFPA 221, *Standard for High Challenge Fire Walls, Fire Walls, and Fire Barrier Walls*, was updated in Chapter 8, as were extracts from NFPA 30, *Flammable and Combustible Liquids Code*, and NFPA 400, *Hazardous Materials Code*, in Chapter 34.

The 2021 edition includes updates based on new trends and safety concerns, including security, new building materials, and exterior wall testing.

A new Chapter 56 on security systems and features outlines security requirements for the built environment. It contains references to NFPA 730, NFPA 731, and NFPA 914. The chapters on educational occupancies and day care occupancies require the use of new Chapter 56.

The revisions based on ASCE 7-16 for wind loads and design loads have been reaffirmed as well as the section on vegetative roof systems.

Many updates have been made to the building height/area restrictions and testing requirements for specific materials. New options, height increases, and area increases have been added for mass timber construction. Revisions to testing requirements and height limitations have been made to the sections on light-transmitting plastic wall panels and metal composite materials (MCM). Updates also have been made to the requirements for fire-retardant-treated wood.

Other updates include revisions to align with updates in referenced concrete standards and seismic standards; a new reference to NFPA 855 in Chapter 55 for energy storage systems; new provisions for mass notification risk assessments; Chapter 18 requirements that all day care occupancies be sprinklered; and new requirements for low-frequency alarm signals in sleeping rooms of hotels, dormitories, and apartment buildings per NFPA 72®.

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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.

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Gregory E. Harrington, NFPA Staff Liaison

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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 nonemergency and emergency movement of people in assembly occupancies, tents, and membrane structures.

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

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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)

Richard L. Day, Chair

Michigan State Fire Marshal's Office, MI [E]

Nasser Ahmed Al Zeyara, Qatar Civil Defense, Qatar [E]

Farid Alfawakhiri, American Iron and Steel Institute, IL [M]

David G. Bueche, Hoover Treated Wood Products, CO [M]

Mark Chrisman, Henderson Engineers, KS [SE]

David S. Collins, The Preview Group, Inc., OH [SE]
Rep. American Institute of Architects

Richard J. Davis, FM Global, MA [I]

Alan J. Dopart, Willis of New Jersey, NJ [I]

David W. Frable, US General Services Administration, IL [U]

Michael A. Gardner, M Gardner Services, LLC, MD [L]
Rep. Wall and Ceiling Alliance

James W. Gaut, Marriott Vacations Worldwide, FL [U]

Kurtis Grant, US Department of Health & Human Services, GA [E]

William J. Hall, Portland Cement Association, VA [M]

Robert E. Hanson, Savannah River Nuclear Solutions, GA [U]

Khaled Heiza, Monofia University, Egypt [SE]

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

Aaron Johnson, Rural/Metro Corporation, FL [E]

James Tyler Johnson, Justice Institute of British Columbia, Canada [U]

Edward R. LaPine, JENSEN HUGHES, NY [SE]

Kenneth Lowery, Verisk Analytics/Insurance Services Office, Inc., GA [I]

Dennis A. Richardson, American Wood Council, CA [M]

Brad Schiffer, Brad Schiffer/Taxis, Inc., FL [SE]

Michael Schmeida, Gypsum Association, OH [M]

Stephen Schneider, Marx|Okubo Associates, CA [SE]

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

Peter J. Willse, AXA XL/Global Asset Protection Services, LLC, CT [I]

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

Felix I. Zemel, Town of Dover, MA [SE]

Alternates

James M. Dalton, Chicago Fire Department, IL [L]
(Voting Alt.)

Timothy Earl, GBH International, MI [M]
(Alt. to Michael Schmeida)

Joseph T. Holland, Hoover Treated Wood Products, FL [M]
(Alt. to David G. Bueche)

Jonathan Humble, American Iron and Steel Institute, CT [M]
(Alt. to Farid Alfawakhiri)

William Jeffrey Ivans, Verisk/Insurance Services Office, NJ [I]
(Alt. to Kenneth Lowery)

Valerie Ziavras, NFPA Staff Liaison

William E. Koffel, Koffel Associates, Inc., MD [U]
(Voting Alt.)

Raymond C. O'Brocki, American Wood Council, MD [M]
(Alt. to Dennis A. Richardson)

Joseph Radford Sellers, U.S. Department of Energy, TN [U]
(Alt. to Robert E. Hanson)

Richard N. Walke, UL LLC, IL [RT]
(Alt. to Luke C. Woods)

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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 Correlating Committee; whereas, for the processing of NFPA 220 and NFPA 221, this committee does not report to the NFPA 5000 Correlating Committee.

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

Raymond A. Grill, *Chair*
Arup, DC [SE]

Tracy Vecchiarelli, *Administrative Secretary*
National Fire Protection Association, MA

Jodi S Balido, Dominion Energy Services Inc, VA [U]
Rep. Edison Electric Institute

Harry L. Bradley, Maryland State Fire Marshal's Office, MD [E]
Rep. International Fire Marshals Association

Kevin L. Brinkman, National Elevator Industry, Inc., IL [M]
Rep. National Elevator Industry Inc.

Pat D. Brock, Oklahoma State University, OK [SE]

Flora F. Chen, Hayward Fire Department, California, CA [E]

Stephen E. Dale, Cincinnati Insurance Company, OH [I]

Bryan Dempsey, Vivint, TX [IM]
Rep. Electronic Security Association

Paul M. Donga, Boston Fire Department, MA [E]

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

Claude O. Hutton, Virginia State Fire Marshal's Office, VA [E]

Joseph M. Jardin, Fire Department City of New York, NY [C]
Rep. NFPA Fire Service Section

Michael Kellett, State of Connecticut, CT [E]
Rep. Connecticut State Fire Marshal/Connecticut Fire Marshals Association

David A. Killian, Walt Disney Parks & Resorts, CA [U]

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

Peter A. Larrimer, US Department of Veterans Affairs, PA [U]

Daniel J. Lazarz, EYP Architecture & Engineering, MA [SE]

Scott E. Panowitz, BFPE International, MD [M]
Rep. Fire Suppression Systems Association

Ray F. Reed, Highrise Fire Consultants, TX [L]
Rep. International Association of Fire Fighters

Rodger Reiswig, Johnson Controls, FL [M]

Richard Jay Roberts, Honeywell Fire Safety, IL [M]
Rep. National Electrical Manufacturers Association

Kurt A. Ruchala, JENSEN HUGHES, MA [SE]

Lawrence J. Shudak, UL LLC, IL [RT]

Michael R. Szmanda, Certification & Training Corporation, MN [IM]

Todd W. Warner, Brooks Equipment Company, Inc., MT [M]
Rep. Fire Equipment Manufacturers' Association

Carl D. Wren, City of Austin, TX [E]

David M. Wyatt, Pacific Northwest National Laboratory-Battelle, WA [U]

Alternates

Daniel P. Finnegan, Siemens Industry, Inc., IL [M]
(Alt. to Richard Jay Roberts)

Greg Gottlieb, Hauppauge Fire District, NY [C]
(Alt. to Joseph M. Jardin)

Claudia Hagood, Klinker and Associates, Inc., MD [SE]
(Alt. to Richard L. Klinker)

Mark Hopkins, National Fire Sprinkler Association, MD [M]
(Alt. to Jeffrey M. Hugo)

Bryan Lawrence Hoskins, Oklahoma State University, OK [SE]
(Alt. to Pat D. Brock)

Ignatius Kapalczynski, Simsbury Fire District, CT [E]
(Alt. to Michael Kellett)

Tracy Vecchiarelli, NFPA Staff Liaison

Roy C. Kimball, Brooks Equipment Company, Inc., NC [M]
(Alt. to Todd W. Warner)

Peter Leszczak, US Department of Veterans Affairs, CT [U]
(Alt. to Peter A. Larrimer)

Marc Mueller, Thyssenkrupp Elevator, TN [M]
(Alt. to Kevin L. Brinkman)

Joseph J. Watson, JENSEN HUGHES, RI [SE]
(Alt. to Kurt A. Ruchala)

Kristian White, Space Age Electronics, Inc., MA [M]
(Voting Alt.)

Justin Yates, Cincinnati Insurance Company, AR [I]
(Alt. to Stephen E. Dale)

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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)

Joshua D. Greene, *Chair*
Simpson Gumpertz & Heger, MA [SE]

Kevin Carr, *Administrative Secretary*
National Fire Protection Association, MA

William Ambrefe, City of Beverly, MA [E]

Kevin L. Brinkman, National Elevator Industry, Inc., IL [M]
Rep. National Elevator Industry Inc.

Phil Forner, Allendale Heating Company Inc., MI [IM]
Rep. Air Conditioning Contractors of America

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

Matthew M. Hunter, American Wood Council, PA [M]

Davor Novosel, National Energy Management Institute, VA [L]

Michael J. Reeser, Santa Rosa Fire Equipment Service Inc., CA [IM]
Rep. California Automatic Fire Alarm Association Inc.

James Rickard, P3 Consulting, TX [SE]

Frank Shingleton, Viega, LLC, KS [M]

Shelley Siegel, Universal Design & Education Network, LLC, FL
[SE]

Rep. American Society of Interior Designers

Peter J. Willse, AXA XL/Global Asset Protection Services, LLC, CT
[I]

Felix I. Zemel, Town of Dover, MA [SE]

Alternates

Shane M. Clary, Bay Alarm Company, CA [IM]
(Alt. to Michael J. Reeser)

Luis Romeo Escobar, Air Conditioning Contractors of America, VA
[IM]
(Alt. to Phil Forner)

Mark Fasel, Viega LLC, IN [M]
(Alt. to Frank Shingleton)

Marc Mueller, Thyssenkrupp Elevator, TN [M]
(Alt. to Kevin L. Brinkman)

Kevin Carr, NFPA Staff Liaison

John A. Rickard, P3 Consulting, TX [SE]
(Alt. to James Rickard)

James B. Smith, American Wood Council, WI [M]
(Alt. to Matthew M. Hunter)

Steven J. Whitman, JENSEN HUGHES, MD [SE]
(Voting Alt.)

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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)

Randy Gaw, Chair

DET-CORR Fire Safety Consulting, Canada [SE]

Jen Sisco, Administrative Secretary

National Fire Protection Association, MA

Clay P. Aler, Koffel Associates, Inc., MD [SE]

Tracy Bollig, American Fire Sprinkler Corporation, KS [M]
Rep. National Fire Sprinkler Association

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

Michael DiMascio, Arup, MA [SE]

Nolan T Griffiths, Massachusetts Department of Correction (MA DOC), MA [U]

Rick Heffernan, SDi, NJ [M]

Rep. National Electrical Manufacturers Association

John Kelly, Washington DC Fire & EMS Department, MD [E]

Michael Kruszelnicki, Correctional Service of Canada, Canada [E]

Troy A. Lumley, South McCreary Fire & Rescue, KY [E]

Van Hoover Patterson, State of Florida NE Region Jacksonville Office, FL [E]

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

Jack Poole, Poole Fire Protection, Inc., KS [SE]

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

James A. Stapleton, Jr., Habersham Metal Products Company, GA [M]

Rep. National Assn. of Architectural Metal Manufacturers

Garrick Youngberg, Siemens, OR [M]

Rep. Automatic Fire Alarm Association, Inc.

Alternates

Kina Campbell, Koffel Associates, MD [SE]
(Alt. to Clay P. Aler)

Julian Castaneda, US Department of Justice, DC [U]
(Alt. to Peter J. Collins)

Laura Frye, Door and Hardware Institute, VA [M]
(Alt. to Roslyn Shender)

James Lewis, American Fire Sprinkler Corporation, KS [M]
(Alt. to Tracy Bollig)

Joseph Plati, Code Consultants, Inc., NY [SE]
(Alt. to Terry Schultz)

Andrew W. Poole, Poole Fire Protection, Inc., KS [SE]
(Alt. to Jack Poole)

Rodger Reiswig, Johnson Controls, FL [M]
(Alt. to Rick Heffernan)

Ryan Sandler, Honeywell, CA [M]
(Alt. to Garrick Youngberg)

Nonvoting

Reginald D. Jackson, US Department of Labor, DC [E]

Jen Sisco, NFPA Staff Liaison

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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)

Matthew J. Mertens, *Chair*
North Shore Fire Department, WI [E]
Rep. International Fire Marshals Association

Kristin Bigda, *Administrative Secretary*
National Fire Protection Association (NFPA), MA

Mohammed Alsulaiti, State of Qatar Ministry of Interior-Qatar Civil Defense, Qatar [E]

Dorn J. Beddow, Lee County School District (LCSD), FL [U]

Scott J. Blaser, Florida School Boards Association, FL [U]

Samuel S. Dannaway, Coffman Engineers/S. S. Dannaway Associates, Inc., HI [SE]

Richard L. Day, Michigan State Fire Marshal's Office, MI [E]

Richard M. DiMisa, Code Consultants, Inc., MO [SE]

Jason D. Ellis, University of Kentucky, KY [U]

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

Max L. Gandy, The Church of Jesus Christ of Latter-day Saints, UT [U]

Jeffrey L. Haidacher, Fairfax County Public Schools, VA [U]

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

Howard Hopper, UL LLC, CA [RT]

Terrence J. Julka, J. F. Ahern Company, WI [M]
Rep. National Fire Sprinkler Association

Rosa Lazebnik, Primera Engineers, IL [SE]

Alfred J. Longhitano, Alfred J. Longhitano, P.E., LLC, NY [SE]

Maria B. Marks, Siemens Industry, Inc., MD [M]

Rep. National Electrical Manufacturers Association

Richard E. Merck, Montgomery County Fire & Rescue Service, MD [E]

Michael Naber, JENSEN HUGHES, CO [M]

Rep. Automatic Fire Alarm Association, Inc.

Kurt A. Roeper, ASSA ABLOY, CT [M]

Rep. Steel Door Institute

Michael L. Savage, Sr., Marion County Building Safety, FL [E]

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

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

Rep. Office of the Illinois State Fire Marshal

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

Alternates

Clay P. Aler, Koffel Associates, Inc., MD [SE]
(Voting Alt.)

Judy Biddle, US Department of the Air Force, FL [U]
(Alt. to Raymond N. Hansen)

Brandon Ernest, University of Kentucky, KY [U]
(Alt. to Jason D. Ellis)

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

Christopher M. Jenkins, Church of Jesus Christ of Latter-day Saints, UT [U]
(Alt. to Max L. Gandy)

Larry D. Rietz, JENSEN HUGHES, CO [M]
(Alt. to Michael Naber)

Richard Jay Roberts, Honeywell Fire Safety, IL [M]
(Alt. to Maria B. Marks)

Karl Wiegand, Globe Fire Sprinkler Corporation, MI [M]
(Alt. to Terrence J. Julka)

Kristin Bigda, NFPA Staff Liaison

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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)

John F. Devlin, *Chair*
JENSEN HUGHES, MD [SE]
Rep. JENSEN HUGHES

Jen Sisco, *Administrative Secretary*
National Fire Protection Association, MA

Eddie Dewayne Alday, Agency for Health Care Administration, FL [E]

Gregory J. Cahanin, Cahanin Fire & Code Consulting, FL [U]
Rep. Louisiana State Firemen's Association

Nicholas A. Dawe, Cobb County Fire Marshal's Office, GA [E]

Jeffrey T. Dudley, National Aeronautics & Space Administration, Kennedy Space Center (NASA), FL [U]

Edward S. Goldhammer, Hilti, CA [M]

Joseph Graupmann, AECOM Technology, VA [SE]

Jack A. Gump, Consolidated Nuclear Security, TN [U]

William J. Hall, Portland Cement Association, VA [M]

Joseph Patrick Higgins, US Department of the Navy, FL [E]

Howard Hopper, UL LLC, CA [RT]

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

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

Waymon Jackson, University of Texas at Austin, TX [U]

Adam C. Jones, Buechel Fire Protection District, KY [E]

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

William J. McHugh, Jr., Firestop Contractors International Association, IL [IM]

Rep. Firestop Contractors International Association

Jeramie W. Morris, Dow Corning Corporation, MI [M]

Dennis A. Richardson, American Wood Council, CA [M]

Kurt A. Roeper, ASSA ABLOY, CT [M]

Rep. Steel Door Institute

Gregory K. Shino, NV5/JBA Consulting Engineers, NV [SE]

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

Rep. Office of the Illinois State Fire Marshal

Nathan B. Wittasek, Simpson Gumpertz & Heger (SGH), CA [SE]

Alexander Frederick Zivnуска, Code Consultants, Inc., MO [SE]

Alternates

Farid Alfawakhiri, American Iron and Steel Institute, IL [M]
(Alt. to Jonathan Humble)

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

Erin N. Crowley, Code Consultants, Inc., MO [SE]
(Alt. to Alexander Frederick Zivnуска)

Timmy Dee, Consolidated Nuclear Security Y-12, LLC, TN [U]
(Alt. to Jack A. Gump)

Jennifer Klein Gould, Marshall A. Klein and Associates, Inc., VA [SE]
(Voting Alt.)

Shane Hatmaker, AECOM Technology, DC [SE]
(Alt. to Joseph Graupmann)

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

Josh Lambert, University of Texas at Austin, TX [U]
(Alt. to Waymon Jackson)

Chris Moran, JENSEN HUGHES, MD [SE]
(Alt. to John F. Devlin)

Raymond C. O'Brocki, American Wood Council, MD [M]
(Alt. to Dennis A. Richardson)

Lennon A. Peake, Koffel Associates, Inc., MD [M]
(Alt. to William E. Koffel)

Erne Rodriguez, Jr., Wiginton Fire Protection Engineering, Inc., FL [M]
(Alt. to Jeffrey M. Hugo)

Richard N. Walke, UL LLC, IL [RT]
(Alt. to Howard Hopper)

Nonvoting

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

Jen Sisco, NFPA Staff Liaison

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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)

Chris Jelenewicz, *Chair*

Society of Fire Protection Engineers, MD [SE]

Gregory E. Harrington, *Administrative Secretary*

National Fire Protection Association, MA

Nasser Ahmed Al Zeyara, Qatar Civil Defense, Qatar [E]

Farid Alfawakhiri, American Iron and Steel Institute, IL [M]

Wayne G. Chip Carson, Carson Associates, Inc., VA [SE]

Amy Y. Cheng, Clark County Department of Development Services, NV [E]

Daniel P. Finnegan, Siemens Industry, Inc., IL [M]

Rep. National Electrical Manufacturers Association

David W. Frable, US General Services Administration, IL [U]

Norman E. Groner, John Jay College of Criminal Justice, NY [SE]

Stanley C. Harbuck, School of Building Inspection, MA [C]

Rep. American Public Health Association

Mark Hopkins, National Fire Sprinkler Association, MD [M]

Rep. National Fire Sprinkler Association

David J. Jacoby, Simpson Gumpertz & Heger, NY [SE]

David P. Klein, US Department of Veterans Affairs, DC [U]

Scott T. Laramie, AON Property Risk, CA [I]

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

Ricardo Murga, US Department of Health & Human Services, MT [E]

Milosh T. Puchovsky, Worcester Polytechnic Institute, MA [SE]

Rodger Reising, Johnson Controls, FL [M]

Rep. Automatic Fire Alarm Association, Inc.

Jon G. Roberts, UL LLC, OK [RT]

Michael Schmeida, Gypsum Association, OH [M]

David P. Tyree, American Wood Council, CO [M]

Joshua Vann, MB Healthcare, NJ [U]

Alternates

Sharon S. Gilyeat, Koffel Associates, Inc., MD [SE]

(Alt. to James K. Lathrop)

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

(Alt. to Mark Hopkins)

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

(Alt. to Farid Alfawakhiri)

Matthew M. Hunter, American Wood Council, PA [M]

(Alt. to David P. Tyree)

Bruce E. Johnson, UL LLC, NY [RT]

(Alt. to Jon G. Roberts)

James M. Mundy, Jr., Asset Protection Associates, Ltd., NY [M]

(Alt. to Rodger Reising)

Jake Pauls, Jake Pauls Consulting Services, Canada [C]

(Alt. to Stanley C. Harbuck)

Victoria B. Valentine, Society of Fire Protection Engineers (SFPE), PA [SE]

(Alt. to Chris Jelenewicz)

Mike West, Siemens, OR [M]

(Alt. to Daniel P. Finnegan)

Nonvoting

Pichaya Chantranuwat, Fusion Consultants Co. Ltd/Thailand, Thailand [SE]

Gregory E. Harrington, NFPA Staff Liaison

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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, on the nonemergency and emergency movement of people, and on high-rise buildings.

Technical Committee on Health Care Occupancies (BLD-HEA)

William E. Koffel, *Chair*
Koffel Associates, Inc., MD [SE]

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

Kenneth E. Bush, Maryland State Fire Marshal's Office, MD [E]
Rep. International Fire Marshals Association

Wayne G. Chip Carson, Carson Associates, Inc., VA [SE]

Michael A. Crowley, JENSEN HUGHES, TX [SE]

Luke Cummings, Mayo Clinic, MN [U]

Samuel S. Dannaway, Coffman Engineers/S. S. Dannaway Associates, Inc., HI [SE]
Rep. American Society of Safety Professionals

Matthew W. Davy, Arup, MA [SE]

Joseph M. DeRosier, University of Michigan, MI [U]

Alice L. Epstein, CNA Insurance, CO [I]

Martin J. Farraher, Siemens Industry, Inc., IL [M]

Gary Furdell, State of Florida, FL [E]

Robert J. Harmeyer, MSKTD & Associates, IN [SE]
Rep. American Institute of Architects

Donald W. Harris, California Office of Health Planning & Development, CA [E]

Richard M. Horeis, HDR Architecture, Inc., NE [SE]

David P. Klein, US Department of Veterans Affairs, DC [U]
Rep. US Department of Veterans Affairs

Kevin Knippa, Texas Health and Human Services Commission, TX [E]

Henry Kowalenko, Illinois Department of Public Health, IL [E]

Herman McKenzie, The Joint Commission - SIG, IL [E]

James Merrill II, US Department of Health & Human Services, MD [E]
Rep. US Dept. of Health & Human Services/CMS

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

Ben Pethe, Health Care Consultant, FL [SE]

G. Brian Prediger, US Army Corps of Engineers, VA [U]

John A. Rickard, P3 Consulting, TX [SE]

Richard Jay Roberts, Honeywell Fire Safety, IL [M]
Rep. Automatic Fire Alarm Association, Inc.

Kurt A. Roeper, ASSA ABLOY, CT [M]

Rep. Builders Hardware Manufacturers Assn./Steel Door Institute

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

Steven G. Spaanbroek, MSL Healthcare Partners, IL [U]
Rep. American Society for Healthcare Engineering

Neil Stinnett, Indiana University Health, IN [U]

Joshua Vann, MB Healthcare, NJ [U]

Terry L. Victor, Johnson Controls, MD [M]
Rep. National Fire Sprinkler Association

Michael D. Widdekind, Zurich Services Corporation, MD [I]

Alternates

Chad E. Beebe, ASHE - AHA, WA [U]
(Alt. to Steven G. Spaanbroek)

Bruce D. Brooks, Noelker and Hull Associates, Inc., VA [SE]
(Alt. to Robert J. Harmeyer)

David A. Dagenais, Partners/Wentworth-Douglass Hospital, NH [U]
(Alt. to James S. Peterkin)

Rebekah L. Eaddy, Texas Health and Human Services Commission, TX [E]
(Alt. to Kevin Knippa)

Joshua W. Elvove, Aurora, CO [SE]
(Alt. to Samuel S. Dannaway)

Michael T. Greco, Oliver Fire Protection & Security, PA [M]
(Alt. to Terry L. Victor)

Philip J. Hoge, US Army Corps of Engineers, VA [U]
(Alt. to G. Brian Prediger)

Adrian Hal Key, P3 Consulting, TX [SE]
(Alt. to John A. Rickard)

Peter A. Larrimer, US Department of Veterans Affairs, PA [U]
(Alt. to David P. Klein)

Bret M. Martin, CNA Insurance, NC [I]
(Alt. to Alice L. Epstein)

Lennon A. Peake, Koffel Associates, Inc., MD [SE]
(Alt. to William E. Koffel)

Ajay V. Prasad, JENSEN HUGHES, MD [SE]
(Alt. to Michael A. Crowley)

Dennis L. Schmitt, Illinois Department of Public Health, IL [E]
(Alt. to Henry Kowalenko)

Deborah L. Shaner, Shaner Life Safety, CO [M]
(Alt. to Richard Jay Roberts)

Wesley Springer, Siemens Industry, Inc., FL [M]
(Alt. to Martin J. Farraher)

James R. Stuckey, Agency For Health Care Administration, FL [E]
(Alt. to Gary Furdell)

Kenneth Sun, US Public Health Service, CO [E]
(Alt. to James Merrill II)

Alexander Frederick Zivnuska, Code Consultants, Inc., MO [SE]
(Alt. to Terry Schultz)

Nonvoting

Pichaya Chantranuwat, Fusion Consultants Co. Ltd/Thailand, Thailand [SE]

David M. Sine, National Center for Patient Safety, MI [U]
Rep. National Association of Psychiatric Health Systems

Gregory E. Harrington, NFPA Staff Liaison

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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)

Carl D. Wren, *Chair*
City of Austin, TX [E]

Jen Sisco, *Administrative Secretary*
National Fire Protection Association, MA

Ali Almannai, State of Qatar-Ministry of Interior General Administration of Civil Defense, Qatar [E]
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Rob Early, Compressed Gas Association, NY [M]
Robert E. Hanson, Savannah River Nuclear Solutions, GA [U]
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John Vosicky, Sherwin Williams, OH [U]
Michael S. White, Siemens Building Technologies, OH [M]
 Rep. National Electrical Manufacturers Association

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 (Alt. to Dennis A. Richardson)
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Jen Sisco, NFPA Staff Liaison

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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, and windowless and underground buildings.

Technical Committee on Interior Finish and Contents (BLD-INT)

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National Fire Protection Association, MA

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Rep. International Association of Fire Fighters

Tiffney Arlene-Cates Chen, Smithsonian Institution, MD [U]

Peter S. Cutrer, 7Cs Consulting, ME [SE]

Michael W. Evans, Brighton Area Fire Department, MI [E]

William E. Fitch, Phyrefish.com, FL [SE]

Marcelo M. Hirschler, GBH International, CA [SE]

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Rep. Bobrick Washroom Equipment, Inc.

Kathleen A. Newman, Firetect, CA [M]

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

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Cori Leffler, Firetect, CA [M]
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Tracy L. Vecchiarelli, NFPA Staff Liaison

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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 interior finish, furnishings and building contents 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 Means of Egress (BLD-MEA)

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Gregory E. Harrington, *Administrative Secretary*
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Rep. National Electrical Manufacturers Association
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Rep. American Public Health Association
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Virginia R. Charter, Oklahoma State University, OK [SE]
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(Alt. to Joshua W. Elvove)
Paul L. Dove, Coldwater, MI [E]
(Alt. to Ronald R. Farr)
Laura Frye, Door and Hardware Institute, VA [M]
(Alt. to Robert R. Perry)
Stanley C. Harbuck, School of Building Inspection, MA [C]
(Alt. to Jake Pauls)
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Nonvoting

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Reginald D. Jackson, US Department of Labor, DC [E]

Gregory E. Harrington, NFPA Staff Liaison

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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)

Amy J. Murdock, *Chair*
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Rep. The Home Depot

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Rep. National Fire Sprinkler Association

Kenneth E. Bush, Maryland State Fire Marshal's Office, MD [E]
Rep. International Fire Marshals Association

Anthony W. Cole, Wal-Mart Stores, Inc., CA [U]

Nicholas A. Dawe, Cobb County Fire Marshal's Office, GA [E]

Kevin L. Derr, US Architect of the Capitol, DC [E]

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David W. Frable, US General Services Administration, IL [U]

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Daniel J. Gauvin, Johnson Controls, MA [M]

Anthony C. Gumkowski, Travelers Insurance Company, CT [I]

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

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

Bridget Mourao, Emory University, GA [E]

Sarah A. Rice, The Preview Group, Inc., OH [SE]

Jeffrey Shirey, University of Maryland - Office of the Fire Marshal, MD [E]

James B. Smith, American Wood Council, WI [M]

Warren G. Stocker, The Albertson Companies, CA [U]

John Vosicky, Sherwin Williams, OH [U]

Timothy Wensus, Jensen Hughes, RI [SE]

Ernest D. Yonkers, Harrison French and Associates, AR [SE]

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Jen Sisco, NFPA Staff Liaison

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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)

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Rep. American Wood Council

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Rep. Rhode Island Association of Fire Marshals

Nicholas A. Dawe, Cobb County Fire Marshal's Office, GA [E]

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Rep. Automatic Fire Alarm Association, Inc.

Abir Haidar, Intercontinental Hotels Group, GA [U]

William J. Hall, Portland Cement Association, VA [M]

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

Kenneth E. Isman, University of Maryland, MD [SE]

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Tracy L. Vecchiarelli, NFPA Staff Liaison

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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)

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Rep. JENSEN HUGHES

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Benjamin H. Caldwell, Bjarke Ingels Group (BIG), NY [SE]
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David S. Collins, The Preview Group, Inc., OH [SE]
Rep. American Institute of Architects
Jeffrey Feid, State Farm Insurance Company, IL [I]
William E. Fitch, Phyrefish.com, FL [SE]
Steve Garis, Newport Real Estate Services, CA [U]
Mark S. Graham, National Roofing Contractors Association, IL [IM]
William J. Hall, Portland Cement Association, VA [M]
John C. Harrington, FM Global, MA [I]
Marcelo M. Hirschler, GBH International, CA [SE]

Tin Htway, Town of Westborough, MA [E]
Xianxu (Sherri) Hu, Verisk Analytics/Insurance Services Office, Inc., NJ [I]
Bonnie E. Manley, American Iron and Steel Institute, MA [M]
Scott Nesvold, Crane Engineering, MN [SE]
Jason D. Rotondo, CODEpliance Inc., MA [M]
Michael L. Savage, Sr., Marion County Building Safety, FL [E]
Michael Schmeida, Gypsum Association, OH [M]
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Valerie Ziavras, NFPA Staff Liaison

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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.

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Building Construction and Safety Code

2021 Edition

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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*, 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 an 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 the responsibility of or to 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 deemed an unsafe building or fire hazard.

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) Incomplete buildings for which building permits have expired or been revoked, excluding partially completed buildings with valid certificates of occupancy
- (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 on 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:

WARNING: UNSAFE BUILDING

This building is unsafe based on the provisions of 1.7.5.3 of *NFPA 5000*.

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 unsafe, 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 specifically identifies the location of 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 locations
- (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 permitted 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 8.2.1.3 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 structures, 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 coordination of these 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 1.7.6.6.3.4(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.

Δ (B) Reinforcing Steel. Inspections of reinforcing steel shall take place 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. A 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 referenced in this chapter, or portions of such documents, are referenced within this *Code* and shall be considered part of the requirements of this *Code*, and the following shall also apply:

- (1)* Documents referenced in this chapter, or portion of such documents, shall only be applicable to the extent called for within other chapters of this *Code*.
- (2) Where the requirements of a referenced code or standard differ from the requirements of this *Code*, the requirements of this *Code* shall govern.
- (3)* Existing buildings or installations that do not comply with the provisions of the codes or standards referenced in this chapter shall be permitted to be continued in service, provided that the lack of conformity with these documents does not present a serious hazard to the occupants as determined by the authority having jurisdiction.

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

NFPA 1, *Fire Code*, 2021 edition.
 NFPA 4, *Standard for Integrated Fire Protection and Life Safety System Testing*, 2021 edition.
 NFPA 10, *Standard for Portable Fire Extinguishers*, 2018 edition.
 NFPA 11, *Standard for Low-, Medium-, and High-Expansion Foam*, 2016 edition.
 NFPA 12, *Standard on Carbon Dioxide Extinguishing Systems*, 2018 edition.
 NFPA 12A, *Standard on Halon 1301 Fire Extinguishing Systems*, 2018 edition.
 NFPA 13, *Standard for the Installation of Sprinkler Systems*, 2019 edition.
 NFPA 13D, *Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes*, 2019 edition.
 NFPA 13R, *Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies*, 2019 edition.
 NFPA 14, *Standard for the Installation of Standpipe and Hose Systems*, 2019 edition.
 NFPA 15, *Standard for Water Spray Fixed Systems for Fire Protection*, 2017 edition.
 NFPA 16, *Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems*, 2019 edition.
 NFPA 17, *Standard for Dry Chemical Extinguishing Systems*, 2021 edition.
 NFPA 17A, *Standard for Wet Chemical Extinguishing Systems*, 2021 edition.
 NFPA 20, *Standard for the Installation of Stationary Pumps for Fire Protection*, 2019 edition.
 NFPA 24, *Standard for the Installation of Private Fire Service Mains and Their Appurtenances*, 2019 edition.
 NFPA 30, *Flammable and Combustible Liquids Code*, 2021 edition.

NFPA 30A, *Code for Motor Fuel Dispensing Facilities and Repair Garages*, 2021 edition.
 NFPA 30B, *Code for the Manufacture and Storage of Aerosol Products*, 2019 edition.
 NFPA 31, *Standard for the Installation of Oil-Burning Equipment*, 2020 edition.
 NFPA 32, *Standard for Drycleaning Facilities*, 2016 edition.
 NFPA 33, *Standard for Spray Application Using Flammable or Combustible Materials*, 2018 edition.
 NFPA 34, *Standard for Dipping, Coating, and Printing Processes Using Flammable or Combustible Liquids*, 2018 edition.
 NFPA 35, *Standard for the Manufacture of Organic Coatings*, 2016 edition.
 NFPA 36, *Standard for Solvent Extraction Plants*, 2017 edition.
 NFPA 37, *Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines*, 2018 edition.
 NFPA 40, *Standard for the Storage and Handling of Cellulose Nitrate Film*, 2019 edition.
 NFPA 45, *Standard on Fire Protection for Laboratories Using Chemicals*, 2019 edition.
 NFPA 51, *Standard for the Design and Installation of Oxygen-Fuel Gas Systems for Welding, Cutting, and Allied Processes*, 2018 edition.
 NFPA 51A, *Standard for Acetylene Cylinder Charging Plants*, 2012 edition.
 NFPA 52, *Vehicular Natural Gas Fuel Systems Code*, 2019 edition.
 NFPA 54, *National Fuel Gas Code*, 2021 edition.
 NFPA 55, *Compressed Gases and Cryogenic Fluids Code*, 2020 edition.
 NFPA 58, *Liquefied Petroleum Gas Code*, 2020 edition.
 NFPA 59A, *Standard for the Production, Storage, and Handling of Liquefied Natural Gas (LNG)*, 2019 edition.
 NFPA 61, *Standard for the Prevention of Fires and Dust Explosions in Agricultural and Food Processing Facilities*, 2020 edition.
 NFPA 69, *Standard on Explosion Prevention Systems*, 2019 edition.
 NFPA 70®, *National Electrical Code®*, 2020 edition.
 NFPA 72®, *National Fire Alarm and Signaling Code®*, 2019 edition.
 NFPA 75, *Standard for the Fire Protection of Information Technology Equipment*, 2020 edition.
 NFPA 80, *Standard for Fire Doors and Other Opening Protectives*, 2019 edition.
 NFPA 82, *Standard on Incinerators and Waste and Linen Handling Systems and Equipment*, 2019 edition.
 NFPA 85, *Boiler and Combustion Systems Hazards Code*, 2019 edition.
 NFPA 88A, *Standard for Parking Structures*, 2019 edition.
 NFPA 90A, *Standard for the Installation of Air-Conditioning and Ventilating Systems*, 2021 edition.
 NFPA 90B, *Standard for the Installation of Warm Air Heating and Air-Conditioning Systems*, 2021 edition.
 NFPA 91, *Standard for Exhaust Systems for Air Conveying of Vapors, Gases, Mists, and Particulate Solids*, 2020 edition.
 NFPA 92, *Standard for Smoke Control Systems*, 2018 edition.
 NFPA 96, *Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations*, 2021 edition.
 NFPA 99, *Health Care Facilities Code*, 2021 edition.
 NFPA 99B, *Standard for Hypobaric Facilities*, 2021 edition.
 NFPA 101®, *Life Safety Code®*, 2021 edition.

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

NFPA 110, *Standard for Emergency and Standby Power Systems*, 2019 edition.

NFPA 111, *Standard on Stored Electrical Energy Emergency and Standby Power Systems*, 2019 edition.

NFPA 120, *Standard for Fire Prevention and Control in Coal Mines*, 2020 edition.

NFPA 140, *Standard on Motion Picture and Television Production Studio Soundstages, Approved Production Facilities, and Production Locations*, 2018 edition.

NFPA 150, *Fire and Life Safety in Animal Housing Facilities Code*, 2019 edition.

NFPA 170, *Standard for Fire Safety and Emergency Symbols*, 2018 edition.

NFPA 204, *Standard for Smoke and Heat Venting*, 2018 edition.

NFPA 211, *Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances*, 2019 edition.

NFPA 214, *Standard on Water-Cooling Towers*, 2016 edition.

NFPA 220, *Standard on Types of Building Construction*, 2021 edition.

NFPA 221, *Standard for High Challenge Fire Walls, Fire Walls, and Fire Barrier Walls*, 2021 edition.

NFPA 241, *Standard for Safeguarding Construction, Alteration, and Demolition Operations*, 2019 edition.

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

NFPA 253, *Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source*, 2019 edition.

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

NFPA 259, *Standard Test Method for Potential Heat of Building Materials*, 2018 edition.

NFPA 265, *Standard Methods of Fire Tests for Evaluating Room Fire Growth Contribution of Textile or Expanded Vinyl Wall Coverings on Full Height Panels and Walls*, 2019 edition.

NFPA 268, *Standard Test Method for Determining Ignitability of Exterior Wall Assemblies Using a Radiant Heat Energy Source*, 2017 edition.

NFPA 275, *Standard Method of Fire Tests for the Evaluation of Thermal Barriers*, 2017 edition.

NFPA 276, *Standard Method of Fire Test for Determining the Heat Release Rate of Roofing Assemblies with Combustible Above-Deck Roofing Components*, 2019 edition.

NFPA 285, *Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Wall Assemblies Containing Combustible Components*, 2019 edition.

NFPA 286, *Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth*, 2019 edition.

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

NFPA 289, *Standard Method of Fire Test for Individual Fuel Packages*, 2019 edition.

NFPA 303, *Fire Protection Standard for Marinas and Boatyards*, 2021 edition.

NFPA 307, *Standard for the Construction and Fire Protection of Marine Terminals, Piers, and Wharves*, 2021 edition.

NFPA 318, *Standard for the Protection of Semiconductor Fabrication Facilities*, 2018 edition.

NFPA 400, *Hazardous Materials Code*, 2019 edition.

NFPA 407, *Standard for Aircraft Fuel Servicing*, 2017 edition.

NFPA 409, *Standard on Aircraft Hangars*, 2016 edition.

NFPA 415, *Standard on Airport Terminal Buildings, Fueling Ramp Drainage, and Loading Walkways*, 2016 edition.

NFPA 418, *Standard for Heliports*, 2016 edition.

NFPA 423, *Standard for Construction and Protection of Aircraft Engine Test Facilities*, 2016 edition.

NFPA 484, *Standard for Combustible Metals*, 2019 edition.

NFPA 495, *Explosive Materials Code*, 2018 edition.

NFPA 501, *Standard on Manufactured Housing*, 2017 edition.

NFPA 502, *Standard for Road Tunnels, Bridges, and Other Limited Access Highways*, 2020 edition.

NFPA 654, *Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids*, 2020 edition.

NFPA 655, *Standard for Prevention of Sulfur Fires and Explosions*, 2017 edition.

NFPA 664, *Standard for the Prevention of Fires and Explosions in Wood Processing and Woodworking Facilities*, 2020 edition.

NFPA 701, *Standard Methods of Fire Tests for Flame Propagation of Textiles and Films*, 2019 edition.

NFPA 703, *Standard for Fire-Retardant-Treated Wood and Fire-Retardant Coatings for Building Materials*, 2021 edition.

NFPA 704, *Standard System for the Identification of the Hazards of Materials for Emergency Response*, 2017 edition.

NFPA 731, *Standard for the Installation of Premises Security Systems*, 2020 edition.

NFPA 750, *Standard on Water Mist Fire Protection Systems*, 2019 edition.

NFPA 801, *Standard for Fire Protection for Facilities Handling Radioactive Materials*, 2020 edition.

NFPA 804, *Standard for Fire Protection for Advanced Light Water Reactor Electric Generating Plants*, 2020 edition.

NFPA 805, *Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants*, 2020 edition.

NFPA 820, *Standard for Fire Protection in Wastewater Treatment and Collection Facilities*, 2020 edition.

NFPA 853, *Standard for the Installation of Stationary Fuel Cell Power Systems*, 2020 edition.

NFPA 855, *Standard for the Installation of Stationary Energy Storage Systems*, 2020 edition.

NFPA 900, *Building Energy Code*, 2019 edition.

NFPA 909, *Code for the Protection of Cultural Resource Properties — Museums, Libraries, and Places of Worship*, 2017 edition.

NFPA 914, *Code for the Protection of Historic Structures*, 2019 edition.

NFPA 1125, *Code for the Manufacture of Model Rocket and High Power Rocket Motors*, 2017 edition.

NFPA 1144, *Standard for Reducing Structure Ignition Hazards from Wildland Fire*, 2018 edition.

NFPA 1221, *Standard for the Installation, Maintenance, and Use of Emergency Services Communications Systems*, 2019 edition.

NFPA 2001, *Standard on Clean Agent Fire Extinguishing Systems*, 2018 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, 2015.

ASM 35, *Specifications for Aluminum Sheet Metal Work, Construction Manual Series Section 5*, 2000.

2.3.2 ACI Publications. American Concrete Institute, 38800 Country Club Drive, Farmington Hills, MI 48331-3434.

ACI 216.1, *Code Requirements for Determining Fire Resistance of Concrete and Masonry Construction Assemblies*, 2014.

ACI 311.6, *Specification for Testing Ready-Mixed Concrete*, 2018.

ACI 311.7, *Inspection Services Specification for Concrete Construction*, 2018.

ACI 318, *Building Code Requirements for Structural Concrete*, 2019.

ACI 332, *Residential Code Requirements for Structural Concrete*, 2014.

ACI 506.2, *Specification for Shotcrete*, 2013.

ACI 530/530.1, *Building Code Requirements for Masonry Structures*, 2013.

ACI 530.1/ASCE 6/TMS 602, *Specification for Masonry Structures*, 2005. (See previous document for updated version.)

ACI 562, *Code Requirements for Evaluation, Repair, and Rehabilitation of Concrete Structures*, 2019.

2.3.3 AISC Publications. American Institute of Steel Construction, 130 E. Randolph St., Suite 2000, Chicago, IL 60601.

ANSI/AISC 341, *Seismic Provisions for Structural Steel Buildings*, 2016.

ANSI/AISC 358, *Prequalified Connections for Special and Intermediate Steel Moment Frames for Seismic Applications, including Supplement No. 1*, 2016 (includes 2018 supplement).

ANSI/AISC 360, *Specification for Structural Steel Buildings*, 2016.

2.3.4 AISI Publications. American Iron and Steel Institute, 25 Massachusetts Avenue N.W., Suite 800, Washington, DC 20001-1431.

AISI-S100, *North American Specification for the Design of Cold-Formed Steel Structural Members*, 2016 edition with Supplements 1-18 and 2-20 (reaffirmed 2020).

AISI-S220, *North American Standard for Cold-Formed Steel Framing — Nonstructural Members*, 2020.

AISI-S230, *Standard for Cold-Formed Steel Framing — Prescriptive Method for One- and Two-Family Dwellings*, 2019.

AISI-S240, *North American Standard for Cold-Formed Steel Structural Framing*, 2020.

AISI-S400, *North American Standard for Seismic Design of Cold-Formed Steel Structural Systems*, 2020.

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

ANSI ASC A14.3, *American National Standards for Ladders — Fixed — Safety Requirements*, 2008.

ANSI A190.1, *Standard for Wood Products — Structural Glued Laminated Timber*, 2017.

ANSI A208.1, *Standard for Particleboard*, 2016.

ANSI Z97.1, *For Safety Glazing Materials Used in Buildings — Safety Performance Specifications and Methods of Test*, 2015.

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.

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*, 1996.

ANSI/APA PRG 320, *Standard for Performance-Rated Cross-Laminated Timber*.

ANSI/RESNA ED-1, *Emergency Stair Travel Devices Used by Individuals with Disabilities*, 2019.

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

ASCE/SEI 7, *Minimum Design Loads and Associated Criteria for Buildings and Other Structures*, 2016, with Supplement 1, 2018.

ASCE/SEI 8, *Standard Specification for the Design of Cold-Formed Stainless Steel Structural Members*, 2020.

ASCE/SEI 19, *Structural Applications of Steel Cables for Buildings*, 2016.

ASCE/SEI 24, *Flood Resistant Design and Construction*, 2014.

ASCE/SEI 41, *Seismic Evaluation and Retrofit of Existing Buildings*, 2017.

ASCE/SEI 49, *Wind Tunnel Testing for Buildings and Other Structures*, 2012.

ASCE/SEI 55, *Tensile Membrane Structures*, 2016.

ASCE/SFPE 29, *Standard Calculation Methods for Structural Fire Protection*, 2019.

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

ASHRAE Handbook — Fundamentals, 2017.

ASHRAE STD 55, *Thermal Environmental Conditions for Human Occupancy*, 2017.

ASHRAE STD 62.1, *Ventilation for Acceptable Indoor Air Quality*, 2016.

ANSI/ASHRAE STD 62.2, *Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings*, 2016.

ANSI/ASHRAE/IES STD 90.1, *Energy Standard for Buildings Except Low-Rise Residential Buildings*, 2016.

ANSI/ASHRAE STD 90.2, *Energy-Efficient Design of Low-Rise Residential Buildings*, 2018.

ANSI/ASHRAE STD 15, *Safety Standard for Refrigeration Systems*, 2019.

2.3.8 ASME Publications. ASME International, Two Park Avenue, New York, NY 10016-5990.

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

ASME A17.7/CSA B44.7, *Performance-Based Safety Code for Elevators and Escalators*, 2007, reaffirmed 2017.

ASME A18.1, *Safety Standard for Platform Lifts and Stairway Chairlifts*, 2017.

ASME B20.1, *Safety Standard for Conveyors and Related Equipment*, 2018.

ASME B31.3, *Process Piping*, 2016.

2.3.9 ASSP Publications. American Society of Safety Professionals, 520 N. Northwest Highway, Park Ridge, IL 60068.

ANSI/ASSP A1264.1, *Safety Requirements for Workplace Walking/Working Surfaces and Their Access; Workplace Floor, Wall and Roof Openings; Stairs and Guardrail/Handrail Systems*, 2017.

2.3.10 ASTM Publications. ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959. www.astm.org

ASTM A6/A6M, *Standard Specification for General Requirements for Rolled Structural Steel Bars, Plates, Shapes, and Sheet Piling*, 2017a.

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

ASTM A153/A153M, *Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware*, 2016a.

ASTM A252, *Standard Specification for Welded and Seamless Steel Pipe Piles*, 2010.

ASTM A283/A283M, *Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates*, 2018.

ASTM A463/A463M, *Standard Specification for Steel Sheet, Aluminum-Coated, by the Hot-Dip Process*, 2015.

ASTM A572/A572M, *Standard Specification for High-strength Low-alloy Columbium-vanadium Structural Steel*, 2018.

ASTM A588/A588M, *Standard Specification for High-strength Low-alloy Structural Steel up to 50 ksi (345 MPa) Minimum Yield Point, with Atmospheric Corrosion Resistance*, 2015.

ASTM A653/A653M, *Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process*, 2018.

ASTM A690/A690M, *Standard Specification for High-strength Low-alloy Nickel, Copper, Phosphorus Steel H-piles and Sheet Piling with Atmospheric Corrosion Resistance for Use in Marine Environments*, 2013a (2018).

ASTM A755/A755M, *Standard Specification for Steel Sheet, Metallic Coated by the Hot-Dip Process and Prepainted by the Coil-Coating Process for Exterior Exposed Building Products*, 2018.

ASTM A792/A792M, *Standard Specification for Steel Sheet, 55 % Aluminum-Zinc Alloy-Coated by the Hot-Dip Process*, 2010 (2015).

ASTM A875/A875M, *Standard Specification for Steel Sheet, Zinc-5 % Aluminum Alloy-Coated by the Hot-Dip Process*, 2013.

ASTM A924/A924M, *Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process*, 2018.

ASTM B101, *Standard Specification for Lead-Coated Copper Sheet and Strip for Building Construction*, 2012.

ASTM B209, *Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate*, 2014.

ASTM C28/C28M, *Standard Specification for Gypsum Plasters*, 2010(2015).

ASTM C35, *Standard Specification for Inorganic Aggregates for Use in Gypsum Plaster*, 2001 (2014).

ASTM C59/C59M, *Standard Specification for Gypsum Casting Plaster and Gypsum Molding Plaster*, 2000 (2015).

ASTM C61/C61M, *Standard Specification for Gypsum Keene's Cement*, 2000 (2015).

ASTM C90, *Standard Specification for Loadbearing Concrete Masonry Units*, 2016a.

ASTM C91/C91M, *Standard Specification for Masonry Cement*, 2012.

ASTM C150/C150M, *Standard Specification for Portland Cement*, 2019a.

ASTM C206, *Standard Specification for Finishing Hydrated Lime*, 2014.

ASTM C208, *Standard Specification for Cellulosic Fiber Insulating Board*, 2012 (2017 e1).

ASTM C317/C317M, *Standard Specification for Gypsum Concrete*, 2000 (2015).

ASTM C406/C406M, *Standard Specification for Roofing Slate*, 2015.

ASTM C472, *Standard Test Methods for Physical Testing of Gypsum, Gypsum Plasters and Gypsum Concrete*, 1999 (2014).

ASTM C475/C475M, *Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board*, 2017.

ASTM C476, *Standard Specification for Grout for Masonry*, 2018.

ASTM C514, *Standard Specification for Nails for the Application of Gypsum Board*, 2004 (2014).

ASTM C552, *Standard Specification for Cellular Glass Thermal Insulation*, 2017 e1.

ASTM C557, *Standard Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing*, 2003 (2017).

ASTM C578, *Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation*, 2018.

ASTM C587, *Standard Specification for Gypsum Veneer Plaster*, 2004 (2018).

ASTM C588/C588M, *Standard Specification for Gypsum Base for Veneer Plasters*, 2003 e1 (superseded by ASTM C1396/C1396M).

ASTM C591, *Standard Specification for Unfaced Preformed Rigid Cellular Polyisocyanurate Thermal Insulation*, 2019.

ASTM C595/C595M, *Standard Specification for Blended Hydraulic Cements*, 2019.

ASTM C631, *Standard Specification for Bonding Compounds for Interior Gypsum Plastering*, 2009 (2014).

ASTM C726, *Standard Specification for Mineral Fiber Roof Insulation Board*, 2017.

ASTM C728, *Standard Specification for Perlite Thermal Insulation Board*, 2017a.

ASTM C836/C836M, *Standard Specification for High Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane for Use with Separate Wearing Course*, 2018.

ASTM C840, *Standard Specification for Application and Finishing of Gypsum Board*, 2018b.

ASTM C841, *Standard Specification for Installation of Interior Lathing and Furring*, 2003 (2018).

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ASTM C843, *Standard Specification for Application of Gypsum Veneer Plaster*, 2017.

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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