

NFPA 101

Life Safety Code

2006 Edition



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

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NFPA 101®
Life Safety Code®

2006 Edition

This edition of NFPA 101®, *Life Safety Code®*, was adopted by NFPA at its June Association Technical Meeting held June 6–10, 2005, in Las Vegas, NV. It was issued by the Standards Council on July 29, 2005, with an effective date of August 18, 2005, and supersedes all previous editions.

Note: The text of 31.3.4 was revised from that published in the ROP and ROC to reflect a Tentative Interim Amendment issued by the Standards Council on July 27, 2005.

This edition of NFPA 101 was approved as an American National Standard on August 18, 2005.

Origin and Development of NFPA 101

The *Life Safety Code* had its origin in the work of the Committee on Safety to Life of the National Fire Protection Association, which was appointed in 1913. In 1912 a pamphlet titled *Exit Drills in Factories, Schools, Department Stores and Theaters* was published following its presentation by the late Committee member R. H. Newbern at the 1911 Annual Meeting of the Association. Although the pamphlet's publication antedated the organization of the Committee, it was considered a Committee publication.

For the first few years of its existence, the Committee on Safety to Life devoted its attention to a study of the notable fires involving loss of life and to analyzing the causes of this loss of life. This work led to the preparation of standards for the construction of stairways, fire escapes, and other egress routes for fire drills in various occupancies, and for the construction and arrangement of exit facilities for factories, schools, and other occupancies. These reports were adopted by the National Fire Protection Association and published in pamphlet form as *Outside Stairs for Fire Exits* (1916) and *Safeguarding Factory Workers from Fire* (1918). These pamphlets served as a groundwork for the present *Code*. These pamphlets were widely circulated and put into general use.

In 1921 the Committee on Safety to Life was enlarged to include representatives of certain interested groups not previously participating in the standard's development. The Committee then began to further develop and integrate previous Committee publications to provide a comprehensive guide to exits and related features of life safety from fire in all classes of occupancy. Known as the *Building Exits Code*, various drafts were published, circulated, and discussed over a period of years, and the first edition of the *Building Exits Code* was published by the National Fire Protection Association in 1927. Thereafter, the Committee continued its deliberations, adding new material on features not originally covered and revising various details in the light of fire experience and practical experience in the use of the *Code*. New editions were published in 1929, 1934, 1936, 1938, 1939, 1942, and 1946 to incorporate the amendments adopted by the National Fire Protection Association.

National attention was focused on the importance of adequate exits and related fire safety features after the Cocoanut Grove Night Club fire in Boston in 1942 in which 492 lives were lost. Public attention to exit matters was further stimulated by the series of hotel fires in 1946 (LaSalle, Chicago — 61 dead; Canfield, Dubuque — 19 dead; and the Winecoff, Atlanta — 119 dead). The *Building Exits Code*, thereafter, was used to an increasing extent for regulatory purposes. However, the *Code* was not written in language suitable for adoption into law, because it had been drafted as a reference document and contained advisory provisions that were useful to building designers but inappropriate for legal use. This led to a decision by the Committee to re-edit the entire *Code*, limiting the body of the text to requirements suitable for mandatory application and placing advisory and explanatory material in notes. The re-editing expanded *Code* provisions to cover additional occupancies and building features to produce a complete document. The *Code* expansion was carried on concurrently with development of the 1948, 1949, 1951, and 1952 editions. The results were incorporated in the 1956 edition and further refined in subsequent editions dated 1957, 1958, 1959, 1960, 1961, and 1963.

In 1955, NFPA 101B, on nursing homes and NFPA 101C, on interior finish, were published. NFPA 101C was revised in 1956. These publications have since been withdrawn.

In 1963 the Committee on Safety to Life was restructured to represent all interested factions and to include only those members with broad knowledge of fire matters. The Committee served as a review and correlating committee for seven sectional committees whose personnel included members having a special knowledge and interest in various portions of the *Code*.

Under the revised structure, the sectional committees, through the Committee on Safety to Life, prepared the 1966 edition of the *Code*, which was a complete revision of the 1963 edition. The *Code* title was changed from *Building Exits Code* to the *Code for Safety to Life from Fire in Buildings and Structures*. The *Code* text was written in enforceable “code language,” and all explanatory notes were placed in an appendix.

The *Code* was placed on a three-year revision schedule, with new editions adopted in 1967, 1970, 1973, and 1976.

In 1977 the Committee on Safety to Life was reorganized as a Technical Committee, with an Executive Committee and standing subcommittees responsible for various chapters and sections. The 1981 edition contained major editorial changes, including reorganization within the occupancy chapters, to make them parallel to each other, and the splitting of requirements for new and existing buildings into separate chapters. Chapters on detention and correctional facilities were added, as well as new sections for ambulatory health care centers.

The 1985 edition contained a new Chapter 21 on residential board and care occupancies with related Appendixes F and G, a new Appendix D on alternative calculations for stair width, and Appendix E — a Fire Safety Evaluation System (FSSES) for detention and correctional facilities.

The 1988 edition contained a major change in the method of determining egress capacity with the deletion of the traditional units of exit width and the substitution of a straight linear approach to calculating egress capacity. Appendixes C through G were moved from NFPA 101 into a new document, NFPA 101M.

The 1991 edition contained numerous new requirements for mandatory sprinklers in new health care facilities, hotels, apartment buildings, lodging and room houses, and board and care facilities, as well as mandatory sprinkler requirements for existing high-rise hotels and apartment buildings. The requirements for board and care facilities were split into two chapters, Chapter 22 for new construction and Chapter 23 for existing buildings.

The 1994 edition contained new requirements for accessible means of egress, areas of refuge, and ramps, putting the *Code* in substantial agreement with the Americans with Disabilities Act Accessibility Guidelines (ADAAG).

The 1997 edition relocated the material on day-care occupancies from Chapter 10 and Chapter 11, Educational Occupancies, to new Chapter 30 and Chapter 31. The operating features requirements, previously contained in Chapter 31, were interspersed throughout the *Code*, as applicable.

The 2000 edition introduced a performance-based option via Section 4.4 and new Chapter 5. That edition also reformatted the *Code* for substantial compliance with the NFPA *Manual of Style*: (1) former Chapter 1, General, was split into Chapter 1, Administration, and Chapter 4, General; (2) the mandatory references list was moved from Chapter 33 to Chapter 2; (3) all definitions were moved in Chapter 3 and each defined term was numbered; (4) the paragraph numbering scheme that separated the chapter number from the section number by a hyphen was changed to use a decimal point as the separator; and (5) the appendixes were renamed annexes. Former Chapter 32 on special structures and high-rise buildings was moved to Chapter 11 to join the core chapters (i.e., the chapters that are not occupancy specific). The subject of interior finish, contents, and furnishings was moved from Section 6.5 into a separate new chapter, Chapter 10. The occupancy chapter numbers, formerly 8 through 32, became 12 through 42 with some repositioning of chapters. For example, the day-care occupancies chapters were renumbered from 30/31 to 16/17 so as to be positioned immediately after the chapters for educational occupancies.

The 2003 edition reformatted all exceptions into numbered or lettered paragraphs. Some reformatting of paragraphs with multiple requirements was done for additional compliance with the NFPA *Manual of Style*.

The 2006 edition repositions the inch-pound (U.S. Customary) units to appear first, followed by the metric equivalent (SI) units in parentheses. New Chapter 43, Building Rehabilitation, was added to promote the adaptive reuse of existing buildings without sacrificing needed life safety.

To the User

The following comments are offered to assist in the use of the *Life Safety Code*. Additional help on using the *Life Safety Code* can be obtained by attending one of the seminars NFPA conducts on the *Life Safety Code* or by using the *Life Safety Code Handbook* available from NFPA. Further information on these seminars is available through NFPA's Division of Continuing Education.

Essentially, the *Code* is comprised of four major parts. The first part consists of Chapter 1 through Chapter 4, Chapter 6 through Chapter 11, and Chapter 43; these are often referred to as the base chapters or fundamental chapters. The second part is Chapter 5, which details the performance-based option. The next part consists of Chapter 12 through Chapter 42, which are the occupancy chapters. The fourth and last part consists of Annex A and Annex B, which contain useful additional information.

A thorough understanding of Chapter 1 through Chapter 4, Chapter 6 through Chapter 11, and Chapter 43 is necessary to use the *Code* effectively, because these chapters provide the building blocks on which the requirements of the occupancy chapters are based. Note that many of the provisions of Chapter 1 through Chapter 4 and Chapter 6 through Chapter 11 are mandatory for all occupancies. Some provisions are mandated only when referenced by a specific occupancy, while others are exempted for specific occupancies. Often, in one of the base chapters, especially in Chapter 7, the term “where permitted by Chapter 12 through Chapter 42” appears. In this case, that provision can be used only where specifically allowed by an occupancy chapter. For example, the provisions of 7.2.1.6.1 on delayed egress locks are allowed only when permitted by Chapter 12 through Chapter 42. Permission to use the delayed egress lock is normally found in the “____.2.2” subsection of each occupancy chapter. For example, 12.2.2.2.5 specifically allows the use of delayed egress locks in new assembly occupancies. If this permission is not found in an occupancy chapter, the delayed egress lock cannot be used. Similar types of restricted permission are found for such items as security grilles, double cylinder locks, revolving doors, and so forth. In other locations in the base chapters, the term “unless prohibited by Chapter 12 through Chapter 42” is used. In this case, the provision is allowed in all occupancies unless specifically prohibited by an occupancy chapter.

Metric units of measurement in this *Code* are in accordance with the modernized metric system known as the International System of Units (SI). The unit liter, which is outside of but recognized by SI, is commonly used and is therefore used in this *Code*. In this *Code*, inch-pound units for measurements are followed by an equivalent in SI units, as noted in 1.5.2. The inch-pound value and the SI value are each acceptable for use as primary units for satisfying the requirements of this *Code*.

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Committee Scope: This Committee shall have primary responsibility for documents on the protection of human life from fire and other circumstances capable of producing similar consequences and for the non-emergency and emergency movement of people.

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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.

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Roger L. McDaniel, Florida Department of Corrections,
FL [U]

Jack McNamara, Bosch Security Systems, NY [M]

Rep. National Electrical Manufacturers Association

E. Eugene Miller, Washington, DC [SE]

Jerry Nealy, Cumulus Fibres, Incorporated, NC [M]

Rep. Institutional Bedding Manufacturers Association

Brian C. Pavay, Folger Adam Security Incorporated, IL [M]

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

Rep. Door & Hardware Institute

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

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

Rep. International Fire Marshals Association

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

Alternates

A. Larry Iseminger, Jr., Maryland State Fire Marshals
Office, MD [E]

(Alt. to W. S. Smith)

Kevin J. Kelly, National Fire Sprinkler Association, NY [M]

(Alt. to K. E. Isman)

Kurt A. Roeper, Ingersoll Rand Security and Safety,
OH [M]

(Alt. to T.J. Gottwalt)

Ralph R. Winter, Code Consultants, Incorporated,
MO [SE]

(Alt. to J. R. Ambrose)

John Younghusband, Schirmer Engineering Corporation,
CA [I]

(Alt. to K. J. Schwartz)

Ron Coté, 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 (SAF-END)**Catherine L. Stashak**, *Chair*

Des Plaines, IL [E]

Rep. Illinois Fire Inspectors Association

Ron Côté, *Nonvoting Secretary*

National Fire Protection Association, MA

Scott R. Bartlett, Tyco/SimplexGrinnell, MA [M]**Samuel S. Dannaway**, S. S. Dannaway Associates,
Incorporated, HI [SE]**Victor L. Dubrowski**, Code Consultants, Incorporated,
MO [SE]**Douglas R. Freels**, Performance Design Technologies,
TN [SE]**Dominick G. Kass**, National Fire Sprinkler Association,
NY [M]**Vern L. Martindale**, Church of Jesus Christ of Latter-day
Saints, UT [U]**Erin A. M. Oneisom**, U.S. Air Force, AE [U]**Michael L. Sinsigalli**, Windsor Locks Fire Department,
CT [E]**Aleksy L. Szachnowicz**, Anne Arundel County Public
Schools, MD [U]**Ralph J. Warburton**, University of Miami, FL [SE]**Kenneth Wood**, Office of the Illinois State Fire Marshal,
IL [E]**Alternates****Kevin J. Kelly**, National Fire Sprinkler Association, NY [M]
(Alt. to D. G. Kass)**Amy J. Murdock**, Code Consultants, Incorporated,
MO [SE]

(Alt. to V. L. Dubrowski)

Roger B. Rudy, Performance Design Technologies, LLC,
TN [SE]

(Alt. to D. R. Freels)

Fred K. Walker, U.S. Department of the Air Force, FL [U]
(Alt. to E. A. M. Oneisom)**Ron Côté**, 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 educational occupancies and day-care occupancies.

Technical Committee on Fire Protection Features (SAF-FIR)

Eric R. Rosenbaum, *Chair*

Chair Hughes Associates, Incorporated, MD [SE]

Milosh T. Puchovsky, *Nonvoting Secretary*

National Fire Protection Association, MA

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

John F. Bender, Maryland Office of State Fire Marshal, MD [E]

Rep. International Fire Marshals Association

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

Gregory J. Cahanin, St. Petersburg, FL [U]

Rep. Louisiana State Firemen's Association

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

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

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

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

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

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

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

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

Rep. Glazing Industry Code Committee

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

Rep. Air Movement & Control Association

Jeffrey A. Maddox, The RJA Group, Incorporated, CA [SE]

John W. McCormick, Code Consultants, Incorporated, MO [SE]

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

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

Rep. Florida Fire Marshals & Inspectors Association

Kurt A. Roeper, Ingersoll Rand Security and Safety, OH [M]

Rep. Steel Door Institute

Kathleen Taraba, Rolling Plains Construction, Incorporated, CO [IM]

Rep. Firestop Contractors International Association

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

Alternates

Donald W. Belles, Koffel Associates, Incorporated, TN [M]
(Alt. to W. E. Koffel)

Joseph A. Brooks, Air Movement and Control Association International, IL [M]

(Alt. to V. J. Lovell)

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

(Alt. to E. R. Rosenbaum)

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

(Alt. to J. A. Maddox)

Charles B. Clark, Jr., Brick Industry Association, VA [M]

(Voting Alt. to BIA Rep.)

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

(Alt. to R. Gerdes)

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

(Alt. to C. F. Baldassarra)

Jack Gump, HSB Professional Loss Control, TN [I]

(Alt. to W. D. Holmes)

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

(Alt. to M. A. Klein)

Thomas R. Janicak, Ceco Door Products, TN [M]

(Alt. to K. A. Roeper)

Mark Kluver, Portland Cement Association, CA [M]

(Alt. to J. J. Messersmith)

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

(Alt. to J. W. McCormick)

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

(Alt. to K. Taraba)

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

(Alt. to J. F. Bender)

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

(Alt. to S. W. Francis)

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

(Alt. to J. Humble)

Nonvoting

Michael Earl Dillon, Dillon Consulting Engineers, Incorporated, CA

Rep. TC on Air Conditioning

Milosh T. Puchovsky, 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 (SAF-FUN)

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

Ron Coté, Nonvoting Secretary
National Fire Protection Association, MA

Thomas H. Allen, Smoke Guard Corporation, ID [U]
Rep. American Institute of Architects

Robert E. Bachman, Robert E. Bachman, Consulting
Structural Engineer, CA [SE]
Rep. National Council of Structural Engineers
Associations

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

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

James E. Churchill, Schirmer Engineering Corporation,
CA [I]

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

Barbara Ebstein, Vinick Associates, Incorporated, CT [U]
Rep. American Society of Interior Designers

Robert J. Eugene, Underwriters Laboratories
Incorporated, WA [RT]

Ben Greene, City of Englewood, CO [E]

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

David J. Jacoby, Arup Fire, NY [SE]

David P. Klein, U.S. Department of Veterans Affairs,
MD [U]

James A. Landmesser, U.S. Department of Energy,
TN [E]

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

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

Rep. American Public Health Association

Stephen V. Skalko, Portland Cement Association, GA [M]

Jeffrey B. Stone, American Forest & Paper Association,
FL [M]

Victoria B. Valentine, National Fire Sprinkler Association,
NY [M]

John M. Watts, Jr., Fire Safety Institute, VT [SE]

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

Steven F. Wydeveld, Will County Land Use, IL [E]

Alternates

Eugene A. Cable, U.S. Department of Veterans Affairs,
NY [U]

(Alt. to D. P. Klein)

Robert M. Carasitti, Schirmer Engineering Corporation,
MA [I]

(Alt. to J. E. Churchill)

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

(Alt. to R. J. Wills)

Mark Kluver, Portland Cement Association, CA [M]

(Alt. to S. V. Skalko)

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

(Alt. to R. E. Bachman)

Kimberly A. Marks, The Marks Design Group,
Incorporated, TX [U]

(Alt. to B. Ebstein)

Eric N. Mayl, Koffel Associates, Incorporated, MD [SE]

(Alt. to J. K. Lathrop)

Rodney A. McPhee, Canadian Wood Council, Canada [M]

(Alt. to J. B. Stone)

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

(Voting Alt. to W.R. Grace Rep.)

John R. Wiggins, Underwriters Laboratories
Incorporated, NC [RT]

(Alt. to R. J. Eugene)

Nonvoting

Pichaya Chantranuwat, Fusion Consultants Company
Limited/Thailand, Thailand

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

Technical Committee on Furnishings and Contents (SAF-FUR)

William E. Fitch, *Chair*

Omega Point Laboratories Incorporated, TX [RT]

Milosh T. Puchovsky, *Nonvoting Secretary*

National Fire Protection Association, MA

Vytenis (Vyto) Babrauskas, Fire Science and Technology
Incorporated, WA [SE]

Lisa Bonneville, Bonneville Design, MA [U]

Rep. American Society of Interior Designers

Eugene A. Cable, U.S. Department of Veterans Affairs,
NY [U]

Frederic B. Clarke, Benjamin Clarke Associates,
Incorporated, VA [SE]

Paul Dillon, Southern Polytechnic State University,
GA [M]

Rep. Sleep Products Safety Council

Pravinray D. Gandhi, Underwriters Laboratories
Incorporated, IL [RT]

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

E. Ken McIntosh, Carpet and Rug Institute, GA [M]

Henry Paszczuk, City of New Britain Fire Department,
CT [E]

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

Rep. American Furniture Manufacturers Association

Alternates

James K. Lathrop, Koffel Associates, Incorporated, CT [M]
(Alt. to E. K. McIntosh)

James V. Ryan, Potomac, MD [SE]
(Alt. to F. B. Clarke)

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

(Alt. to L. Bonneville)

Milosh T. Puchovsky, NFPA Staff Liaison

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Committee Scope: This Committee shall have primary responsibility for documents on limiting the impact of furnishings and building contents effect on protection of human life and property from fire and other circumstances capable of producing similar consequences, and on the emergency movement of people.

Technical Committee on Health Care Occupancies (SAF-HEA)

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

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

James R. Ambrose, Code Consultants, Incorporated,
MO [SE]
William N. Brooks, Eichleay Engineers, Incorporated,
PA [SE]
Kenneth E. Bush, Maryland State Fire Marshals Office,
MD [E]
Rep. International Fire Marshals Association
Wayne G. Carson, Carson Associates, Incorporated,
VA [SE]
Robert J. Carubia, Jr., West Virginia University Hospitals,
WV [U]
Michael A. Crowley, The RJA Group, Incorporated, TX [SE]
Samuel S. Dannaway, S. S. Dannaway Associates,
Incorporated, HI [SE]
Rep. American Society of Safety Engineers
Buddy Dewar, National Fire Sprinkler Association, FL [M]
Douglas S. Erickson, American Society for Healthcare
Engineering, VI [U]
Kenneth S. Faulstich, U.S. Department of Veterans
Affairs, DC [U]
John E. Fishbeck, Joint Commission on Accreditation of
Healthcare Organizations, IL [E]

Antonio Freire, Axa Courtage, France [I]
Donald W. Harris, California Office of Health Planning
& Development, CA [E]
Thomas W. Jaeger, Gage-Babcock & Associates,
Incorporated, VA [U]
Rep. American Health Care Association
John I. Mills, Beery, Rio & Associates, VA [SE]
Kirby W. Perry, Kirby W. Perry Architects & Associates
Incorporated, TX [SE]
Rep. American Institute of Architects
Peter P. Petresky, Pennsylvania Department of Health,
PA [E]
Rep. Association of Health Facility Survey Agencies
Brian Prediger, U.S. Department of the Army, MD [U]
George F. Stevens, U.S. Department of Health & Human
Services, AZ [E]
John S. Taylor, Health South Rehabilitation Hospital of
Southern Arizona, AZ [U]
Rep. NFPA Health Care Section
Mayer D. Zimmerman, U.S. Department of Health and
Human Services, MD [E]

Alternates

James H. Antell, The RJA Group, Incorporated, IL [SE]
(Alt. to M. A. Crowley)
Lori B. Dinney, Code Consultants, Incorporated, MO [SE]
(Alt. to J. R. Ambrose)
Michael R. Durst, National Fire Sprinkler Association,
CO [M]
(Alt. to B. Dewar)
Joshua W. Elvove, U.S. Department of Veterans Affairs,
CO [U]
(Alt. to K. S. Faulstich)

J. Richard Fruth, Hayes Large Architects, PA [SE]
(Alt. to K. W. Perry)
Thomas W. Gardner, Schirmer Engineering Corporation,
GA [I]
(Alt. to D. J. O'Connor)
William E. Koffel, Koffel Associates, Incorporated, MD [U]
(Alt. to D. S. Erickson)

Nonvoting

Pichaya Chantranuwat, Fusion Consultants Co.
Ltd./Thailand, Thailand

Ron Coté, 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 (SAF-IND)

Wayne D. Holmes, *Chair*

HSB Professional Loss Control, CT [I]

Milosh T. Puchovsky, *Nonvoting Secretary*

National Fire Protection Association, MA

John A. Alderman, RRS Engineering, TX [SE]

Rep. American Society of Safety Engineers

Thomas L. Allison, Westinghouse Savannah River Co., SC [U]

Raymond E. Arntson, Rayden Research LLC, WI [SE]

Donald C. Birchler, FP&C Consultants Incorporated, MO [SE]

Howard M. Bucci, U.S. Department of Energy, WA [U]

Charles E. Doody, Canton Fire Department, MA [E]

John F. Farney, Jr., Sargent & Lundy Engineers, IL [SE]

Larry L. Fluer, Fluer, Incorporated, CA [M]

Rep. Compressed Gas Association

Larry N. Garrett, Delphi Corporation, IN [U]

Rep. NFPA Industrial Fire Protection Section

James E. Golinveaux, Tyco Fire & Building Products, RI [M]

Rep. American Fire Sprinkler Association

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

Ronald Keefer, Menlo Park Fire Protection District, CA [E]

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

Rep. Automotive Oil Change Association

Neal W. Krantz, LVC Technologies, Incorporated, MI [IM]

Rep. Automatic Fire Alarm Association, Incorporated

Richard S. Kraus, PSC Petroleum Safety Consultants, VA [U]

Rep. American Petroleum Institute

Raymond W. Lonabaugh, National Fire Sprinkler Association, PA [M]

Patrick A. McLaughlin, McLaughlin & Associates, RI [U]

Rep. Semiconductor Industry Association

Milton L. Norsworthy, Arch Chemicals, Incorporated, TN [M]

Anthony M. Ordile, Loss Control Associates, Incorporated, PA [SE]

Rep. TC on Storage and Warehousing of Containers and Portable Tanks

Phani K. Raj, Technology & Management Systems, Incorporated, MA [SE]

Rep. TC on Liquefied Petroleum Gases

William J. Satterfield, III, Hydrogen Safety, LLC/Rode & Associates, LLC, RI [SE]

Jeffrey M. Shapiro, International Code Consultants, TX [M]

Rep. The Chlorine Institute, Incorporated

Stephen V. Skalko, Portland Cement Association, GA [M]

Cleveland B. Skinker, Bechtel Power Corporation, MD [SE]

Bruce J. Swiecicki, National Propane Gas Association, IL [IM]

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

Samuel Vanover, Jefferson Parish Fire Department, LA [E]

Rep. TC on Hazardous Chemicals

Carl Dewayne Wren, Austin Fire Department, TX [E]

Alternates

Clarence D. (Dale) Eggen, U.S. Department of Energy, WA [U]

(Alt. to H. M. Bucci)

Daniel J. Gengler, National Fire Sprinkler Association, WI [M]

(Alt. to R. W. Lonabaugh)

Jack Gump, HSB Professional Loss Control, TN [I]

(Alt. to W. D. Holmes)

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

(Alt. to M. A. Klein)

Roland J. Huggins, American Fire Sprinkler Association, Incorporated, TX [M]

(Alt. to J. Golinveaux)

Mark Kluver, Portland Cement Association, CA [M]

(Alt. to S. V. Skalko)

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

(Alt. to P. A. McLaughlin)

Todd D. Matteson, Westinghouse Savannah River Company, SC [U]

(Alt. to T. L. Allison)

David J. Repasky, The Sherwin-Williams Company, OH [U]

(Alt. to D. C. Tabar)

Roberto Lozano Rosales, Delphi Corporation, TX [U]

(Alt. to L. N. Garrett)

Roger A. Smith, Compressed Gas Association, Incorporated, VA [M]

(Alt. to L. L. Fluer)

Gary F. Trojak, The Chlorine Institute, Incorporated, VA [M]

(Alt. to J. M. Shapiro)

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

(Alt. to J. Humble)

Nonvoting

Virginia M. Gilman, U.S. Department of Labor, DC
Rep. Occupational Safety & Health Administration
(Alt. to T. P. Smith)

Terence P. Smith, U.S. Department of Labor, DC
Rep. Occupational Safety & Health Administration

Milosh T. Puchovsky, 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 industrial and storage occupancies, special structures, windowless and underground buildings, and high-rise buildings.

Technical Committee on Means of Egress (SAF-MEA)

David A. de Vries, *Chair*
Firetech Engineering Incorporated, IL [SE]

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

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

John L. Bryan, Frederick, MD [SE]

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

Rep. International Fire Marshals Association

Steven DiPilla, ACE USA/ESIS Risk Control Services, NJ [I]

Rep. American Society of Safety Engineers

Joshua W. Elvove, U.S. Department of Veterans Affairs, CO [U]

Philip C. Favro, Philip C. Favro & Associates, CA [SE]

Edward L. Fixen, Schirmer Engineering Corporation, CA [I]

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

Rita C. Guest, Carson Guest, Incorporated, GA [U]

Rep. American Society of Interior Designers

Billy G. Helton, Lithonia Emergency Systems, GA [M]

Rep. National Electrical Manufacturers Association

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

Erica D. Kuligowski, [RT] U.S. National Institute of Standards & Technology, MD [RT]

Lawrence J. McGinty, U.S. Central Intelligence Agency, DC [U]

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

Rep. National Elevator Industry Incorporated

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

Rep. American Public Health Association

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

Rep. Door & Hardware Institute

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

Michael S. Shulman, Underwriters Laboratories Incorporated, CA [RT]

Leslie Strull, The RJA Group, Incorporated, IL [SE]

Andrew L. Stuffer, City of Ventura Fire Department, CA [E]

Michael Tierney, Builders Hardware Manufacturers Association, CT [M]

Michael D. Tomy, Heery International Incorporated, GA [SE]

Rep. American Institute of Architects

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

Rep. Fairfield CT Fire Marshal's Office

Alternates

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

(Alt. to E. L. Fixen)

Michael A. Crowley, The RJA Group, Incorporated, TX [SE]

(Alt. to L. Strull)

Joseph M. DeRosier, U.S. Department of Veteran Affairs, MI [U]

(Alt. to J. W. Elvove)

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

(Alt. to G. L. Nuschler)

Barbara Ebstein, Vinick Associates, Incorporated, CT [U]

(Alt. to R. C. Guest)

Steven D. Holmes, Underwriters Laboratories Incorporated, CA [RT]

(Alt. to M. S. Shulman)

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

(Alt. to W. E. Koffel)

R. T. Leicht, State of Delaware, DE [E]

(Alt. to K. E. Bush)

James A. Milke, University of Maryland, MD [SE]

(Alt. to J. L. Bryan)

Brian T. Rhodes, Hughes Associates, Incorporated, MD [SE]

(Alt. to E. R. Rosenbaum)

Roy W. Schwarzenberg, U.S. Central Intelligence Agency, DC [U]

(Alt. to L. J. McGinty)

Gregory J. Steinman, Thomas & Betts Corporation, TN [M]

(Alt. to B. G. Helton)

Nonvoting

Pichaya Chantranuwat, Fusion Consultants Co. Ltd./Thailand, Thailand

Matthew I. Chibbaro, U.S. Department of Labor, DC
Rep. Occupational Safety & Health Administration

Virginia M. Gilman, U.S. Department of Labor, DC
Rep. Occupational Safety & Health Administration
(Alt. to M. I. Chibbaro)

Ron Coté, NFPA Staff Liaison

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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 (SAF-MER)

Ed Schultz, Chair

Code Consultants, Incorporated, MO [SE]

Milosh T. Puchovsky, Nonvoting Secretary

National Fire Protection Association, MA

David M. Banwarth, David M. Banwarth Associates, LLC,
MD [SE]

E. Joseph Bocci, U.S. Department of the Treasury, DC [U]

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

Rep. International Fire Marshals Association

David A. Dodge, Safety and Forensic Consulting, ME [SE]

Rep. American Society of Safety Engineers

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

Douglas R. Freels, Performance Design Technologies,
TN [SE]

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

Rep. National Electrical Manufacturers Association

William Hiotaky, The Taubman Company, MI [U]

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

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

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

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

Jeff Martin, Elite Fire Protection, Canada [IM]

Rep. National Association of Fire Equipment
Distributors

Richard V. Moon, Insurance Services Office,
Incorporated, NJ [I]

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

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

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

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

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

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

Rep. The Home Depot

Alternates

Tracey D. Bellamy, TVA Fire and Life Safety,
Incorporated, GA [U]

(Alt. to W. J. Tomes)

Darryl Thomas Brown, Performance Design
Technologies, TN [SE]

(Alt. to D. R. Freels)

Jack Gump, HSB Professional Loss Control, TN [I]

(Alt. to W. D. Holmes)

Raymond W. Lonabaugh, National Fire Sprinkler
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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 for the emergency movement of people in mercantile and business occupancies.

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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 emergency movement of people in hotels, dormitories, apartments, lodging and rooming houses, and one- and two-family dwellings.

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NFPA 101®
Life Safety Code®

2006 Edition

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

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

A reference in brackets [] following a section or paragraph indicates material that has been extracted from another NFPA document. As an aid to the user, the complete title and edition of the source documents for extracts in mandatory sections of the document are given in Chapter 2 and those for extracts in informational sections are given in Annex B. Editorial changes to extracted material consist of revising references to an appropriate division in this document or the inclusion of the document number with the division number when the reference is to the original document. Requests for interpretations or revisions of extracted text shall be sent to the technical committee responsible for the source document.

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

Chapter 1 Administration

1.1* Scope.

1.1.1 Title. NFPA 101, *Life Safety Code*, shall be known as the *Life Safety Code*®, is cited as such, and shall be referred to herein as “this Code” or “the Code.”

1.1.2 Danger to Life from Fire. The Code addresses those construction, protection, and occupancy features necessary to minimize danger to life from the effects of fire, including smoke, heat, and toxic gases created during a fire.

1.1.3 Egress Facilities. The Code establishes minimum criteria for the design of egress facilities so as to allow prompt escape of occupants from buildings or, where desirable, into safe areas within buildings.

1.1.4 Other Fire-Related Considerations. The Code addresses other considerations that are essential to life safety in recognition of the fact that life safety is more than a matter of egress. The Code also addresses protective features and systems, building services, operating features, maintenance activities, and other provisions in recognition of the fact that achieving an acceptable degree of life safety depends on additional safeguards to provide adequate egress time or protection for people exposed to fire.

1.1.5* Considerations Not Related to Fire. The Code also addresses other considerations that, while important in fire conditions, provide an ongoing benefit in other conditions of use, including non-fire emergencies.

1.1.6 Areas Not Addressed. The Code does not address the following:

- (1)* General fire prevention or building construction features that are normally a function of fire prevention codes and building codes
- (2) Prevention of injury incurred by an individual due to that individual’s failure to use reasonable care
- (3) Preservation of property from loss by fire

1.2* Purpose. The purpose of this Code is to provide minimum requirements, with due regard to function, for the design, operation, and maintenance of buildings and structures for safety to life from fire. Its provisions will also aid life safety in similar emergencies.

1.3 Application.

1.3.1* New and Existing Buildings and Structures. The Code shall apply to both new construction and existing buildings and existing structures.

1.3.2 Vehicles and Vessels. The Code shall apply to vehicles, vessels, or other similar conveyances, as specified in Section 11.6, in which case such vehicles and vessels shall be treated as buildings.

1.4* Equivalency. Nothing in this Code is intended to prevent the use of systems, methods, or devices of equivalent or superior quality, strength, fire resistance, effectiveness, durability, and safety over those prescribed by this Code.

1.4.1 Technical Documentation. Technical documentation shall be submitted to the authority having jurisdiction to demonstrate equivalency.

1.4.2 Approval. The system, method, or device shall be approved for the intended purpose by the authority having jurisdiction.

1.4.3* Equivalent Compliance. 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 Units and Formulas.

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

1.5.2 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.

1.6 Enforcement. This Code shall be administered and enforced by the authority having jurisdiction designated by the governing authority.

Chapter 2 Referenced Publications

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

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

- NFPA 1, *Uniform Fire Code™*, 2006 edition.
- NFPA 10, *Standard for Portable Fire Extinguishers*, 2002 edition.
- NFPA 11, *Standard for Low-, Medium-, and High-Expansion Foam*, 2005 edition.
- NFPA 12, *Standard on Carbon Dioxide Extinguishing Systems*, 2005 edition.
- NFPA 12A, *Standard on Halon 1301 Fire Extinguishing Systems*, 2004 edition.
- NFPA 13, *Standard for the Installation of Sprinkler Systems*, 2002 edition.
- NFPA 13D, *Standard for the Installation of Sprinkler Systems in One- and Two-Family Dwellings and Manufactured Homes*, 2002 edition.
- NFPA 13R, *Standard for the Installation of Sprinkler Systems in Residential Occupancies up to and Including Four Stories in Height*, 2002 edition.
- NFPA 14, *Standard for the Installation of Standpipe and Hose Systems*, 2003 edition.
- NFPA 15, *Standard for Water Spray Fixed Systems for Fire Protection*, 2001 edition.
- NFPA 16, *Standard for the Installation of Foam-Water Sprinkler and Foam-Water Spray Systems*, 2003 edition.
- NFPA 17, *Standard for Dry Chemical Extinguishing Systems*, 2002 edition.
- NFPA 17A, *Standard for Wet Chemical Extinguishing Systems*, 2002 edition.
- NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems*, 2002 edition.
- NFPA 30, *Flammable and Combustible Liquids Code*, 2003 edition.
- NFPA 30B, *Code for the Manufacture and Storage of Aerosol Products*, 2002 edition.
- NFPA 31, *Standard for the Installation of Oil-Burning Equipment*, 2001 edition.
- NFPA 40, *Standard for the Storage and Handling of Cellulose Nitrate Film*, 2001 edition.
- NFPA 45, *Standard on Fire Protection for Laboratories Using Chemicals*, 2004 edition.
- NFPA 54, *National Fuel Gas Code*, 2006 edition.
- NFPA 58, *Liquefied Petroleum Gas Code*, 2004 edition.
- NFPA 70, *National Electrical Code®*, 2005 edition.
- NFPA 72®, *National Fire Alarm Code®*, 2002 edition.
- NFPA 80, *Standard for Fire Doors and Fire Windows*, 1999 edition.
- NFPA 82, *Standard on Incinerators and Waste and Linen Handling Systems and Equipment*, 2004 edition.
- NFPA 88A, *Standard for Parking Structures*, 2002 edition.
- NFPA 90A, *Standard for the Installation of Air-Conditioning and Ventilating Systems*, 2002 edition.
- NFPA 90B, *Standard for the Installation of Warm Air Heating and Air-Conditioning Systems*, 2006 edition.
- NFPA 91, *Standard for Exhaust Systems for Air Conveying of Vapors, Gases, Mists, and Noncombustible Particulate Solids*, 2004 edition.
- NFPA 92B, *Standard for Smoke Management Systems in Malls, Atria, and Large Spaces*, 2005 edition.
- NFPA 96, *Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations*, 2004 edition.
- NFPA 99, *Standard for Health Care Facilities*, 2005 edition.
- NFPA 101A, *Guide on Alternative Approaches to Life Safety*, 2004 edition.
- NFPA 105, *Standard for the Installation of Smoke Door Assemblies*, 2003 edition.
- NFPA 110, *Standard for Emergency and Standby Power Systems*, 2005 edition.
- NFPA 111, *Standard on Stored Electrical Energy Emergency and Standby Power Systems*, 2005 edition.

NFPA 160, *Standard for the Use of Flame Effects Before an Audience*, 2006 edition.

NFPA 211, *Standard for Chimneys, Fireplaces, Vents, and Solid Fuel-Burning Appliances*, 2003 edition.

NFPA 220, *Standard on Types of Building Construction*, 2006 edition.

NFPA 221, *Standard for High Challenge Fire Walls, Fire Walls, and Fire Barrier Walls*, 2006 edition.

NFPA 241, *Standard for Safeguarding Construction, Alteration, and Demolition Operations*, 2004 edition.

NFPA 251, *Standard Methods of Tests of Fire Resistance of Building Construction and Materials*, 2006 edition.

NFPA 252, *Standard Methods of Fire Tests of Door Assemblies*, 2003 edition.

NFPA 253, *Standard Method of Test for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source*, 2006 edition.

NFPA 255, *Standard Method of Test of Surface Burning Characteristics of Building Materials*, 2006 edition.

NFPA 256, *Standard Methods of Fire Tests of Roof Coverings*, 2003 edition.

NFPA 257, *Standard on Fire Test for Window and Glass Block Assemblies*, 2000 edition.

NFPA 259, *Standard Test Method for Potential Heat of Building Materials*, 2003 edition.

NFPA 260, *Standard Methods of Tests and Classification System for Cigarette Ignition Resistance of Components of Upholstered Furniture*, 2003 edition.

NFPA 261, *Standard Method of Test for Determining Resistance of Mock-Up Upholstered Furniture Material Assemblies to Ignition by Smoldering Cigarettes*, 2003 edition.

NFPA 265, *Standard Methods of Fire Tests for Evaluating Room Fire Growth Contribution of Textile Coverings on Full Height Panels and Walls*, 2002 edition.

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

NFPA 288, *Standard Methods of Fire Tests of Floor Fire Door Assemblies Installed Horizontally in Fire Resistance-Rated Floor Systems*, 2001 edition.

NFPA 415, *Standard on Airport Terminal Buildings, Fueling Ramp Drainage, and Loading Walkways*, 2002 edition.

NFPA 418, *Standard for Heliports*, 2001 edition.

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

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

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

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

NFPA 703, *Standard for Fire Retardant-Treated Wood and Fire-Retardant Coatings for Building Materials*, 2006 edition.

NFPA 750, *Standard on Water Mist Fire Protection Systems*, 2003 edition.

NFPA 914, *Code for Fire Protection of Historic Structures*, 2001 edition.

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

NFPA 1126, *Standard for the Use of Pyrotechnics Before a Proximate Audience*, 2006 edition.

NFPA 2001, *Standard on Clean Agent Fire Extinguishing Systems*, 2004 edition.

NFPA 5000®, *Building Construction and Safety Code®*, 2006 edition.

2.3 Other Publications.

2.3.1 ACI Publication. American Concrete Institute, P.O. Box 9094, Farmington Hills, MI 48333.

ACI 216.1/TMS 0216.1, *Standard Method for Determining Fire Resistance of Concrete and Masonry Construction Assemblies*, 1997.

2.3.2 ANSI Publications. American National Standards Institute, Inc., 25 West 43rd Street, 14th floor, New York, NY 10036.

ANSI A14.3, *Safety Requirements for Fixed Ladders*, 1992.

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

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

ANSI A1264.1, *Safety Requirements for Workplace Floor and Wall Openings, Stairs and Railings Systems*, 1995.

2.3.3 ASCE Publication. American Society of Civil Engineers, 1801 Alexander Bell Drive, Reston, VA 20191.

ASCE/SFPE 29, *Standard Calculation Methods for Structural Fire Protection*, 1999.

2.3.4 ASME Publications. American Society of Mechanical Engineers, Three Park Avenue, New York, NY 10016-5900.

ASME A17.1, *Safety Code for Elevators and Escalators*, 2004, including Addenda A17.1a-2005 and Supplement ASME A.17.1S-2005.

ASME A17.3, *Safety Code for Existing Elevators and Escalators*, 1996, including Addenda A17.3a-2000.

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

ASTM D 1929, *Standard Test Method for Determining Ignition Temperatures of Plastic*, 2001.

ASTM D 2859, *Standard Test Method for Ignition Characteristics of Finished Textile Floor Covering Materials*, 2004.

ASTM D 2898, *Standard Test Methods for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing*, 1994 (1999).

ASTM E 84, *Standard Test Method for Surface Burning Characteristics of Building Materials*, 2004.

ASTM E 108, *Standard Test Methods for Fire Tests of Roof Coverings*, 2004.

ASTM E 119, *Standard Test Methods for Fire Tests of Building Construction and Materials*, 2000.

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

ASTM E 814, *Standard Test Method for Fire Tests of Through Penetration Fire Stops*, 2002.

ASTM E 1352, *Standard Test Method for Cigarette Ignition Resistance of Mock-Up Upholstered Furniture Assemblies*, 2002.

ASTM E 1353, *Standard Test Methods for Cigarette Ignition Resistance of Components of Upholstered Furniture*, 2002.

ASTM E 1537, *Standard Test Method for Fire Testing of Upholstered Furniture*, 2002.

ASTM E 1590, *Standard Test Method for Fire Testing of Mattresses*, 2002.

ASTM E 1591, *Standard Guide for Obtaining Data for Deterministic Fire Models*, 2000.

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

ASTM E 2010, *Standard Test Method for Positive Pressure Fire Tests of Window Assemblies*, 2001.

ASTM E 2074, *Standard Test Method for Fire Tests of Door Assemblies, Including Positive Pressure Testing of Side-Hinged and Pivoted Swinging Door Assemblies*, 2000e1.

ASTM F 851, *Standard Test Method for Self-Rising Seat Mechanisms*, 2000.

ASTM F 1577, *Standard Test Methods for Detention Locks for Swinging Doors*, 2001.

ASTM G 155, *Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials*, 2000ae1.

2.3.6 FMGR Publication. FM Global Research, FM Global, 1301 Atwood Avenue, P.O. Box 7500, Johnston, RI 02919.

FM 4880, *Approval Standard for Class I Insulated Wall or Wall and Roof/Ceiling Panels; Plastic Interior Finish Materials; Plastic Exterior Building Panels; Wall/Ceiling Coating Systems; Interior or Exterior Finish Systems*, 1994.

2.3.7 UL Publications. Underwriters Laboratories Inc., 333 Pfingsten Road, Northbrook, IL 60062.

UL 9, *Standard for Fire Tests of Window Assemblies*, 2000.

UL 10B, *Standard for Fire Tests of Door Assemblies*, 1997.

UL 10C, *Standard for Positive Pressure Fire Tests of Door Assemblies*, 1998.

UL 263, *Standard for Fire Tests of Building Construction and Materials*, 2003.

UL 555, *Standard for Fire Dampers*, 1999, Revised 2002.

UL 555S, *Standard for Smoke Dampers*, 1999, Revised 2003.

UL 723, *Standard for Test for Surface Burning Characteristics of Building Materials*, 2003.

UL 790, *Test Methods for Fire Tests of Roof Coverings*, 2004.

UL 924, *Standard for Emergency Lighting and Power Equipment*, 1995, Revised 2001.

UL 1040, *Standard for Fire Test of Insulated Wall Construction*, 1996.

UL 1479, *Standard for Fire Tests of Through-Penetration Firestops*, 2003.

UL 1715, *Standard for Fire Test of Interior Finish Material*, 1997.

UL 1784, *Standard for Air Leakage Tests for Door Assemblies*, 2001.

UL 1975, *Standard for Fire Tests for Foamed Plastics Used for Decorative Purposes*, 1996.

UL 2079, *Standard for Tests for Fire Resistance of Building Joint Systems*, 1998.

2.3.8 U.S. Government Publication. U.S. Government Printing Office, Washington, DC 20402.

Title 16, *Code of Federal Regulations*, Part 1632, "Standard for the Flammability of Mattresses and Mattress Pads."

2.3.9 Other Publication.

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

2.4 References for Extracts in Mandatory Sections.

NFPA 1, *Uniform Fire Code*TM, 2006 edition.

NFPA 72[®], *National Fire Alarm Code*[®], 2002 edition.

NFPA 80, *Standard for Fire Doors and Fire Windows*, 1999 edition.

NFPA 88A, *Standard for Parking Structures*, 2002 edition.

NFPA 101B, *Code for Means of Egress for Buildings and Structures*, 2002 edition.

NFPA 102, *Standard for Grandstands, Folding and Telescopic Seating, Tents, and Membrane Structures*, 1995 edition.

NFPA 288, *Standard Methods of Fire Tests of Floor Fire Door Assemblies Installed Horizontally in Fire Resistance-Rated Floor Systems*, 2001 edition.

NFPA 301, *Code for Safety to Life from Fire on Merchant Vessels*, 2001 edition.

NFPA 415, *Standard on Airport Terminal Buildings, Fueling Ramp Drainage, and Loading Walkways*, 2002 edition.

NFPA 914, *Code for Fire Protection of Historic Structures*, 2001 edition.

NFPA 921, *Guide for Fire and Explosion Investigations*, 2004 edition.

NFPA 5000[®], *Building Construction and Safety Code*[®], 2006 edition.

ASCE 7, *Minimum Design Loads for Buildings and Other Structures*, 2002.

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 included, common usage of the terms shall apply. The following terms, for the purposes of this *Code*, shall have the meanings given in this chapter; if not otherwise modified by another chapter. Words used in the present tense shall include the future; words used in the masculine gender shall include the feminine and neuter; the singular number shall include the plural, and the plural number shall include the singular. 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. *Webster's Third New International Dictionary of the English Language, Unabridged*, shall be a source for ordinarily accepted meaning.

3.2 NFPA Official Definitions.

3.2.1* Approved. Acceptable to the authority having jurisdiction.

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

3.2.3* Code. A standard that is an extensive compilation of provisions covering broad subject matter or that is suitable for adoption into law independently of other codes and standards.

3.2.4 Labeled. Equipment or materials to which has been attached a label, symbol, or other identifying mark of an organization that is acceptable to the authority having jurisdiction and concerned with product evaluation, that maintains periodic inspection of production of labeled equipment or mate-

rials, and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.

3.2.5* Listed. Equipment, materials, or services included in a list published by an organization that is acceptable to the authority having jurisdiction and concerned with evaluation of products or services, that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services, and whose listing states that either the equipment, material, or service meets appropriate designated standards or has been tested and found suitable for a specified purpose.

3.2.6 Shall. Indicates a mandatory requirement.

3.2.7 Should. Indicates a recommendation or that which is advised but not required.

3.3 General Definitions.

3.3.1 Accessible Area of Refuge. See 3.3.18.1.

3.3.2 Accessible Means of Egress. See 3.3.151.1.

3.3.3* Actuating Member or Bar. The activating mechanism of a panic hardware or fire exit hardware device located on the egress side of a door.

3.3.4 Addition. An increase in the building area, aggregate floor area, height or number of stories of a structure. [ASCE 7:9.2.1]

3.3.5 Aircraft Loading Walkway. An aboveground device through which passengers move between a point in an airport terminal building and an aircraft. Included in this category are walkways that are essentially fixed and permanently placed, or walkways that are essentially mobile in nature and that fold, telescope, or pivot from a fixed point at the airport terminal building. [415, 2002]

3.3.6 Air-Inflated Structure. See 3.3.240.1.

3.3.7 Airport Terminal Building. See 3.3.28.1.

3.3.8 Air-Supported Structure. See 3.3.240.2.

3.3.9* Aisle Accessway. The initial portion of an exit access that leads to an aisle.

3.3.10 Alarm.

3.3.10.1 Single Station Alarm. A detector comprising an assembly that incorporates a sensor, control components, and an alarm notification appliance in one unit operated from a power source either located in the unit or obtained at the point of installation. [72, 2002]

3.3.10.2 Smoke Alarm. A single- or multiple-station alarm responsive to smoke. [72, 2002]

3.3.11 Alternative Calculation Procedure. A calculation procedure that differs from the procedure originally employed by the design team but that provides predictions for the same variables of interest.

3.3.12 Ambulatory Health Care Occupancy. See 3.3.168.1.

3.3.13 Analysis.

3.3.13.1 Sensitivity Analysis. An analysis performed to determine the degree to which a predicted output will vary given a specified change in an input parameter, usually in relation to models. [5000, 2006]

3.3.13.2 Uncertainty Analysis. An analysis performed to determine the degree to which a predicted value will vary. [5000, 2006]

3.3.14 Anchor Building. See 3.3.28.2.

3.3.15 Apartment Building. See 3.3.28.3.

3.3.16 Approved Existing. See 3.3.68.1.

3.3.17 Area.

3.3.17.1 Detention and Correctional Residential Housing Area. Sleeping areas and any contiguous day room, group activity space, or other common space for customary access of residents. [5000, 2006]

3.3.17.2 Floor Area.

3.3.17.2.1* Gross Floor Area. The floor area within the inside perimeter of the outside walls of the building under consideration with no deduction for hallways, stairs, closets, thickness of interior walls, columns, or other features. [5000, 2006]

3.3.17.2.2 Net Floor Area. The floor area within the inside perimeter of the outside walls, or the outside walls and fire walls of the building under consideration with deductions for hallways, stairs, closets, thickness of interior walls, columns, or other features. [5000, 2006]

3.3.17.3 Gross Leasable Area. The total floor area designated for tenant occupancy and exclusive use. The area of tenant occupancy is measured from the centerlines of joint partitions to the outside of the tenant walls. All tenant areas, including areas used for storage, shall be included in calculating gross leasable area. [5000, 2006]

3.3.17.4* Hazardous Area. An area of a structure or building that poses a degree of hazard greater than that normal to the general occupancy of the building or structure. [5000, 2006]

3.3.17.5 Living Area. Any normally occupiable space in a residential occupancy, other than sleeping rooms or rooms that are intended for combination sleeping/living, bathrooms, toilet compartments, kitchens, closets, halls, storage or utility spaces, and similar areas.

3.3.17.6 Rehabilitation Work Area. That portion of a building affected by any renovation, modification, or reconstruction work as initially intended by the owner, and indicated as such in the permit, but excluding other portions of the building where incidental work entailed by the intended work must be performed, and excluding portions of the building where work not initially intended by the owner is specifically required.

3.3.18* Area of Refuge. An area that is either (1) a story in a building where the building is protected throughout by an approved, supervised automatic sprinkler system and has not less than two accessible rooms or spaces separated from each other by smoke-resisting partitions; or (2) a space located in a path of travel leading to a public way that is protected from the effects of fire, either by means of separation from other spaces in the same building or by virtue of location, thereby permitting a delay in egress travel from any level.

3.3.18.1 Accessible Area of Refuge. An area of refuge that complies with the accessible route requirements of ICC/ANSI A117.1, *American National Standard for Accessible and Usable Buildings and Facilities*. [5000, 2006]

3.3.19 Assembly.

3.3.19.1 Fire Door Assembly. Any combination of a fire door, a frame, hardware, and other accessories that together provide a specific degree of fire protection to the opening. [80, 1999]

3.3.19.1.1 Floor Fire Door Assembly. A combination of a fire door, a frame, hardware, and other accessories installed in a horizontal plane, which together provide a specific degree of fire protection to a through-opening in a fire resistance-rated floor. [288, 2001]

3.3.19.2 Fire Window Assembly. A window or glass block assembly having a fire protection rating. [80, 1999]

3.3.20 Assembly Occupancy. See 3.3.168.2.

3.3.21 Atmosphere.

3.3.21.1 Common Atmosphere. The atmosphere that exists between rooms, spaces, or areas within a building that are not separated by an approved smoke barrier. [5000, 2006]

3.3.21.2 Separate Atmosphere. The atmosphere that exists between rooms, spaces, or areas that are separated by an approved smoke barrier. [5000, 2006]

3.3.22* Atrium. A large-volume space created by a floor opening or series of floor openings connecting two or more stories that is covered at the top of the series of openings and is used for purposes other than an enclosed stairway; an elevator hoistway; an escalator opening; or as a utility shaft used for plumbing, electrical, air-conditioning, or communications facilities.

3.3.23 Automatic. That which provides a function without the necessity of human intervention.

3.3.24 Barrier.

3.3.24.1* Fire Barrier. A continuous membrane or a membrane with discontinuities created by protected openings with a specified fire protection rating, where such membrane is designed and constructed with a specified fire resistance rating to limit the spread of fire, that also restricts the movement of smoke.

3.3.24.2* Smoke Barrier. A continuous membrane, or a membrane with discontinuities created by protected openings, where such membrane is designed and constructed to restrict the movement of smoke. [5000, 2006]

3.3.24.3* Thermal Barrier. A material that limits the average temperature rise of an unexposed surface to not more than 250°F (139°C) for a specified fire exposure complying with the standard time-temperature curve of NFPA 251, *Standard Methods of Tests of Fire Endurance of Building Construction and Materials*. [5000, 2006]

3.3.25* Birth Center. A facility in which low-risk births are expected following normal, uncomplicated pregnancies, and in which professional midwifery care is provided to women during pregnancy, birth, and postpartum.

3.3.26 Bleachers. A grandstand in which the seats are not provided with backrests.

3.3.27 Board and Care. See 3.3.168.12.

3.3.28* Building. Any structure used or intended for supporting or sheltering any use or occupancy.

3.3.28.1 Airport Terminal Building. A structure used primarily for air passenger enplaning or deplaning, including ticket sales, flight information, baggage handling, and other necessary functions in connection with air transport operation. This term includes any extensions and satellite buildings used for passenger handling or aircraft flight service functions. Aircraft loading walkways and “mobile lounges” are excluded. [415, 2002]

3.3.28.2 Anchor Building. A building housing any occupancy having low or ordinary hazard contents and having direct access to a mall building, but having all required means of egress independent of the mall.

3.3.28.3* Apartment Building. A building or portion thereof containing three or more dwelling units with independent cooking and bathroom facilities. [5000, 2006]

3.3.28.4 Bulk Merchandising Retail Building. A building in which the sales area includes the storage of combustible materials on pallets, in solid piles, or in racks in excess of 12 ft (3660 mm) in storage height. [5000, 2006]

3.3.28.5* Existing Building. A building erected or officially authorized prior to the effective date of the adoption of this edition of the *Code* by the agency or jurisdiction.

3.3.28.6* Flexible Plan and Open Plan Educational or Day-Care Building. A building or portion of a building designed for multiple teaching stations. [5000, 2006]

3.3.28.7* High-Rise Building. A building where the floor of an occupiable story is greater than 75 ft (23 m) above the lowest level of fire department vehicle access. [5000, 2006]

3.3.28.8* Historic Building. A building or facility deemed to have historical, architectural, or cultural significance by a local, regional, or national jurisdiction.

3.3.28.9* Mall Building. A single building enclosing a number of tenants and occupancies wherein two or more tenants have a main entrance into one or more malls. For the purpose of this *Code*, anchor buildings shall not be considered as a part of the mall building. [5000, 2006]

3.3.28.10* Special Amusement Building. A building that is temporary, permanent, or mobile and contains a device or system that conveys passengers or provides a walkway along, around, or over a course in any direction as a form of amusement arranged so that the egress path is not readily apparent due to visual or audio distractions or an intentionally confounded egress path, or is not readily available due to the mode of conveyance through the building or structure. [101B, 2002]

3.3.29 Bulk Merchandising Retail Building. See 3.3.28.4.

3.3.30 Business Occupancy. See 3.3.168.3.

3.3.31 Categories of Rehabilitation Work. The nature and extent of rehabilitation work undertaken in an existing building.

3.3.32* Cellular or Foamed Plastic. A heterogeneous system comprised of not less than two phases, one of which is a continuous, polymeric, organic material, and the second of which is deliberately introduced for the purpose of distributing gas in voids throughout the material. [5000, 2006]

3.3.33 Change of Occupancy Classification. The change in the occupancy classification of a structure or portion of a structure.

3.3.34 Change of Use. A change in the purpose or level of activity within a structure that involves a change in application of the requirements of the *Code*.

3.3.35 Combustible (Material). See 3.3.150.1.

3.3.36 Combustion. A chemical process of oxidation that occurs at a rate fast enough to produce heat and usually light in the form of either a glow or a flame. [5000, 2006]

3.3.37 Common Atmosphere. See 3.3.21.1.

3.3.38* Common Path of Travel. The portion of exit access that must be traversed before two separate and distinct paths of travel to two exits are available.

3.3.39 Compartment.

3.3.39.1* Fire Compartment. A space within a building that is enclosed by fire barriers on all sides, including the top and bottom.

3.3.39.2* Smoke Compartment. A space within a building enclosed by smoke barriers on all sides, including the top and bottom.

3.3.40* Consumer Fireworks, 1.4G. (Formerly known as Class C, Common Fireworks.) Any small fireworks device designed primarily to produce visible effects by combustion that complies with the construction, chemical composition, and labeling regulations of the U.S. Consumer Product Safety Commission, as set forth in 16 CFR, Parts 1500 and 1507. Some small devices designed to produce audible effects are included, such as whistling devices, ground devices containing 0.8 gr (50 mg) or less of explosive composition (salute powder), and aerial devices containing 2 gr (130 mg) or less of explosive composition (salute powder) per explosive unit. [5000, 2006]

3.3.41 Contents and Furnishings. Any movable objects in a building for functional, operational, or decorative reasons, excluding parts of the building structure, building service equipment, and items meeting the definition of interior finish.

3.3.42 Court. An open, uncovered, unoccupied space, unobstructed to the sky, bounded on three or more sides by exterior building walls.

3.3.42.1 Enclosed Court. A court bounded on all sides by the exterior walls of a building or by the exterior walls and lot lines on which walls are permitted.

3.3.42.2 Food Court. A public seating area located in a mall that serves adjacent food preparation tenant spaces. [5000, 2006]

3.3.43* Critical Radiant Flux. The level of incident radiant heat energy on a floor-covering system at the most distant flameout point.

3.3.44 Data Conversion. The process of developing the input data set for the assessment method of choice.

3.3.45 Day-Care Home. See 3.3.122.1.

3.3.46 Day-Care Occupancy. See 3.3.168.4.

3.3.47 Design Fire Scenario. See 3.3.90.1.

3.3.48 Design Specification. See 3.3.231.1.

3.3.49 Design Team. A group of stakeholders including, but not limited to, representatives of the architect, client, and any pertinent engineers and other designers.

3.3.50 Detention and Correctional Occupancy. See 3.3.168.5.

3.3.51 Detention and Correctional Residential Housing Area. See 3.3.17.1.

3.3.52 Door.

3.3.52.1 Elevator Lobby Door. A door between an elevator lobby and another building space other than the elevator shaft.

3.3.52.2 Fire Door. The door component of a fire door assembly. [5000, 2005]

3.3.53* Dormitory. A building or a space in a building in which group sleeping accommodations are provided for more than 16 persons who are not members of the same family in one room, or a series of closely associated rooms, under joint occupancy and single management, with or without meals, but without individual cooking facilities.

3.3.54 Draft Stop. A continuous membrane used to subdivide a concealed space to resist the passage of smoke and heat.

3.3.55 Dwelling Unit. One or more rooms arranged for complete, independent housekeeping purposes with space for eating, living, and sleeping; facilities for cooking; and provisions for sanitation. [5000, 2006]

3.3.55.1* One- and Two-Family Dwelling Unit. A building that contains not more than two dwelling units with independent cooking and bathroom facilities. [5000, 2006]

3.3.55.2 One-Family Dwelling Unit. A building that consists solely of one dwelling unit with independent cooking and bathroom facilities. [5000, 2006]

3.3.55.3 Two-Family Dwelling Unit. A building that consists solely of two dwelling units with independent cooking and bathroom facilities. [5000, 2006]

3.3.56 Educational Occupancy. See 3.3.168.6.

3.3.57* Electroluminescent. Refers to a light-emitting capacitor in which alternating current excites phosphor atoms placed between electrically conductive surfaces and produces light.

3.3.58 Elevator Evacuation System. See 3.3.242.1.

3.3.59 Elevator Lobby. A space from which people directly enter an elevator car(s) and into which people directly enter upon leaving an elevator car(s). [5000, 2006]

3.3.60 Elevator Lobby Door. See 3.3.52.1.

3.3.61 Enclosed Court. See 3.3.42.1.

3.3.62 Equipment or Fixture. Any plumbing, heating, electrical, ventilating, air-conditioning, refrigerating, and fire protection equipment; and elevators, dumb waiters, escalators, boilers, pressure vessels, or other mechanical facilities or installations related to building services.

3.3.63 Equivalency. An alternative means of providing an equal or greater degree of safety than that afforded by strict conformance to prescribed codes and standards. [5000, 2006]

3.3.64 Reserved.

3.3.65* Evacuation Capability. The ability of occupants, residents, and staff as a group either to evacuate a building or to relocate from the point of occupancy to a point of safety.

3.3.65.1 Impractical Evacuation Capability. The inability of a group to reliably move to a point of safety in a timely manner.

3.3.65.2 Prompt Evacuation Capability. The ability of a group to move reliably to a point of safety in a timely manner that is equivalent to the capacity of a household in the general population.

3.3.65.3 Slow Evacuation Capability. The ability of a group to move reliably to a point of safety in a timely manner, but not as rapidly as members of a household in the general population.

3.3.66 Exhibit. A space or portable structure used for the display of products or services.

3.3.67 Exhibitor. An individual or entity engaged in the display of the products or services offered.

3.3.68* Existing. That which is already in existence on the date this edition of the *Code* goes into effect.

3.3.68.1 Approved Existing. That which is already in existence on the date this edition of the *Code* goes into effect and is acceptable to the authority having jurisdiction.

3.3.69 Existing Building. See 3.3.28.5.

3.3.70* Exit. That portion of a means of egress that is separated from all other spaces of a building or structure by construction or equipment as required to provide a protected way of travel to the exit discharge.

3.3.70.1* Horizontal Exit. A way of passage from one building to an area of refuge in another building on approximately the same level, or a way of passage through or around a fire barrier to an area of refuge on approximately the same level in the same building that affords safety from fire and smoke originating from the area of incidence and areas communicating therewith.

3.3.71 Exit Access. That portion of a means of egress that leads to an exit.

3.3.72 Exit Discharge. That portion of a means of egress between the termination of an exit and a public way.

3.3.72.1 Level of Exit Discharge. (1) The lowest story from which not less than 50 percent of the required number of exits and not less than 50 percent of the required egress capacity from such a story discharge directly outside at grade; (2) the story with the smallest elevation change needed to reach grade where no story has 50 percent or more of the required number of exits and 50 percent or more of the required egress capacity from such a story discharge directly outside at grade. [5000, 2006]

3.3.73 Exposition. An event in which the display of products or services is organized to bring together the provider and user of the products or services.

3.3.74 Exposition Facility. See 3.3.77.1.

3.3.75* Exposure Fire. A fire that starts at a location that is remote from the area being protected and grows to expose that which is being protected.

3.3.76 Externally Illuminated. See 3.3.126.1.

3.3.77 Facility.

3.3.77.1 Exposition Facility. A convention center, hotel, or other building at which exposition events are held.

3.3.77.2* Limited Care Facility. A building or portion of a building used on a 24-hour basis for the housing of four or more persons who are incapable of self-preservation because of age; physical limitations due to accident or illness; or limitations such as mental retardation/developmental disability, mental illness, or chemical dependency.

3.3.78 Festival Seating. See 3.3.209.1.

3.3.79 Finish.

3.3.79.1 Interior Ceiling Finish. The interior finish of ceilings.

3.3.79.2* Interior Finish. The exposed surfaces of walls, ceilings, and floors within buildings. [5000, 2006]

3.3.79.3* Interior Floor Finish. The interior finish of floors, ramps, stair treads and risers, and other walking surfaces.

3.3.79.4 Interior Wall Finish. The interior finish of columns, fixed or movable walls, and fixed or movable partitions.

3.3.80 Fire Barrier. See 3.3.24.1.

3.3.81 Fire Barrier Wall. See 3.3.255.1.

3.3.82 Fire Compartment. See 3.3.39.1.

3.3.83 Fire Door. See 3.3.52.2.

3.3.84 Fire Door Assembly. See 3.3.19.1.

3.3.85 Fire Exit Hardware. See 3.3.115.1.

3.3.86* Fire Model. A structured approach to predicting one or more effects of a fire.

3.3.87 Fire Protection Rating. See 3.3.195.1.

3.3.88 Fire Resistance Rating. See 3.3.195.2.

3.3.89 Fire Safety Functions. Building and fire control functions that are intended to increase the level of life safety for occupants or to control the spread of the harmful effects of fire. [72, 2002]

3.3.90* Fire Scenario. A set of conditions that defines the development of fire, the spread of combustion products throughout a building or portion of a building, the reactions of people to fire, and the effects of combustion products.

3.3.90.1 Design Fire Scenario. A fire scenario selected for evaluation of a proposed design. [914, 2001]

3.3.91 Fire Watch. The assignment of a person or persons to an area for the express purpose of notifying the fire department, the building occupants, or both of an emergency; preventing a fire from occurring; extinguishing small fires; or protecting the public from fire or life safety dangers. [1, 2006]

3.3.92 Fire Window Assembly. See 3.3.19.2.

3.3.93 Fire-Retardant-Treated Wood. A wood product impregnated with chemical by a pressure process or other means during manufacture, which is tested in accordance with NFPA 255, has a listed flame spread of 25 or less, and shows no evidence of significant progressive combustion when the test is continued for an additional 20-minute period; nor does the flame front progress more than 10.5 ft (3.2 m) beyond the centerline of the burners at any time during the test. [5000, 2006]

3.3.94 Fixed Seating. See 3.3.209.2.

3.3.95* Flame Spread. The propagation of flame over a surface.

3.3.96 Flame Spread Index. See 3.3.129.1.

3.3.97 Flashover. A transition phase in the development of a contained fire in which surfaces exposed to thermal radiation reach ignition temperature more or less simultaneously and fire spreads rapidly throughout the space. [921, 2001]

3.3.98 Flexible Plan and Open Plan Educational or Day-Care Building. See 3.3.28.6.

3.3.99 Floor Fire Door Assembly. See 3.3.19.1.1.

3.3.100 Flow Time. A component of total evacuation time that is the time during which there is crowd flow past a point in the means of egress system.

3.3.101 Fly Gallery. A raised floor area above a stage from which the movement of scenery and operation of other stage effects are controlled.

3.3.102 Folding and Telescopic Seating. See 3.3.209.3.

3.3.103 Food Court. See 3.3.42.2.

3.3.104 Fuel Load. See 3.3.144.1.

3.3.105 General Industrial Occupancy. See 3.3.168.8.1.

3.3.106 Goal. A nonspecific overall outcome to be achieved that is measured on a qualitative basis.

3.3.107* Grandstand. A structure that provides tiered or stepped seating.

3.3.108 Gridiron. The structural framing over a stage supporting equipment for hanging or flying scenery and other stage effects.

3.3.109 Gross Floor Area. See 3.3.17.2.1.

3.3.110 Gross Leasable Area. See 3.3.17.3.

3.3.111 Guard. A vertical protective barrier erected along exposed edges of stairways, balconies, and similar areas.

3.3.112 Guest Room. An accommodation combining living, sleeping, sanitary, and storage facilities within a compartment.

3.3.113 Guest Suite. See 3.3.241.1.

3.3.114 Handrail. A bar, pipe, or similar member designed to furnish persons with a handhold.

3.3.115 Hardware.

3.3.115.1 Fire Exit Hardware. A door-latching assembly incorporating an actuating member or bar that releases the latch bolt upon the application of a force in the direction of egress travel and that additionally provides fire protection where used as part of a fire door assembly.

3.3.115.2 Panic Hardware. A door-latching assembly incorporating an actuating member or bar that releases the latch bolt upon the application of a force in the direction of egress travel.

3.3.116 Hazardous Area. See 3.3.17.4.

3.3.117 Health Care Occupancy. See 3.3.168.7.

3.3.118* Heat Release Rate (HRR). The rate at which heat energy is generated by burning. [921, 2004]

3.3.119 High Hazard Industrial Occupancy. See 3.3.168.8.2.

3.3.120 High-Rise Building. See 3.3.28.7.

3.3.121 Historic Building. See 3.3.28.8.

3.3.122 Home.

3.3.122.1* Day-Care Home. A building or portion of a building in which more than 3 but not more than 12 clients receive care, maintenance, and supervision, by other than their relative(s) or legal guardians(s), for less than 24 hours per day.

3.3.122.2 Nursing Home. A building or portion of a building used on a 24-hour basis for the housing and nursing care of four or more persons who, because of mental or physical incapacity, might be unable to provide for their own needs and safety without the assistance of another person.

3.3.123 Horizontal Exit. See 3.3.70.1.

3.3.124 Hospital. A building or portion thereof used on a 24-hour basis for the medical, psychiatric, obstetrical, or surgical care of four or more inpatients.

3.3.125* Hotel. A building or groups of buildings under the same management in which there are sleeping accommodations for more than 16 persons and primarily used by transients for lodging with or without meals.

3.3.126 Illuminated.

3.3.126.1* Externally Illuminated. Refers to an illumination source that is contained outside of the device or sign legend area that is to be illuminated. [5000, 2006]

3.3.126.2* Internally Illuminated. Refers to an illumination source that is contained inside the device or legend that is illuminated. [5000, 2006]

3.3.127 Impractical Evacuation Capability. See 3.3.65.1.

3.3.128 Incapacitation. A condition under which humans do not function adequately and become unable to escape untenable conditions.

3.3.129 Index.

3.3.129.1 Flame Spread Index. A comparative measure, expressed as a dimensionless number, derived from visual measurements of the spread of flame versus time for a material tested in accordance with NFPA 255, *Standard Method of Test of Surface Burning Characteristics of Building Materials*, ASTM E 84, *Standard Test Method for Surface Burning Characteristics of Building Materials*, or UL 723, *Standard for Test for Surface Burning Characteristics of Burning Materials*.

3.3.129.2 Smoke Developed Index. A comparative measure, expressed as a dimensionless number, derived from measurements of smoke obscuration versus time for a material tested in accordance with NFPA 255, *Standard Method of Test of Surface Burning Characteristics of Building Materials*, ASTM E 84, *Standard Test Method for Surface Burning Characteristics of Building Materials*, or UL 723, *Standard for Test for Surface Burning Characteristics of Burning Materials*.

3.3.130 Industrial Occupancy. See 3.3.168.8.

3.3.131 Input Data Specification. See 3.3.231.2.

3.3.132 Interior Ceiling Finish. See 3.3.79.1.

3.3.133 Interior Finish. See 3.3.79.2

3.3.134 Interior Floor Finish. See 3.3.79.3.

3.3.135 Interior Wall Finish. See 3.3.79.4.

3.3.136 Internally Illuminated. See 3.3.126.2.

3.3.137 Legitimate Stage. See 3.3.233.1.

3.3.138 Level of Exit Discharge. See 3.3.72.1.

3.3.139 Life Safety Evaluation. A written review dealing with the adequacy of life safety features relative to fire, storm, collapse, crowd behavior, and other related safety considerations.

3.3.140 Limited Access Structure. See 3.3.240.3.

3.3.141 Limited Care Facility. See 3.3.77.2.

3.3.142 Limited-Combustible (Material). See 3.3.150.2.

3.3.143 Living Area. See 3.3.17.5.

3.3.144 Load.

3.3.144.1* Fuel Load. The total quantity of combustible contents of a building, space, or fire area. [5000, 2006]

3.3.144.2 Occupant Load. The total number of persons that might occupy a building or portion thereof at any one time. [5000, 2006]

3.3.145 Load-Bearing Element. Any column, girder, beam, joist, truss, rafter, wall, floor, or roof sheathing that supports any vertical load in addition to its own weight, or any lateral load.

3.3.146 Lock-Up. An area in other than a detention and correctional occupancy where occupants are restrained and such occupants are mostly incapable of self-preservation because of security measures not under the occupants' control.

3.3.147 Lodging or Rooming House. A building or portion thereof that does not qualify as a one- or two-family dwelling, that provides sleeping accommodations for a total of 16 or fewer people on a transient or permanent basis, without personal care services, with or without meals, but without separate cooking facilities for individual occupants.

3.3.148 Mall. A roofed or covered common pedestrian area within a mall building that serves as access for two or more tenants and does not exceed three levels that are open to each other. [5000, 2006]

3.3.149 Mall Building. See 3.3.28.9.

3.3.150 Material.

3.3.150.1 Combustible (Material). A material that, in the form in which it is used and under the conditions anticipated, will ignite and burn; a material that does not meet the definition of noncombustible or limited-combustible.

3.3.150.2* Limited-Combustible (Material). Refers to a building construction material not complying with the definition of noncombustible (see 3.3.150.3) that, in the form in which it is used, has a potential heat value not exceeding 3500 Btu/lb (8141 kJ/kg), where tested in accordance with NFPA 259, *Standard Test Method for Potential Heat of Building Materials*, and includes either of the following: (1) materials having a structural base of noncombustible material, with a surfacing not exceeding a thickness of 1/8 in. (3.2 mm) that has a flame spread index not greater than 50; (2) materials, in the form and thickness used, having neither a flame spread index greater than 25 nor evidence of continued progressive combustion, and of such composition that surfaces that would be exposed by cutting through the material on any plane would have neither a flame spread index greater than 25 nor evidence of continued progressive combustion.

3.3.150.3 Noncombustible (Material). A material that, in the form in which it is used and under the conditions anticipated, will not ignite, burn, support combustion, or release flammable vapors, when subjected to fire or heat. Materials that are reported as passing ASTM E 136, *Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 Degrees C*, shall be considered noncombustible materials.

3.3.150.4 Weathered-Membrane Material. Membrane material that has been subjected to a minimum of 3000 hours in a weatherometer in accordance with ASTM G 155, *Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials*, or approved equivalent. [5000, 2006]

3.3.151* Means of Egress. A continuous and unobstructed way of travel from any point in a building or structure to a public way consisting of three separate and distinct parts: (1) the exit access, (2) the exit, and (3) the exit discharge.

3.3.151.1 Accessible Means of Egress. A means of egress that provides an accessible route to an area of refuge, a horizontal exit, or a public way. [5000, 2006]

3.3.152 Means of Escape. A way out of a building or structure that does not conform to the strict definition of means of egress but does provide an alternate way out.

3.3.153* Membrane. A thin layer of construction material.

3.3.154 Membrane Structure. See 3.3.240.4.

3.3.155 Mercantile Occupancy. See 3.3.168.9.

3.3.156 Mezzanine. An intermediate level between the floor and the ceiling of any room or space.

3.3.157 Mixed Occupancy. See 3.3.168.10.

3.3.158* Modification. The reconfiguration of any space; the addition or elimination of any door or window; the addition or elimination of load-bearing elements; the reconfiguration or extension of any system; or the installation of any additional equipment. [5000, 2006]

3.3.159 Multilevel Play Structure. See 3.3.240.5.

3.3.160 Multiple Occupancy. See 3.3.168.11.

3.3.161 Multiple Station Alarm Device. Two or more single-station alarm devices that can be interconnected so that actuation of one causes all integral or separate audible alarms to operate; or one single-station alarm device having connections to other detectors or to a manual fire alarm box. [72, 2000]

3.3.162 Multipurpose Assembly Occupancy. See 3.3.168.2.1.

3.3.163 Net Floor Area. See 3.3.17.2.2.

3.3.164 Noncombustible (Material). See 3.3.150.3.

3.3.165 Non-Sleeping Suite (Health Care Occupancies). See 3.3.241.2.1.

3.3.166 Nursing Home. See 3.3.122.2.

3.3.167* Objective. A requirement that needs to be met to achieve a goal.

3.3.168 Occupancy. The purpose for which a building or other structure, or part thereof, is used or intended to be used. [ASCE 7:1.2]

3.3.168.1* Ambulatory Health Care Occupancy. A building or portion thereof used to provide services or treatment simultaneously to four or more patients that provides, on an outpatient basis, one or more of the following: (1) treatment for patients that renders the patients incapable of taking action for self-preservation under emergency conditions without the assistance of others; (2) anesthesia that renders the patients incapable of taking action for self-preservation under emergency conditions without the assistance of others; (3) emergency or urgent care for patients who, due to the nature of

their injury or illness, are incapable of taking action for self-preservation under emergency conditions without the assistance of others.

3.3.168.2* Assembly Occupancy. An occupancy (1) used for a gathering of 50 or more persons for deliberation, worship, entertainment, eating, drinking, amusement, awaiting transportation, or similar uses; or (2) used as a special amusement building, regardless of occupant load.

3.3.168.2.1 Multipurpose Assembly Occupancy. An assembly room designed to accommodate temporarily any of several possible assembly uses. [5000, 2006]

3.3.168.3* Business Occupancy. An occupancy used for the transaction of business other than mercantile. [5000, 2006]

3.3.168.4* Day-Care Occupancy. An occupancy in which four or more clients receive care, maintenance, and supervision, by other than their relatives or legal guardians, for less than 24 hours per day. [5000, 2006]

3.3.168.5* Detention and Correctional Occupancy. An occupancy used to house one or more persons under varied degrees of restraint or security where such occupants are mostly incapable of self-preservation because of security measures not under the occupants' control. [5000, 2006]

3.3.168.6* Educational Occupancy. An occupancy used for educational purposes through the twelfth grade by six or more persons for 4 or more hours per day or more than 12 hours per week. [5000, 2006]

3.3.168.7* Health Care Occupancy. An occupancy used for purposes of medical or other treatment or care of four or more persons where such occupants are mostly incapable of self-preservation due to age, physical or mental disability, or because of security measures not under the occupants' control. [5000, 2006]

3.3.168.8* Industrial Occupancy. An occupancy in which products are manufactured or in which processing, assembling, mixing, packaging, finishing, decorating, or repair operations are conducted. [5000, 2006]

3.3.168.8.1* General Industrial Occupancy. An industrial occupancy in which ordinary and low hazard industrial operations are conducted in buildings of conventional design suitable for various types of industrial processes. [5000, 2006]

3.3.168.8.2* High Hazard Industrial Occupancy. An industrial occupancy in which industrial operations that include high hazard materials, processes, or contents are conducted.

3.3.168.8.3 Special-Purpose Industrial Occupancy. An industrial occupancy in which ordinary and low hazard industrial operations are conducted in buildings designed for, and suitable only for, particular types of operations, characterized by a relatively low density of employee population, with much of the area occupied by machinery or equipment. [5000, 2006]

3.3.168.9* Mercantile Occupancy. An occupancy used for the display and sale of merchandise. [5000, 2006]

3.3.168.10 Mixed Occupancy. A multiple occupancy where the occupancies are intermingled. [5000, 2006]

3.3.168.11 Multiple Occupancy. A building or structure in which two or more classes of occupancy exist. [5000, 2006]

3.3.168.12* Residential Board and Care Occupancy. A building or portion thereof that is used for lodging and boarding of four or more residents, not related by blood or marriage to the owners or operators, for the purpose of providing personal care services. [5000, 2006]

3.3.168.13* Residential Occupancy. An occupancy that provides sleeping accommodations for purposes other than health care or detention and correctional. [5000, 2006]

3.3.168.14 Separated Occupancy. A multiple occupancy where the occupancies are separated by fire resistance-rated assemblies. [5000, 2006]

3.3.168.15* Storage Occupancy. An occupancy used primarily for the storage or sheltering of goods, merchandise, products, vehicles, or animals. [5000, 2006]

3.3.169 Occupant Characteristics. The abilities or behaviors of people before and during a fire.

3.3.170 Occupant Load. See 3.3.144.2.

3.3.171 Occupiable Story. See 3.3.237.1.

3.3.172 One- and Two-Family Dwelling Unit. See 3.3.55.1.

3.3.173 One-Family Dwelling Unit. See 3.3.55.2.

3.3.174 Open Parking Structure. See 3.3.240.6.

3.3.175 Open Structure. See 3.3.240.7.

3.3.176 Open-Air Mercantile Operation. An operation conducted outside of all structures, with the operations area devoid of all walls and roofs except for small, individual, weather canopies.

3.3.177* Outside Stair. A stair with not less than one side open to the outer air.

3.3.178 Panic Hardware. See 3.3.115.2.

3.3.179* Performance Criteria. Threshold values on measurement scales that are based on quantified performance objectives.

3.3.180 Permanent Structure. See 3.3.240.8.

3.3.181* Personal Care. The care of residents who do not require chronic or convalescent medical or nursing care.

3.3.182* Photoluminescent. Having the ability to store incident electromagnetic radiation typically from ambient light sources, and release it in the form of visible light. [301, 2001]

3.3.183 Pinrail. A rail on or above a stage through which belaying pins are inserted and to which lines are fastened.

3.3.184* Platform. The raised area within a building used for the presentation of music, plays, or other entertainment.

3.3.184.1 Temporary Platform. A platform erected within an area for not more than 30 days. [5000, 2006]

3.3.185 Plenum. A compartment or chamber to which one or more air ducts are connected and that forms part of the air-distribution system.

3.3.186 Point of Safety. A location that (a) is exterior to and away from a building; or (b) is within a building of any type construction protected throughout by an approved automatic sprinkler system and that is either (1) within an exit enclosure meeting the requirements of this Code, or (2) within another portion of the building that is separated by smoke barriers in accordance with Section 8.5, with not less than a ½-hour fire

resistance rating, and that portion of the building has access to a means of escape or exit that conforms to the requirements of this Code and does not necessitate return to the area of fire involvement; or (c) is within a building of Type I, Type II(222), Type II(111), Type III(211), Type IV, or Type V(111) construction (see 8.2.1.2) and is either (1) within an exit enclosure meeting the requirements of this Code, or (2) within another portion of the building that is separated by smoke barriers in accordance with Section 8.5, with not less than a ½-hour fire resistance rating, and that portion of the building has access to a means of escape or exit that conforms to the requirements of this Code and does not necessitate return to the area of fire involvement.

3.3.187 Previously Approved. That which was acceptable to the authority having jurisdiction prior to the date this edition of the Code went into effect.

3.3.188 Private Party Tent. See 3.3.247.1.

3.3.189 Professional Engineer. A person registered or licensed to practice engineering in a jurisdiction, subject to all laws and limitations imposed by the jurisdiction.

3.3.190 Prompt Evacuation Capability. See 3.3.65.2.

3.3.191* Proposed Design. A design developed by a design team and submitted to the authority having jurisdiction for approval.

3.3.192 Proscenium Wall. See 3.3.255.2.

3.3.193 Public Way. A street, alley, or other similar parcel of land essentially open to the outside air deeded, dedicated, or otherwise permanently appropriated to the public for public use and having a clear width and height of not less than 10 ft (3050 mm).

3.3.194* Ramp. A walking surface that has a slope steeper than 1 in 20.

3.3.195 Rating.

3.3.195.1 Fire Protection Rating. The designation indicating the duration of the fire test exposure to which a fire door assembly or fire window assembly was exposed and for which it met all the acceptance criteria as determined in accordance with NFPA 252, *Standard Methods of Fire Tests of Door Assemblies*, or NFPA 257, *Standard on Fire Test for Window and Glass Block Assemblies*, respectively.

3.3.195.2 Fire Resistance Rating. The time, in minutes or hours, that materials or assemblies have withstood a fire exposure as determined by the tests, or methods based on tests, prescribed by this Code.

3.3.196 Reconstruction. The reconfiguration of a space that affects an exit or a corridor shared by more than a single tenant; or the reconfiguration of a space such that the rehabilitation work area is not permitted to be occupied because existing means of egress and fire protection systems, or their equivalent, are not in place or continuously maintained.

3.3.197 Registered Architect. A person licensed to practice architecture in a jurisdiction, subject to all laws and limitations imposed by the jurisdiction. [5000, 2006]

3.3.198 Registered Design Professional (RDP). An individual who is registered or licensed to practice his/her respective design profession as defined by the statutory requirements of the professional registration laws of the state or jurisdiction in which the project is to be constructed. [5000, 2006]

3.3.199 Regular Stage. See 3.3.233.2.

3.3.200 Renovation. The replacement in kind or strengthening of load-bearing elements; or the refinishing, replacement, bracing, strengthening, or upgrading of existing materials, elements, equipment, or fixtures, without involving the reconfiguration of spaces.

3.3.201 Repair. The patching, restoration, or painting of materials, elements, equipment, or fixtures for the purpose of maintaining such materials, elements, equipment, or fixtures in good or sound condition.

3.3.202 Residential Board and Care Occupancy. See 3.3.168.12.

3.3.203 Residential Board and Care Resident. A person who receives personal care and resides in a residential board and care facility.

3.3.204 Residential Occupancy. See 3.3.168.13.

3.3.205 Safe Location. A location remote or separated from the effects of a fire so that such effects no longer pose a threat.

3.3.206 Safety Factor. A factor applied to a predicted value to ensure that a sufficient safety margin is maintained.

3.3.207 Safety Margin. The difference between a predicted value and the actual value where a fault condition is expected.

3.3.208 Sally Port (Security Vestibule). A compartment provided with two or more doors where the intended purpose is to prevent continuous and unobstructed passage by allowing the release of only one door at a time.

3.3.209 Seating.

3.3.209.1* Festival Seating. A form of audience/spectator accommodation in which no seating, other than a floor or ground surface, is provided for the audience/spectators gathered to observe a performance.

3.3.209.2 Fixed Seating. Seating that is secured to the building structure.

3.3.209.3 Folding and Telescopic Seating. A structure that is used for tiered seating of persons and whose overall shape and size can be reduced, without being dismantled, for purposes of moving or storing. [102, 1995]

3.3.209.4 Smoke-Protected Assembly Seating. Seating served by means of egress that is not subject to smoke accumulation within or under the structure. [5000, 2005]

3.3.210 Self-Closing. Equipped with an approved device that ensures closing after opening.

3.3.211* Self-Luminous. Illuminated by a self-contained power source and operated independently of external power sources.

3.3.212* Self-Preservation (Day-Care Occupancy). The ability of a client to evacuate a day-care occupancy without direct intervention by a staff member.

3.3.213 Sensitivity Analysis. See 3.3.13.1.

3.3.214 Separate Atmosphere. See 3.3.21.2.

3.3.215 Separated Occupancy. See 3.3.168.14.

3.3.216 Severe Mobility Impairment. The ability to move to stairs but without the ability to use the stairs.

3.3.217 Single Station Alarm. See 3.3.10.1.

3.3.218 Sleeping Suite (Health Care Occupancies). See 3.3.241.2.2.

3.3.219 Slow Evacuation Capability. See 3.3.65.3.

3.3.220 Smoke Alarm. See 3.3.10.2.

3.3.221 Smoke Barrier. See 3.3.24.2.

3.3.222 Smoke Compartment. See 3.3.39.2.

3.3.223 Smoke Detector. A device that detects visible or invisible particles of combustion. [72, 2002]

3.3.224 Smoke Developed Index. See 3.3.129.2.

3.3.225* Smoke Partition. A continuous membrane that is designed to form a barrier to limit the transfer of smoke.

3.3.226* Smokeproof Enclosure. A stair enclosure designed to limit the movement of products of combustion produced by a fire.

3.3.227 Smoke-Protected Assembly Seating. See 3.3.209.4.

3.3.228 Special Amusement Building. See 3.3.28.10.

3.3.229 Special Inspection. Services provided by a qualified person, retained by the owner and approved by the authority having jurisdiction, who observes the installation and witnesses the pretesting and operation of the system or systems.

3.3.230 Special-Purpose Industrial Occupancy. See 3.3.168.8.3.

3.3.231 Specification.

3.3.231.1* Design Specification. A building characteristic and other conditions that are under the control of the design team. [5000, 2006]

3.3.231.2 Input Data Specification. Information required by the verification method.

3.3.232 Staff (Residential Board and Care). Persons who provide personal care services, supervision, or assistance.

3.3.233 Stage. A space within a building used for entertainment and utilizing drops or scenery or other stage effects.

3.3.233.1 Legitimate Stage. A stage with a height greater than 50 ft (15 m) measured from the lowest point on the stage floor to the highest point of the roof or floor deck above. [5000, 2006]

3.3.233.2 Regular Stage. A stage with a height of 50 ft (15 m) or less measured from the lowest point on the stage floor to the highest point of the roof or floor deck above. [5000, 2006]

3.3.234* Stair Descent Device. A portable device, incorporating a means to control the rate of descent, used to transport a person with a severe mobility impairment downward on stairs during emergency egress.

3.3.235 Stakeholder. An individual, or representative of same, having an interest in the successful completion of a project.

3.3.236 Storage Occupancy. See 3.3.168.15.

3.3.237 Story. The portion of a building located between the upper surface of a floor and the upper surface of the floor or roof next above. [5000, 2006]

3.3.237.1* Occupiable Story. A story occupied by people on a regular basis.

3.3.238 Street. A public thoroughfare that has been dedicated for vehicular use by the public and can be used for access by fire department vehicles.

3.3.239* Street Floor. A story or floor level accessible from the street or from outside the building at ground level, with the floor level at the main entrance located not more than three risers above or below ground level, and arranged and utilized to qualify as the main floor. [101B, 2002]

3.3.240* Structure. That which is built or constructed.

3.3.240.1 Air-Inflated Structure. A structure whose shape is maintained by air pressure in cells or tubes forming all or part of the enclosure of the usable area and in which the occupants are not within the pressurized area used to support the structure. [5000, 2006]

3.3.240.2* Air-Supported Structure. A structure where shape is maintained by air pressure and in which occupants are within the elevated pressure area. [5000, 2006]

3.3.240.3 Limited Access Structure. A structure or portion of a structure lacking emergency openings. [5000, 2006]

3.3.240.4 Membrane Structure. A building or portion of a building incorporating an air-inflated, air-supported, tensioned-membrane structure; a membrane roof; or a membrane-covered rigid frame to protect habitable or usable space. [5000, 2006]

3.3.240.5 Multilevel Play Structure. A structure that consists of tubes, slides, crawling areas, and jumping areas that is located within a building and is used for climbing and entertainment, generally by children.

3.3.240.6 Open Parking Structure. A parking structure that, at each parking level, has wall openings open to the atmosphere, for an area of not less than 1.4 ft² for each linear foot (0.13 m² for each linear meter) of its exterior perimeter. Such openings are distributed over at least 40 percent of the building perimeter or uniformly over two opposing sides. Interior wall lines and column lines are at least 20 percent open, with openings distributed to provide ventilation. [88A, 2002]

3.3.240.7* Open Structure. A structure that supports equipment and operations not enclosed within building walls. [5000, 2006]

3.3.240.8 Permanent Structure. A building or structure that is intended to remain in place for a period of more than 180 days in any consecutive 12-month period. [5000, 2006]

3.3.240.9 Temporary Structure. A building or structure not meeting the definition of *permanent structure*. (See also 3.3.240.8, *Permanent Structure*.) [5000, 2006]

3.3.240.10 Tensioned-Membrane Structure. A membrane structure incorporating a membrane and a structural support system such as arches, columns and cables, or beams wherein the stresses developed in the tensioned membrane interact with those in the structural support so that the entire assembly acts together to resist the applied loads. [5000, 2006]

3.3.240.11* Underground Structure. A structure or portions of a structure in which the floor level is below the level of exit discharge. [5000, 2006]

3.3.240.12 Water-Surrounded Structure. A structure fully surrounded by water. [5000, 2006]

3.3.241 Suite.

3.3.241.1 Guest Suite. An accommodation with two or more contiguous rooms comprising a compartment, with or without doors between such rooms, that provides living, sleeping, sanitary, and storage facilities.

3.3.241.2 Suite (Health Care Occupancies). A series of rooms or spaces or a subdivided room separated from the remainder of the building by walls and doors.

3.3.241.2.1 Non-Sleeping Suite (Health Care Occupancies). A suite without patient beds intended for overnight sleeping.

3.3.241.2.2 Sleeping Suite (Health Care Occupancies). A suite containing one or more patient beds intended for overnight sleeping.

3.3.242 System.

3.3.242.1 Elevator Evacuation System. A system, including a vertical series of elevator lobbies and associated elevator lobby doors, an elevator shaft(s), and a machine room(s), that provides protection from fire effects for elevator passengers, people waiting to use elevators, and elevator equipment so that elevators can be used safely for egress.

3.3.243 Technically Infeasible. A change to a building that has little likelihood of being accomplished because the existing structural conditions require the removal or alteration of a load-bearing member that is an essential part of the structural frame, or because other existing physical or site constraints prohibit modification or addition of elements, spaces, or features that are in full and strict compliance with applicable requirements.

3.3.244 Temporary Platform. See 3.3.184.1.

3.3.245 Temporary Structure. See 3.3.240.9.

3.3.246 Tensioned-Membrane Structure. See 3.3.240.10.

3.3.247* Tent. A temporary structure, the covering of which is made of pliable material that achieves its support by mechanical means such as beams, columns, poles, or arches, or by rope or cables, or both.

3.3.247.1 Private Party Tent. A tent erected in the yard of a private residence for entertainment, recreation, dining, a reception, or similar function. [5000, 2006]

3.3.248 Thermal Barrier. See 3.3.24.3.

3.3.249 Tower. An enclosed independent structure or portion of a building with elevated levels for support of equipment or occupied for observation, control, operation, signaling, or similar limited use. [5000, 2006]

3.3.250 Two-Family Dwelling Unit. See 3.3.55.3.

3.3.251 Uncertainty Analysis. See 3.3.13.2.

3.3.252 Underground Structure. See 3.3.240.11.

3.3.253 Verification Method. A procedure or process used to demonstrate or confirm that the proposed design meets the specified criteria.

3.3.254* Vertical Opening. An opening through a floor or roof.

3.3.255 Wall.

3.3.255.1 Fire Barrier Wall. A wall, other than a fire wall, that has a fire resistance rating.

3.3.255.2 Proscenium Wall. The wall that separates the stage from the auditorium or house. [5000, 2006]

3.3.256 Water-Surrounded Structure. See 3.3.240.12.

3.3.257 Weathered-Membrane Material. See 3.3.150.4.

3.3.258 Yard. An open, unoccupied space other than a court, unobstructed from the ground to the sky on the lot on which a building is situated.

Chapter 4 General

4.1* Goals.

4.1.1* Fire and Similar Emergency. The goal of this *Code* is to provide an environment for the occupants that is reasonably safe from fire and similar emergencies by the following means:

- (1)*Protection of occupants not intimate with the initial fire development
- (2) Improvement of the survivability of occupants intimate with the initial fire development

4.1.2* Crowd Movement. An additional goal is to provide for reasonably safe emergency crowd movement and, where required, reasonably safe nonemergency crowd movement.

4.2 Objectives.

4.2.1 Occupant Protection. A structure shall be designed, constructed, and maintained to protect occupants who are not intimate with the initial fire development for the time needed to evacuate, relocate, or defend in place.

4.2.2 Structural Integrity. Structural integrity shall be maintained for the time needed to evacuate, relocate, or defend in place occupants who are not intimate with the initial fire development.

4.2.3 Systems Effectiveness. Systems utilized to achieve the goals of Section 4.1 shall be effective in mitigating the hazard or condition for which they are being used, shall be reliable, shall be maintained to the level at which they were designed to operate, and shall remain operational.

4.3* Assumption. The protection methods of this *Code* assume a single fire source.

4.4 Life Safety Compliance Options.

4.4.1 Options. Life safety meeting the goals and objectives of Section 4.1 and Section 4.2 shall be provided in accordance with either of the following:

- (1) Prescriptive-based provisions per 4.4.2
- (2) Performance-based provisions per 4.4.3

4.4.2 Prescriptive-Based Option.

4.4.2.1 A prescriptive-based life safety design shall be in accordance with Chapter 1 through Chapter 4, Chapter 6 through Chapter 11, and the applicable occupancy chapter, Chapter 12 through Chapter 42.

4.4.2.2 Prescriptive-based designs meeting the requirements of Chapter 1 through Chapter 3, Section 4.5 through Section 4.8,

and Chapter 6 through Chapter 43 of this *Code* shall be deemed to satisfy the provisions of Section 4.1 and Section 4.2.

4.4.2.3 Where specific requirements contained in Chapter 11 through Chapter 43 differ from general requirements contained in Chapter 1 through Chapter 4, and Chapter 6 through Chapter 10, the requirements of Chapter 11 through Chapter 43 shall govern.

4.4.3 Performance-Based Option. A performance-based life safety design shall be in accordance with Chapter 1 through Chapter 5.

4.5 Fundamental Requirements.

4.5.1 Multiple Safeguards. The design of every building or structure intended for human occupancy shall be such that reliance for safety to life does not depend solely on any single safeguard. An additional safeguard(s) shall be provided for life safety in case any single safeguard is ineffective due to inappropriate human actions or system failure.

4.5.2 Appropriateness of Safeguards. Every building or structure shall be provided with means of egress and other fire and life safety safeguards of the kinds, numbers, locations, and capacities appropriate to the individual building or structure, with due regard to the following:

- (1) Character of the occupancy, including fire load
- (2) Capabilities of the occupants
- (3) Number of persons exposed
- (4) Fire protection available
- (5) Capabilities of response personnel
- (6) Height and type of construction of the building or structure
- (7) Other factors necessary to provide occupants with a reasonable degree of safety

4.5.3 Means of Egress.

4.5.3.1 Number of Means of Egress. Two means of egress, as a minimum, shall be provided in every building or structure, section, and area where size, occupancy, and arrangement endanger occupants attempting to use a single means of egress that is blocked by fire or smoke. The two means of egress shall be arranged to minimize the possibility that both might be rendered impassable by the same emergency condition.

4.5.3.2 Unobstructed Egress. In every occupied building or structure, means of egress from all parts of the building shall be maintained free and unobstructed. Means of egress shall be accessible to the extent necessary to ensure reasonable safety for occupants having impaired mobility.

4.5.3.3 Awareness of Egress System. Every exit shall be clearly visible, or the route to reach every exit shall be conspicuously indicated. Each means of egress, in its entirety, shall be arranged or marked so that the way to a place of safety is indicated in a clear manner.

4.5.3.4 Lighting. Where artificial illumination is needed in a building or structure, egress facilities shall be included in the lighting design.

4.5.4* Occupant Notification. In every building or structure of such size, arrangement, or occupancy that a fire itself might not provide adequate occupant warning, fire alarm systems shall be provided where necessary to warn occupants of the existence of fire.

4.5.5 Vertical Openings. Every vertical opening between the floors of a building shall be suitably enclosed or protected, as necessary, to afford reasonable safety to occupants while using the means of egress and to prevent the spread of fire, smoke, or fumes through vertical openings from floor to floor before occupants have entered exits.

4.5.6 System Design/Installation. Any fire protection system, building service equipment, feature of protection, or safeguard provided to achieve the goals of this *Code* shall be designed, installed, and approved in accordance with applicable NFPA standards.

4.5.7 Maintenance. Whenever or wherever any device, equipment, system, condition, arrangement, level of protection, or any other feature is required for compliance with the provisions of this *Code*, such device, equipment, system, condition, arrangement, level of protection, or other feature shall thereafter be maintained, unless the *Code* exempts such maintenance.

4.6 General Requirements.

4.6.1 Authority Having Jurisdiction.

4.6.1.1 The authority having jurisdiction shall determine whether the provisions of this *Code* are met.

4.6.1.2 Any requirements that are essential for the safety of building occupants and that are not specifically provided for by this *Code* shall be determined by the authority having jurisdiction.

4.6.1.3 Where it is evident that a reasonable degree of safety is provided, any requirement shall be permitted to be modified if, in the judgment of the authority having jurisdiction, its application would be hazardous under normal occupancy conditions.

4.6.2 Previously Approved Features. Where another provision of this *Code* exempts a previously approved feature from a requirement, the exemption shall be permitted even where the following conditions exist:

- (1) The area is being modernized, renovated, or otherwise altered.
- (2) A change of occupancy has occurred, provided that the feature's continued use is approved by the authority having jurisdiction.

4.6.3 Historic Buildings.

4.6.3.1 Rehabilitation projects in historic buildings shall comply with Chapter 43.

4.6.3.2* The provisions of this *Code* shall be permitted to be modified by the authority having jurisdiction for buildings or structures identified and classified as historic buildings or structures where it is evident that a reasonable degree of safety is provided.

4.6.4* Modification of Requirements for Existing Buildings. Where it is evident that a reasonable degree of safety is provided, the requirements for existing buildings shall be permitted to be modified if their application would be impractical in the judgment of the authority having jurisdiction.

4.6.5 Time Allowed for Compliance. A limited but reasonable time, commensurate with the magnitude of expenditure, disruption of services, and degree of hazard, shall be allowed for compliance with any part of this *Code* for existing buildings.

4.6.6* Referenced Publications. Existing buildings or installations that do not comply with the provisions of the standards referenced in this document (*see Chapter 2*) shall be permitted to

be continued in service, provided that the lack of conformity with these standards does not present a serious hazard to the occupants as determined by the authority having jurisdiction.

4.6.7 Building Rehabilitation.

4.6.7.1 Rehabilitation work on existing buildings shall be classified as one of the following work categories in accordance with 43.2.2.1:

- (1) Repair
- (2) Renovation
- (3) Modification
- (4) Reconstruction
- (5) Change of use or occupancy classification
- (6) Addition

4.6.7.2 Rehabilitation work on existing buildings shall comply with Chapter 43.

4.6.7.3 Except where another provision of this *Code* exempts a previously approved feature from a requirement, the resulting feature shall not be less than that required for existing buildings.

4.6.7.4* Existing life safety features that exceed the requirements for new buildings shall be permitted to be decreased to that required for new buildings.

4.6.7.5* Existing life safety features that do not meet the requirements for new buildings, but that exceed the requirements for existing buildings, shall not be further diminished.

4.6.8 Provisions in Excess of Code Requirements. Nothing in this *Code* shall be construed to prohibit a better type of building construction, an additional means of egress, or an otherwise safer condition than that specified by the minimum requirements of this *Code*.

4.6.9 Conditions for Occupancy.

4.6.9.1 No new construction or existing building shall be occupied in whole or in part in violation of the provisions of this *Code*, unless the following conditions exist:

- (1) A plan of correction has been approved.
- (2) The occupancy classification remains the same.
- (3) No serious life safety hazard exists as judged by the authority having jurisdiction.

4.6.9.2 Where compliance with this *Code* is effected by means of a performance-based design, the owner shall annually certify compliance with the conditions and limitations of the design by submitting a warrant of fitness acceptable to the authority having jurisdiction. The warrant of fitness shall attest that the building features, systems, and use have been inspected and confirmed to remain consistent with design specifications outlined in the documentation required by Section 5.8 and that such features, systems, and use continue to satisfy the goals and objectives specified in Section 4.1 and Section 4.2. (*See Chapter 5.*)

4.6.10 Construction, Repair, and Improvement Operations.

4.6.10.1* Buildings, or portions of buildings, shall be permitted to be occupied during construction, repair, alterations, or additions only where required means of egress and required fire protection features are in place and continuously maintained for the portion occupied or where alternative life safety measures acceptable to the authority having jurisdiction are in place.

4.6.10.2* In buildings under construction, adequate escape facilities shall be maintained at all times for the use of construction workers. Escape facilities shall consist of doors, walk-

ways, stairs, ramps, fire escapes, ladders, or other approved means or devices arranged in accordance with the general principles of the *Code* insofar as they can reasonably be applied to buildings under construction.

4.6.10.3 Flammable or explosive substances or equipment for repairs or alterations shall be permitted in a building while the building is occupied if the condition of use and safeguards provided do not create any additional danger or impediment to egress beyond the normally permissible conditions in the building.

4.6.11 Change of Use or Occupancy Classification. In any building or structure, whether or not a physical alteration is needed, a change from one use or occupancy classification to another shall comply with 4.6.7.

4.6.12 Maintenance, Inspection, and Testing.

4.6.12.1 Whenever or wherever any device, equipment, system, condition, arrangement, level of protection, fire-resistive construction, or any other feature is required for compliance with the provisions of this *Code*, such device, equipment, system, condition, arrangement, level of protection, fire-resistive construction, or other feature shall thereafter be continuously maintained in accordance with applicable NFPA requirements or requirements developed as part of a performance-based design, or as directed by the authority having jurisdiction.

4.6.12.2 No existing life safety feature shall be removed or reduced where such feature is a requirement for new construction.

4.6.12.3* Existing life safety features obvious to the public, if not required by the *Code*, shall be either maintained or removed.

4.6.12.4 Any device, equipment, system, condition, arrangement, level of protection, fire-resistive construction, or any other feature requiring periodic testing, inspection, or operation to ensure its maintenance shall be tested, inspected, or operated as specified elsewhere in this *Code* or as directed by the authority having jurisdiction.

4.6.12.5 Maintenance, inspection, and testing shall be performed under the supervision of a responsible person who shall ensure that testing, inspection, and maintenance are made at specified intervals in accordance with applicable NFPA standards or as directed by the authority having jurisdiction.

4.7* Fire Drills.

4.7.1 Where Required. Emergency egress and relocation drills conforming to the provisions of this *Code* shall be conducted as specified by the provisions of Chapter 11 through Chapter 42, or by appropriate action of the authority having jurisdiction. Drills shall be designed in cooperation with the local authorities.

4.7.2* Drill Frequency. Emergency egress and relocation drills, where required by Chapter 11 through Chapter 42 or the authority having jurisdiction, shall be held with sufficient frequency to familiarize occupants with the drill procedure and to establish conduct of the drill as a matter of routine. Drills shall include suitable procedures to ensure that all persons subject to the drill participate.

4.7.3 Orderly Evacuation. When conducting drills, emphasis shall be placed on orderly evacuation rather than on speed.

4.7.4* Simulated Conditions. Drills shall be held at expected and unexpected times and under varying conditions to simulate the unusual conditions that can occur in an actual emergency.

4.7.5 Relocation Area. Drill participants shall relocate to a predetermined location and remain at such location until a recall or dismissal signal is given.

4.7.6* A written record of each drill shall be completed by the person responsible for conducting the drill and maintained in an approved manner.

4.8 Emergency Plan.

4.8.1 Where Required. Emergency plans shall be provided as follows:

- (1) Where required by the provisions of Chapter 11 through Chapter 42
- (2) Where required by action of the authority having jurisdiction

4.8.2 Plan Requirements.

4.8.2.1 Emergency plans shall include the following:

- (1) Procedures for reporting of emergencies
- (2) Occupant and staff response to emergencies
- (3) Design and conduct of fire drills
- (4) Type and coverage of building fire protection systems
- (5) Other items required by the authority having jurisdiction

4.8.2.2 Required emergency plans shall be submitted to the authority having jurisdiction for review.

4.8.2.3 Emergency plans shall be reviewed and updated as required by the authority having jurisdiction.

Chapter 5 Performance-Based Option

5.1 General Requirements.

5.1.1* Application. The requirements of this chapter shall apply to life safety systems designed to the performance-based option permitted by 4.4.1 and 4.4.3.

5.1.2 Goals and Objectives. The performance-based design shall meet the goals and objectives of this *Code* in accordance with Section 4.1 and Section 4.2.

5.1.3 Qualifications. The performance-based design shall be prepared by a registered design professional.

5.1.4* Independent Review. The authority having jurisdiction shall be permitted to require an approved, independent third party to review the proposed design and provide an evaluation of the design to the authority having jurisdiction.

5.1.5 Sources of Data. Data sources shall be identified and documented for each input data requirement that must be met using a source other than a design fire scenario, an assumption, or a building design specification. The degree of conservatism reflected in such data shall be specified, and a justification for the source shall be provided.

5.1.6* Final Determination. The authority having jurisdiction shall make the final determination as to whether the performance objectives have been met.

5.1.7* Maintenance of Design Features. The design features required for the building to continue to meet the performance goals and objectives of this *Code* shall be maintained for the life of the building. Such performance goals and objectives shall include complying with all documented assumptions and design specifications. Any variations shall require

the approval of the authority having jurisdiction prior to the actual change. (See also 4.6.9.2.)

5.1.8 Special Definitions. A list of special terms used in this chapter follows:

- (1) **Alternative Calculation Procedure.** See 3.3.11.
- (2) **Data Conversion.** See 3.3.44.
- (3) **Design Fire Scenario.** See 3.3.90.1.
- (4) **Design Specification.** See 3.3.231.1.
- (5) **Design Team.** See 3.3.49.
- (6) **Exposure Fire.** See 3.3.75.
- (7) **Fire Model.** See 3.3.86.
- (8) **Fire Scenario.** See 3.3.90.
- (9) **Fuel Load.** See 3.3.144.1.
- (10) **Incapacitation.** See 3.3.128.
- (11) **Input Data Specification.** See 3.3.231.2.
- (12) **Occupant Characteristics.** See 3.3.169.
- (13) **Performance Criteria.** See 3.3.179.
- (14) **Proposed Design.** See 3.3.191.
- (15) **Safe Location.** See 3.3.205.
- (16) **Safety Factor.** See 3.3.206.
- (17) **Safety Margin.** See 3.3.207.
- (18) **Sensitivity Analysis.** See 3.3.13.1.
- (19) **Stakeholder.** See 3.3.235.
- (20) **Uncertainty Analysis.** See 3.3.13.2.
- (21) **Verification Method.** See 3.3.253.

5.2 Performance Criteria.

5.2.1 General. A design shall meet the objectives specified in Section 4.2 if, for each design fire scenario, assumption, and design specification, the performance criterion in 5.2.2 is met.

5.2.2* Performance Criterion. Any occupant who is not intimate with ignition shall not be exposed to instantaneous or cumulative untenable conditions.

5.3 Retained Prescriptive Requirements.

5.3.1* Systems and Features. All fire protection systems and features of the building shall comply with applicable NFPA standards for those systems and features.

5.3.2 Means of Egress. The design shall comply with the following requirements in addition to the performance criteria of Section 5.2 and the methods of Section 5.4 through Section 5.8:

- (1) Changes in level in means of egress — 7.1.7
- (2) Guards — 7.1.8
- (3) Doors — 7.2.1
- (4) Stairs — 7.2.2, excluding the provisions of 7.2.2.5.1, 7.2.2.5.2, 7.2.2.6.2, 7.2.2.6.3 and 7.2.2.6.4
- (5) Ramps — 7.2.5, excluding the provisions of 7.2.5.3.1, 7.2.5.5, and 7.2.5.6.1
- (6) Fire escape ladders — 7.2.9
- (7) Alternating tread devices — 7.2.11
- (8) Capacity of means of egress — Section 7.3, excluding the provisions of 7.3.3 and 7.3.4
- (9) Impediments to egress — 7.5.2
- (10) Illumination of means of egress — Section 7.8
- (11) Emergency lighting — Section 7.9
- (12) Marking of means of egress — Section 7.10

5.3.3 Equivalency. Equivalent designs for the features covered in the retained prescriptive requirements mandated by 5.3.2 shall be addressed in accordance with the equivalency provisions of Section 1.4.

5.4 Design Specifications and Other Conditions.

5.4.1* Clear Statement. Design specifications and other conditions used in the performance-based design shall be clearly stated and shown to be realistic and sustainable.

5.4.2 Assumptions and Design Specifications Data.

5.4.2.1 Each assumption and design specification used in the design shall be accurately translated into input data specifications, as appropriate for the calculation method or model.

5.4.2.2 Any assumption and design specifications that the design analyses do not explicitly address or incorporate and that are, therefore, omitted from input data specifications shall be identified, and a sensitivity analysis of the consequences of that omission shall be performed.

5.4.2.3 Any assumption and design specifications modified in the input data specifications, because of limitations in test methods or other data-generation procedures, shall be identified, and a sensitivity analysis of the consequences of the modification shall be performed.

5.4.3 Building Characteristics. Characteristics of the building or its contents, equipment, or operations that are not inherent in the design specifications, but that affect occupant behavior or the rate of hazard development, shall be explicitly identified.

5.4.4* Operational Status and Effectiveness of Building Features and Systems. The performance of fire protection systems and building features shall reflect the documented performance and reliability of the components of those systems or features, unless design specifications are incorporated to modify the expected performance.

5.4.5 Occupant Characteristics.

5.4.5.1* General. The selection of occupant characteristics to be used in the design calculations shall be approved by the authority having jurisdiction and shall provide an accurate reflection of the expected population of building users. Occupant characteristics shall represent the normal occupant profile, unless design specifications are used to modify the expected occupant features. Occupant characteristics shall not vary across fire scenarios except as authorized by the authority having jurisdiction.

5.4.5.2* Response Characteristics. The basic response characteristics of sensibility, reactivity, mobility, and susceptibility shall be evaluated. Such evaluation shall include the expected distribution of characteristics of a population appropriate to the use of the building. The source of data for these characteristics shall be documented.

5.4.5.3 Location. It shall be assumed that, in every normally occupied room or area, at least one person shall be located at the most remote point from the exits.

5.4.5.4* Number of Occupants. The design shall be based on the maximum number of people that every occupied room or area is expected to contain. Where the success or failure of the design is contingent on the number of occupants not exceeding a specified maximum, operational controls shall be used to ensure that the maximum number of occupants is not exceeded.

5.4.5.5* Staff Assistance. The inclusion of trained employees as part of the fire safety system shall be identified and documented.

5.4.6 Emergency Response Personnel. Design characteristics or other conditions related to the availability, speed of response, effectiveness, roles, and other characteristics of emergency response personnel shall be specified, estimated, or characterized sufficiently for evaluation of the design.

5.4.7* Post-Construction Conditions. Design characteristics or other conditions related to activities during the life of a building that affect the ability of the building to meet the stated goals and objectives shall be specified, estimated, or characterized sufficiently for evaluation of the design.

5.4.8 Off-Site Conditions. Design characteristics or other conditions related to resources or conditions outside the property being designed that affect the ability of the building to meet the stated goals and objectives shall be specified, estimated, or characterized sufficiently for evaluation of the design.

5.4.9* Consistency of Assumptions. The design shall not include mutually inconsistent assumptions, specifications, or statements of conditions.

5.4.10* Special Provisions. Additional provisions that are not covered by the design specifications, conditions, estimations, and assumptions provided in Section 5.4, but that are required for the design to comply with the performance objectives, shall be documented.

5.5* Design Fire Scenarios.

5.5.1 Approval of Parameters. The authority having jurisdiction shall approve the parameters involved in design fire scenarios. The proposed design shall be considered to meet the goals and objectives if it achieves the performance criteria for each required design fire scenario. (See 5.5.3.)

5.5.2* Evaluation. Design fire scenarios shall be evaluated using a method acceptable to the authority having jurisdiction and appropriate for the conditions. Each design fire scenario shall be as challenging as any that could occur in the building, but shall be realistic, with respect to at least one of the following scenario specifications:

- (1) Initial fire location
- (2) Early rate of growth in fire severity
- (3) Smoke generation

5.5.3* Required Design Fire Scenarios. Design fire scenarios shall comply with the following:

- (1) Scenarios selected as design fire scenarios shall include, but shall not be limited to, those specified in 5.5.3.1 through 5.5.3.8.
- (2) Design fire scenarios demonstrated by the design team to the satisfaction of the authority having jurisdiction as inappropriate for the building use and conditions shall not be required to be evaluated fully.

5.5.3.1* Design Fire Scenario 1. Design fire scenario 1 shall be as follows:

- (1) It is an occupancy-specific fire representative of a typical fire for the occupancy.
- (2) It explicitly accounts for the following:
 - (a) Occupant activities
 - (b) Number and location
 - (c) Room size
 - (d) Furnishings and contents
 - (e) Fuel properties and ignition sources

(f) Ventilation conditions

(g) Identification of the first item ignited and its location

5.5.3.2* Design Fire Scenario 2. Design fire scenario 2 shall be as follows:

- (1) It is an ultrafast-developing fire, in the primary means of egress, with interior doors open at the start of the fire.
- (2) It addresses the concern regarding a reduction in the number of available means of egress.

5.5.3.3* Design Fire Scenario 3. Design fire scenario 3 shall be as follows:

- (1) It is a fire that starts in a normally unoccupied room, potentially endangering a large number of occupants in a large room or other area.
- (2) It addresses the concern regarding a fire starting in a normally unoccupied room and migrating into the space that potentially holds the greatest number of occupants in the building.

5.5.3.4* Design Fire Scenario 4. Design fire scenario 4 shall be as follows:

- (1) It is a fire that originates in a concealed wall or ceiling space adjacent to a large occupied room.
- (2) It addresses the concern regarding a fire originating in a concealed space that does not have either a detection system or a suppression system and then spreading into the room within the building that potentially holds the greatest number of occupants.

5.5.3.5* Design Fire Scenario 5. Design fire scenario 5 shall be as follows:

- (1) It is a slowly developing fire, shielded from fire protection systems, in close proximity to a high occupancy area.
- (2) It addresses the concern regarding a relatively small ignition source causing a significant fire.

5.5.3.6* Design Fire Scenario 6. Design fire scenario 6 shall be as follows:

- (1) It is the most severe fire resulting from the largest possible fuel load characteristic of the normal operation of the building.
- (2) It addresses the concern regarding a rapidly developing fire with occupants present.

5.5.3.7* Design Fire Scenario 7. Design fire scenario 7 shall be as follows:

- (1) It is an outside exposure fire.
- (2) It addresses the concern regarding a fire starting at a location remote from the area of concern and either spreading into the area, blocking escape from the area, or developing untenable conditions within the area.

5.5.3.8* Design Fire Scenario 8. Design fire scenario 8 shall be as follows:

- (1) It is a fire originating in ordinary combustibles in a room or area with each passive or active fire protection system independently rendered ineffective.
- (2) It addresses concerns regarding the unreliability or unavailability of each fire protection system or fire protection feature, considered individually.
- (3)*It is not required to be applied to fire protection systems for which both the level of reliability and the design performance in the absence of the system are acceptable to the authority having jurisdiction.

5.5.4 Design Fire Scenarios Data.

5.5.4.1 Each design fire scenario used in the performance-based design proposal shall be translated into input data specifications, as appropriate for the calculation method or model.

5.5.4.2 Any design fire scenario specifications that the design analyses do not explicitly address or incorporate and that are, therefore, omitted from input data specifications shall be identified, and a sensitivity analysis of the consequences of that omission shall be performed.

5.5.4.3 Any design fire scenario specifications modified in input data specifications, because of limitations in test methods or other data-generation procedures, shall be identified, and a sensitivity analysis of the consequences of the modification shall be performed.

5.6* Evaluation of Proposed Designs.

5.6.1 General. A proposed design's performance shall be assessed relative to each performance objective in Section 4.2 and each applicable scenario in 5.5.3, with the assessment conducted through the use of appropriate calculation methods. The authority having jurisdiction shall approve the choice of assessment methods.

5.6.2 Use. The design professional shall use the assessment methods to demonstrate that the proposed design will achieve the goals and objectives, as measured by the performance criteria in light of the safety margins and uncertainty analysis, for each scenario, given the assumptions.

5.6.3 Input Data.

5.6.3.1 Data. Input data for computer fire models shall be obtained in accordance with ASTM E 1591, *Standard Guide for Obtaining Data for Deterministic Fire Models*. Data for use in analytical models that are not computer-based fire models shall be obtained using appropriate measurement, recording, and storage techniques to ensure the applicability of the data to the analytical method being used.

5.6.3.2 Data Requirements. A complete listing of input data requirements for all models, engineering methods, and other calculation or verification methods required or proposed as part of the performance-based design shall be provided.

5.6.3.3* Uncertainty and Conservatism of Data. Uncertainty in input data shall be analyzed and, as determined appropriate by the authority having jurisdiction, addressed through the use of conservative values.

5.6.4* Output Data. The assessment methods used shall accurately and appropriately produce the required output data from input data based on the design specifications, assumptions, and scenarios.

5.6.5 Validity. Evidence shall be provided to confirm that the assessment methods are valid and appropriate for the proposed building, use, and conditions.

5.7* Safety Factors. Approved safety factors shall be included in the design methods and calculations to reflect uncertainty in the assumptions, data, and other factors associated with the performance-based design.

5.8 Documentation Requirements.

5.8.1* General. All aspects of the design, including those described in 5.8.2 through 5.8.14, shall be documented. The format and content of the documentation shall be acceptable to the authority having jurisdiction.

5.8.2* Technical References and Resources. The authority having jurisdiction shall be provided with sufficient documentation to support the validity, accuracy, relevance, and precision of the proposed methods. The engineering standards, calculation methods, and other forms of scientific information provided shall be appropriate for the particular application and methodologies used.

5.8.3 Building Design Specifications. All details of the proposed building design that affect the ability of the building to meet the stated goals and objectives shall be documented.

5.8.4 Performance Criteria. Performance criteria, with sources, shall be documented.

5.8.5 Occupant Characteristics. Assumptions about occupant characteristics shall be documented.

5.8.6 Design Fire Scenarios. Descriptions of design fire scenarios shall be documented.

5.8.7 Input Data. Input data to models and assessment methods, including sensitivity analyses, shall be documented.

5.8.8 Output Data. Output data from models and assessment methods, including sensitivity analyses, shall be documented.

5.8.9 Safety Factors. The safety factors utilized shall be documented.

5.8.10 Prescriptive Requirements. Retained prescriptive requirements shall be documented.

5.8.11* Modeling Features.

5.8.11.1 Assumptions made by the model user, and descriptions of models and methods used, including known limitations, shall be documented.

5.8.11.2 Documentation shall be provided to verify that the assessment methods have been used validly and appropriately to address the design specifications, assumptions, and scenarios.

5.8.12 Evidence of Modeler Capability. The design team's relevant experience with the models, test methods, databases, and other assessment methods used in the performance-based design proposal shall be documented.

5.8.13 Performance Evaluation. The performance evaluation summary shall be documented.

5.8.14 Use of Performance-Based Design Option. Design proposals shall include documentation that provides anyone involved in the ownership or management of the building with notification of the following:

- (1) Approval of the building as a performance-based design with certain specified design criteria and assumptions
- (2) Need for required re-evaluation and reapproval in cases of remodeling, modification, renovation, change in use, or change in established assumptions

Chapter 6 Classification of Occupancy and Hazard of Contents

6.1 Classification of Occupancy.

6.1.1 General.

6.1.1.1 Occupancy Classification. The occupancy of a building or structure, or portion of a building or structure, shall be classified in accordance with 6.1.2 through 6.1.13. Occupancy classification shall be subject to the ruling of the authority

having jurisdiction where there is a question of proper classification in any individual case.

6.1.1.2 Special Structures. Occupancies in special structures shall conform to the requirements of the specific occupancy chapter, Chapter 12 through Chapter 42, except as modified by Chapter 11.

6.1.2 Assembly. For requirements, see Chapter 12 and Chapter 13.

6.1.2.1* Definition — Assembly Occupancy. An occupancy (1) used for a gathering of 50 or more persons for deliberation, worship, entertainment, eating, drinking, amusement, awaiting transportation, or similar uses; or (2) used as a special amusement building, regardless of occupant load.

6.1.2.2 Small Assembly Uses. Occupancy of any room or space for assembly purposes by fewer than 50 persons in another occupancy and incidental to such other occupancy shall be classified as part of the other occupancy and shall be subject to the provisions applicable thereto.

6.1.3 Educational. For requirements, see Chapter 14 and Chapter 15.

6.1.3.1* Definition — Educational Occupancy. An occupancy used for educational purposes through the twelfth grade by six or more persons for 4 or more hours per day or more than 12 hours per week.

6.1.3.2 Other Occupancies. Other occupancies associated with educational institutions shall be in accordance with the appropriate parts of this *Code*.

6.1.3.3 Incidental Instruction. In cases where instruction is incidental to some other occupancy, the section of this *Code* governing such other occupancy shall apply.

6.1.4 Day Care. For requirements, see Chapter 16 and Chapter 17.

6.1.4.1* Definition — Day-Care Occupancy. An occupancy in which four or more clients receive care, maintenance, and supervision, by other than their relatives or legal guardians, for less than 24 hours per day.

6.1.4.2 Other. (Reserved)

6.1.5 Health Care. For requirements, see Chapter 18 and Chapter 19.

6.1.5.1* Definition — Health Care Occupancy. An occupancy used for purposes of medical or other treatment or care of four or more persons where such occupants are mostly incapable of self-preservation due to age, physical or mental disability, or because of security measures not under the occupants' control.

6.1.5.2 Other. (Reserved)

6.1.6 Ambulatory Health Care. For requirements, see Chapter 20 and Chapter 21.

6.1.6.1* Definition — Ambulatory Health Care Occupancy. A building or portion thereof used to provide services or treatment simultaneously to four or more patients that provides, on an outpatient basis, one or more of the following:

- (1) Treatment for patients that renders the patients incapable of taking action for self-preservation under emergency conditions without the assistance of others
- (2) Anesthesia that renders the patients incapable of taking action for self-preservation under emergency conditions without the assistance of others

- (3) Emergency or urgent care for patients who, due to the nature of their injury or illness, are incapable of taking action for self-preservation under emergency conditions without the assistance of others

6.1.6.2 Other. (Reserved)

6.1.7 Detention and Correctional. For requirements, see Chapter 22 and Chapter 23.

6.1.7.1* Definition — Detention and Correctional Occupancy. An occupancy used to house one or more persons under varied degrees of restraint or security where such occupants are mostly incapable of self-preservation because of security measures not under the occupants' control.

6.1.7.2* Nonresidential Uses. Within detention and correctional facilities, uses other than residential housing shall be in accordance with the appropriate chapter of the *Code*. (See 22.1.2.3 and 23.1.2.3.)

6.1.8 Residential. For requirements, see Chapter 24 through Chapter 31.

6.1.8.1 Definition — Residential Occupancy. An occupancy that provides sleeping accommodations for purposes other than health care or detention and correctional.

6.1.8.1.1* Definition — One- and Two-Family Dwelling Unit. A building that contains not more than two dwelling units with independent cooking and bathroom facilities.

6.1.8.1.2 Definition — Lodging or Rooming House. A building or portion thereof that does not qualify as a one- or two-family dwelling, that provides sleeping accommodations for a total of 16 or fewer people on a transient or permanent basis, without personal care services, with or without meals, but without separate cooking facilities for individual occupants.

6.1.8.1.3* Definition — Hotel. A building or groups of buildings under the same management in which there are sleeping accommodations for more than 16 persons and primarily used by transients for lodging with or without meals.

6.1.8.1.4* Definition — Dormitory. A building or a space in a building in which group sleeping accommodations are provided for more than 16 persons who are not members of the same family in one room, or a series of closely associated rooms, under joint occupancy and single management, with or without meals, but without individual cooking facilities.

6.1.8.1.5 Definition — Apartment Building. A building or portion thereof containing three or more dwelling units with independent cooking and bathroom facilities.

6.1.8.2 Other. (Reserved)

6.1.9 Residential Board and Care. For requirements, see Chapter 32 and Chapter 33.

6.1.9.1* Definition — Residential Board and Care Occupancy. A building or portion thereof that is used for lodging and boarding of four or more residents, not related by blood or marriage to the owners or operators, for the purpose of providing personal care services.

6.1.9.2 Other. (Reserved)

6.1.10 Mercantile. For requirements, see Chapter 36 and Chapter 37.

6.1.10.1* Definition — Mercantile Occupancy. An occupancy used for the display and sale of merchandise.

Table 6.1.14.4.1(a) Required Separation of Occupancies (hours) *, Part 1

Occupancy	Assembly ≤ 300	Assembly >300 to ≤1000	Assembly >1000	Educational	Day-Care >12 Clients	Day-Care Homes	Health Care	Ambulatory Health Care	Detention & Correctional	One- & Two-Family Dwellings	Lodging or Rooming Houses	Hotels & Dormitories
Assembly ≤ 300		0	0	2	2	1	2 [†]	2	2 [†]	2	2	2
Assembly >300 to ≤1000			0	2	2	2	2 [†]	2	2 [†]	2	2	2
Assembly >1000				2	2	2	2 [†]	2	2 [†]	2	2	2
Educational					2	2	2 [†]	2	2 [†]	2	2	2
Day-Care >12 Clients						1	2 [†]	2	2 [†]	2	2	2
Day-Care Homes							2 [†]	2	2 [†]	2	2	2
Health Care								2 [†]	2 [†]	2 [†]	2 [†]	2 [†]
Ambulatory Health Care									2 [†]	2	2	2
Detention & Correctional										2 [†]	2 [†]	2 [†]
One- & Two-Family Dwellings											1	1
Lodging or Rooming Houses												1
Hotels and Dormitories												

* The fire resistance rating is permitted to be reduced by 1 hour, but in no case to less than 1 hour, where the building is protected throughout by an approved automatic sprinkler system in accordance with 9.7.1.1(1) and supervised in accordance with 9.7.2.

[†] The 1-hour reduction due to the presence of sprinklers in accordance with the asterisk footnote is not permitted.

6.1.10.2 Other. (Reserved)

6.1.11 Business. For requirements, see Chapter 38 and Chapter 39.

6.1.11.1* Definition — Business Occupancy. An occupancy used for the transaction of business other than mercantile.

6.1.11.2 Other. (Reserved)

6.1.12 Industrial. For requirements, see Chapter 40.

6.1.12.1* Definition — Industrial Occupancy. An occupancy in which products are manufactured or in which processing, assembling, mixing, packaging, finishing, decorating, or repair operations are conducted.

6.1.12.2 Other. (Reserved)

6.1.13 Storage. For requirements, see Chapter 42.

6.1.13.1* Definition — Storage Occupancy. An occupancy used primarily for the storage or sheltering of goods, merchandise, products, vehicles, or animals.

6.1.13.2 Other. (Reserved)

6.1.14 Multiple Occupancies.

6.1.14.1 General.

6.1.14.1.1 Multiple occupancies shall comply with the requirements of 6.1.14.1 and one of the following:

- (1) Mixed occupancies — 6.1.14.3
- (2) Separated occupancies — 6.1.14.4

6.1.14.1.2 Where exit access from an occupancy traverses another occupancy, the multiple occupancy shall be treated as a mixed occupancy.

6.1.14.1.3* Where incidental to another occupancy, areas used as follows shall be permitted to be considered part of the predominant occupancy and shall be subject to the provisions of the *Code* that apply to the predominant occupancy:

- (1) Mercantile, business, industrial, or storage use
- (2)* Nonresidential use with an occupant load fewer than that established by Section 6.1 for the occupancy threshold

6.1.14.2 Definitions.

6.1.14.2.1 Multiple Occupancy. A building or structure in which two or more classes of occupancy exist.

6.1.14.2.2 Mixed Occupancy. A multiple occupancy where the occupancies are intermingled.

6.1.14.2.3 Separated Occupancy. A multiple occupancy where the occupancies are separated by fire resistance-rated assemblies.

6.1.14.3 Mixed Occupancies.

6.1.14.3.1 Each portion of the building shall be classified as to its use in accordance with Section 6.1.

6.1.14.3.2 The means of egress facilities, type of construction, protection, and other safeguards in the building shall comply with the most restrictive fire and life safety requirements of the occupancies involved.

6.1.14.4 Separated Occupancies.

6.1.14.4.1 Where separated occupancies are provided, each part of the building comprising a distinct occupancy, as described in this chapter, shall be completely separated from other occupancies by fire-resistive assemblies as specified in 6.1.14.4.2, 6.1.14.4.3, and Table 6.1.14.4.1(a) and Table 6.1.14.4.1(b), unless separation is provided by approved existing separations.

Table 6.1.14.4.1(b) Required Separation of Occupancies (hours) *, Part 2

Occupancy	Apartment Buildings	Board & Care, Small	Board & Care, Large	Mercantile	Mercantile, Mall	Mercantile, Bulk Retail	Business	Industrial, General Purpose	Industrial, Special Purpose	Industrial, High Hazard	Storage, Low & Ordinary Hazard	Storage, High Hazard
Assembly ≤ 300	2	2	2	2	2	3	1	2	2	3	2	3
Assembly >300 to ≤1000	2	2	2	2	2	3	2	2	2	3	2	3
Assembly >1000	2	2	2	2	2	3	2	3	2	3	3	3
Educational	2	2	2	2	2	3	2	3	3	3	3	3
Dare-Care >12 Clients	2	2	2	2	2	3	2	3	3	3	3	3
Day-Care Homes	2	2	2	2	2	3	2	3	3	3	2	3
Health Care	2 [†]	2 [†]	2 [†]	2 [†]	2 [†]	2 [†]	2 [†]	2 [†]	2 [†]	2 [†]	2 [†]	2 [†]
Ambulatory Health Care	2	2	2	2	2	2 [†]	1	2	2	2 [†]	2	2 [†]
Detention & Correctional	2 [†]	2 [†]	2 [†]	2 [†]	2 [†]	2 [†]	2 [†]	2 [†]	2 [†]	NP	2 [†]	NP
One- & Two- Family Dwellings	1	1	2	2	2	3	2	2	2	3	2	3
Lodging or Rooming Houses	1	2	2	2	2	3	2	2	2	3	2	3
Hotels & Dormitories	1	2	2	2	2	3	2	2	2	3	2	3
Apartment Buildings		2	2	2	2	3	2	2	2	3	2	3
Board & Care, Small			1	2	2	3	2	3	3	3	3	3
Board & Care, Large				2	2	3	2	3	3	3	3	3
Mercantile					0	3	2	2	2	3	2	3
Mercantile, Mall						3	2	3	3	3	2	3
Mercantile, Bulk Retail							2	2	2	3	2	2
Business								2	2	2	2	2
Industrial, General Purpose									1	1	1	1
Industrial, Special Purpose										1	1	1
Industrial, High Hazard											1	1
Storage, Low & Ordinary Hazard												1
Storage, High Hazard												

NP: Not permitted.

* The fire resistance rating is permitted to be reduced by 1 hour, but in no case to less than 1 hour, where the building is protected throughout by an approved automatic sprinkler system in accordance with 9.7.1.1(1) and supervised in accordance with 9.7.2.

† The 1-hour reduction due to the presence of sprinklers in accordance with the asterisk footnote is not permitted.

6.1.14.4.2 Occupancy separations shall be classified as 3-hour fire resistance-rated, 2-hour fire resistance-rated, or 1-hour fire resistance-rated and shall meet the requirements of Chapter 8.

6.1.14.4.3 The fire resistance rating specified in Table 6.1.14.4.1(a) and Table 6.1.14.4.1(b) shall be permitted to be reduced by 1 hour, but in no case shall it be reduced to less than 1 hour, where the building is protected throughout by an

approved automatic sprinkler system in accordance with 9.7.1.1(1) and supervised in accordance with 9.7.2, unless prohibited by the “dagged” entries in the tables.

6.1.14.4.4 Occupancy separations shall be vertical, horizontal, or both or, when necessary, of such other form as required to provide complete separation between occupancy divisions in the building.

6.2 Hazard of Contents.

6.2.1 General.

6.2.1.1 For the purpose of this *Code*, the hazard of contents shall be the relative danger of the start and spread of fire, the danger of smoke or gases generated, and the danger of explosion or other occurrence potentially endangering the lives and safety of the occupants of the building or structure.

6.2.1.2 Hazard of contents shall be classified by the registered design professional (RDP) or owner and submitted to the authority having jurisdiction for review and approval on the basis of the character of the contents and the processes or operations conducted in the building or structure.

6.2.1.3* For the purpose of this *Code*, where different degrees of hazard of contents exist in different parts of a building or structure, the most hazardous shall govern the classification, unless hazardous areas are separated or protected as specified in Section 8.7 and the applicable sections of Chapter 11 through Chapter 42.

6.2.2 Classification of Hazard of Contents.

6.2.2.1* General. The hazard of contents of any building or structure shall be classified as low, ordinary, or high in accordance with 6.2.2.2, 6.2.2.3, and 6.2.2.4.

6.2.2.2* Low Hazard Contents. Low hazard contents shall be classified as those of such low combustibility that no self-propagating fire therein can occur.

6.2.2.3* Ordinary Hazard Contents. Ordinary hazard contents shall be classified as those that are likely to burn with moderate rapidity or to give off a considerable volume of smoke.

6.2.2.4* High Hazard Contents. High hazard contents shall be classified as those that are likely to burn with extreme rapidity or from which explosions are likely. (*For means of egress requirements, see Section 7.11.*)

Chapter 7 Means of Egress

7.1 General.

7.1.1* Application. Means of egress for both new and existing buildings shall comply with this chapter. (*See also 4.5.3.*)

7.1.2 Special Definitions. A list of special terms used in this chapter follows:

- (1) **Accessible Area of Refuge.** See 3.3.18.1.
- (2) **Accessible Means of Egress.** See 3.3.151.1.
- (3) **Area of Refuge.** See 3.3.18.
- (4) **Common Path of Travel.** See 3.3.38.
- (5) **Electroluminescent.** See 3.3.57.
- (6) **Elevator Evacuation System.** See 3.3.242.1.
- (7) **Elevator Lobby.** See 3.3.59.
- (8) **Elevator Lobby Door.** See 3.3.52.1.
- (9) **Exit.** See 3.3.70.
- (10) **Exit Access.** See 3.3.71.
- (11) **Exit Discharge.** See 3.3.72.
- (12) **Externally Illuminated.** See 3.3.126.1.
- (13) **Horizontal Exit.** See 3.3.70.1.
- (14) **Internally Illuminated.** See 3.3.126.2.
- (15) **Means of Egress.** See 3.3.151.
- (16) **Photoluminescent.** See 3.3.182.
- (17) **Ramp.** See 3.3.194.

(18) **Self-Luminous.** See 3.3.211.

(19) **Severe Mobility Impairment.** See 3.3.216.

(20) **Smokeproof Enclosure.** See 3.3.226.

7.1.3 Separation of Means of Egress. See also Section 8.2.

7.1.3.1 Exit Access Corridors. Corridors used as exit access and serving an area having an occupant load exceeding 30 shall be separated from other parts of the building by walls having not less than a 1-hour fire resistance rating in accordance with Section 8.3, unless otherwise permitted by the following:

- (1) This requirement shall not apply to existing buildings, provided that the occupancy classification does not change.
- (2) This requirement shall not apply where otherwise provided in Chapter 12 through Chapter 42.

7.1.3.2 Exits.

7.1.3.2.1 Where this *Code* requires an exit to be separated from other parts of the building, the separating construction shall meet the requirements of Section 8.2 and the following:

- (1)*The separation shall have not less than a 1-hour fire resistance rating where the exit connects three stories or less.
- (2)*The separation shall have not less than a 2-hour fire resistance rating where the exit connects four or more stories, unless one of the following conditions exists:
 - (a) In existing non-high-rise buildings, existing exit stair enclosures shall have not less than a 1-hour fire resistance rating.
 - (b) In existing buildings protected throughout by an approved, supervised automatic sprinkler system in accordance with Section 9.7, existing exit stair enclosures shall have not less than a 1-hour fire resistance rating.
 - (c) One-hour enclosures in accordance with 28.2.2.1.2, 29.2.2.1.2, 30.2.2.1.2, and 31.2.2.1.2 shall be permitted as an alternative to the requirement of 7.1.3.2.1(2).
- (3) The 2-hour fire resistance-rated separation required by 7.1.3.2.1(2) shall be constructed of an assembly of non-combustible or limited-combustible materials and shall be supported by construction having not less than a 2-hour fire resistance rating. In Type III, Type IV, and Type V construction, fire-retardant-treated wood enclosed in noncombustible or limited-combustible materials shall be permitted.
- (4) Openings in the separation shall be protected by fire door assemblies equipped with door closers complying with 7.2.1.8.
- (5)*Openings in exit enclosures shall be limited to doors from normally occupied spaces and corridors and doors for egress from the enclosure, unless one of the following conditions exists:
 - (a) Openings in exit passageways in mall buildings as provided in Chapter 36 and Chapter 37 shall be permitted.
 - (b) In buildings of Type I or Type II construction, existing fire protection-rated doors to interstitial spaces shall be permitted, provided that such spaces meet all of the following criteria:
 - i. The space is used solely for distribution of pipes, ducts, and conduits.
 - ii. The space contains no storage.
 - iii. The space is separated from the exit enclosure in accordance with Section 8.3.
 - (c) Existing openings to mechanical equipment spaces protected by approved existing fire protection-rated doors shall be permitted, provided that the following criteria are met:

- i. The space is used solely for non-fuel-fired mechanical equipment.
 - ii. The space contains no storage of combustible materials.
 - iii. The building is protected throughout by an approved, supervised automatic sprinkler system in accordance with Section 9.7.
- (6) Penetrations into, and openings through, an exit enclosure assembly shall be limited to the following:
- (a) Doors permitted by 7.1.3.2.1(5)
 - (b)*Electrical conduit serving the stairway
 - (c) Required exit doors
 - (d) Ductwork and equipment necessary for independent stair pressurization
 - (e) Water or steam piping necessary for the heating or cooling of the exit enclosure
 - (f) Sprinkler piping
 - (g) Standpipes
 - (h) Existing penetrations protected in accordance with 8.3.5
 - (i) Penetrations for fire alarm circuits, where the circuits are installed in metal conduit and the penetrations are protected in accordance with 8.3.5
- (7) Penetrations or communicating openings shall be prohibited between adjacent exit enclosures.

7.1.3.2.2 An exit enclosure shall provide a continuous protected path of travel to an exit discharge.

7.1.3.2.3* An exit enclosure shall not be used for any purpose that has the potential to interfere with its use as an exit and, if so designated, as an area of refuge. (*See also 7.2.2.5.3.*)

7.1.4 Interior Finish in Exit Enclosures.

7.1.4.1* Interior Wall and Ceiling Finish in Exit Enclosures. Interior wall and ceiling finish shall be in accordance with Section 10.2. In exit enclosures, interior wall and ceiling finish materials complying with Section 10.2 shall be Class A or Class B.

7.1.4.2* Interior Floor Finish in Exit Enclosures. New interior floor finish in exit enclosures, including stair treads and risers, shall be not less than Class II in accordance with Section 10.2.

7.1.5* Headroom.

7.1.5.1 Means of egress shall be designed and maintained to provide headroom in accordance with other sections of this *Code*, and such headroom shall be not less than 7 ft 6 in. (2285 mm), with projections from the ceiling not less than 6 ft 8 in. (2030 mm) nominal above the finished floor, unless otherwise specified in 7.1.5.1.1 and 7.1.5.1.2.

7.1.5.1.1 In existing buildings, the ceiling height shall be not less than 7 ft (2135 mm) from the floor, with projections from the ceiling not less than 6 ft 8 in. (2030 mm) nominal above the floor.

7.1.5.1.2 Headroom in industrial equipment access areas as provided in 40.2.5.2 shall be permitted.

7.1.5.2 The minimum ceiling height shall be maintained for not less than two-thirds of the ceiling area of any room or space, provided that the ceiling height of remaining ceiling area is not less than 6 ft 8 in. (2030 mm).

7.1.5.3 Headroom on stairs shall be not less than 6 ft 8 in. (2030 mm) and shall be measured vertically above a plane parallel to and tangent with the most forward projection of the stair tread.

7.1.6 Walking Surfaces in the Means of Egress.

7.1.6.1 General.

7.1.6.1.1 Walking surfaces in the means of egress shall comply with 7.1.6.2 through 7.1.6.4.

7.1.6.1.2 Approved, existing walking surfaces shall be permitted.

7.1.6.2 Changes in Elevation. Abrupt changes in elevation of walking surfaces shall not exceed $\frac{1}{4}$ in. (6.3 mm). Changes in elevation exceeding $\frac{1}{4}$ in. (6.3 mm), but not exceeding $\frac{1}{2}$ in. (13 mm), shall be beveled 1 to 2. Changes in elevation exceeding $\frac{1}{2}$ in. (13 mm) shall be considered a change in level and shall be subject to the requirements of 7.1.7.

7.1.6.3 Level.

7.1.6.3.1 Walking surfaces shall comply with the following:

- (1) Walking surfaces shall be nominally level.
- (2) The slope of a walking surface in the direction of travel shall not exceed 1 in 20, unless the ramp requirements of 7.2.5 are met.
- (3) The slope perpendicular to the direction of travel shall not exceed 1 in 48.

7.1.6.4* Slip Resistance. Walking surfaces shall be slip resistant under foreseeable conditions. The walking surface of each element in the means of egress shall be uniformly slip resistant along the natural path of travel.

7.1.7 Changes in Level in Means of Egress.

7.1.7.1 Changes in level in means of egress shall be achieved by an approved means of egress where the elevation difference exceeds 21 in. (535 mm).

7.1.7.2* Changes in level in means of egress not in excess of 21 in. (535 mm) shall be achieved either by a ramp complying with the requirements of 7.2.5 or by a stair complying with the requirements of 7.2.2.

7.1.7.2.1 Where a ramp is used, the presence and location of ramped portions of walkways shall be readily apparent.

7.1.7.2.2 Where a stair is used, the tread depth of such stair shall be not less than 13 in. (330 mm).

7.1.7.2.3 Tread depth in industrial equipment access areas as provided in 40.2.5.2 shall be permitted.

7.1.7.2.4 The presence and location of each step shall be readily apparent.

7.1.8* Guards. Guards in accordance with 7.2.2.4 shall be provided at the open sides of means of egress that exceed 30 in. (760 mm) above the floor or grade below.

7.1.9 Impediments to Egress. Any device or alarm installed to restrict the improper use of a means of egress shall be designed and installed so that it cannot, even in case of failure, impede or prevent emergency use of such means of egress, unless otherwise provided in 7.2.1.6 and Chapters 18, 19, 22, and 23.

7.1.10 Means of Egress Reliability.

7.1.10.1* General. Means of egress shall be continuously maintained free of all obstructions or impediments to full instant use in the case of fire or other emergency.

7.1.10.2 Furnishings and Decorations in Means of Egress.

7.1.10.2.1 No furnishings, decorations, or other objects shall obstruct exits, access thereto, egress therefrom, or visibility thereof.

7.1.10.2.2 No obstruction by railings, barriers, or gates shall divide the means of egress into sections appurtenant

to individual rooms, apartments, or other occupied spaces. Where the authority having jurisdiction finds the required path of travel to be obstructed by furniture or other movable objects, the authority shall be permitted to require that such objects be secured out of the way or shall be permitted to require that railings or other permanent barriers be installed to protect the path of travel against encroachment.

7.1.10.2.3 Mirrors shall not be placed on exit doors. Mirrors shall not be placed in or adjacent to any exit in such a manner as to confuse the direction of egress.

7.1.11 Sprinkler System Installation. Where another provision of this chapter requires an automatic sprinkler system, the sprinkler system shall be installed in accordance with the subparts of 9.7.1.1 permitted by the applicable occupancy chapters.

7.2 Means of Egress Components.

7.2.1 Doors.

7.2.1.1 General.

7.2.1.1.1 A door assembly in a means of egress shall conform to the general requirements of Section 7.1 and to the special requirements of 7.2.1. Such an assembly shall be designated as a door.

7.2.1.1.2 Every door and every principal entrance that is required to serve as an exit shall be designed and constructed so that the path of egress travel is obvious and direct. Windows that, because of their physical configuration or design and the materials used in their construction, have the potential to be mistaken for doors shall be made inaccessible to the occupants by barriers or railings.

7.2.1.1.3* For the purposes of Section 7.2, a building shall be considered to be occupied at any time it is open for general occupancy, at any time it is open to the public, or at any other time it is occupied by more than 10 persons.

7.2.1.2 Width.

7.2.1.2.1* Egress Capacity Width. For purposes of calculating capacity, the width of doors shall be measured as follows:

- (1) For new swinging doors, only the width of the doorway when the door is open 90 degrees, as measured in accordance with 7.2.1.2.1(4) and 7.2.1.2.1(5), shall be included.
- (2) For other types of new doors, only the width of the doorway when the door is in the fully open position, as measured in accordance with 7.2.1.2.1(4) and 7.2.1.2.1(5), shall be included.
- (3) For any existing door installation, only the width of the doorway when the door is in the fully open position, as measured in accordance with 7.2.1.2.1(4) and 7.2.1.2.1(5), shall be included.
- (4) For all doors, projections not more than 3½ in. (90 mm) at each side of the doorway at a height of not more than 38 in. (965 mm) shall not be considered a reduction in egress capacity width.
- (5) For swinging doors, egress capacity width shall be measured between the face of the door and the stop.

7.2.1.2.2 Clear Width. Clear width shall be measured as follows:

- (1) At the narrowest point in the door opening
- (2) For swinging doors, between the face of the door and the stop
- (3) Without subtracting for the obstructions permitted by 7.2.1.2.3.2 and 7.2.1.2.3.3

7.2.1.2.3* Measurement.

7.2.1.2.3.1 For purposes of determining minimum door width, the clear width shall be used unless door leaf width is specified.

7.2.1.2.3.2 For swinging doors, projections of not more than 4 in. (100 mm) into the doorway width on the hinge side shall not be considered reductions in width, provided that such projections are for purposes of accommodating panic hardware or fire exit hardware and are located not less than 34 in. (865 mm) above the floor.

7.2.1.2.3.3 Projections exceeding 6 ft 8 in. (2030 mm) above the floor shall not be considered reductions in width.

7.2.1.2.4 Minimum Door Width. Door openings in means of egress shall be not less than 32 in. (810 mm) in clear width, unless one of the following conditions exists:

- (1) Where a pair of doors is provided, not less than one of the doors shall provide not less than a 32-in. (810-mm) clear width opening.
- (2) Exit access doors serving a room not exceeding 70 ft² (6.5 m²) and not required to be accessible to persons with severe mobility impairments shall be not less than 24 in. (610 mm) in door leaf width.
- (3) Doors serving a building or portion thereof not required to be accessible to persons with severe mobility impairments shall be permitted to be 28 in. (710 mm) in door leaf width.
- (4) In existing buildings, the existing door leaf width shall be not less than 28 in. (710 mm).
- (5) Doors in detention and correctional occupancies as otherwise provided in Chapter 22 and Chapter 23 shall not be required to comply with 7.2.1.2.4.
- (6) Interior doors in dwelling units as otherwise provided in Chapter 24 shall not be required to comply with 7.2.1.2.4.
- (7) A power-operated door leaf located within a two-leaf opening shall be exempt from the minimum 32-in. (810-mm) single-leaf requirement in accordance with 7.2.1.9.1.5.
- (8) Revolving doors as provided in 7.2.1.10 shall be exempt from the minimum 32-in. (810-mm) width requirement.
- (9)*Where a single door is provided for discharge from a stairway required to comply with 7.2.2.2.1.2(B) and such door serves as the sole means of exit discharge from such stairway, the clear width of the door opening, measured in accordance with 7.2.1.2.2, shall be not less than two-thirds the nominal width of the stairway.

7.2.1.3 Floor Level.

7.2.1.3.1 The elevation of the floor surfaces on both sides of a door shall not vary by more than ½ in. (13 mm), unless otherwise permitted by 7.2.1.3.5 or 7.2.1.3.6.

7.2.1.3.2 The elevation of the floor surfaces required by 7.2.1.3.1 shall be maintained on both sides of the doorway for a distance not less than the width of the widest leaf.

7.2.1.3.3 Thresholds at doorways shall not exceed ½ in. (13 mm) in height.

7.2.1.3.4 Raised thresholds and floor level changes in excess of ¼ in. (6.3 mm) at doorways shall be beveled with a slope not steeper than 1 in 2.

7.2.1.3.5 In existing buildings, where the door discharges to the outside or to an exterior balcony or exterior exit access, the floor level outside the door shall be permitted to be one

step lower than that of the inside, but shall be not more than 8 in. (205 mm) lower.

7.2.1.3.6 In existing buildings, a door at the top of a stair shall be permitted to open directly at a stair, provided that the door does not swing over the stair and that the door serves an area with an occupant load of fewer than 50 persons.

7.2.1.4 Swing and Force to Open.

7.2.1.4.1* Any door in a means of egress shall be of the side-hinged or pivoted-swinging type, and shall be installed to be capable of swinging from any position to the full required width of the opening in which it is installed, unless otherwise specified in 7.2.1.4.1.1 through 7.2.1.4.1.9.

7.2.1.4.1.1 Sliding doors in detention and correctional occupancies, as provided in Chapter 22 and Chapter 23, shall be permitted.

7.2.1.4.1.2 Doors in dwelling units, as provided in Chapter 24, shall be permitted.

7.2.1.4.1.3 Doors in residential board and care occupancies, as provided in Chapter 32 and Chapter 33, shall be permitted.

7.2.1.4.1.4 Where permitted in Chapter 12 through Chapter 42, horizontal-sliding or vertical-rolling security grilles or doors that are part of the required means of egress shall be permitted, provided that they meet the following criteria:

- (1) Such grilles or doors shall remain secured in the fully open position during the period of occupancy by the general public.
- (2) On or adjacent to the grille or door, there shall be a readily visible, durable sign in letters not less than 1 in. (25 mm) high on a contrasting background that reads as follows: **THIS DOOR TO REMAIN OPEN WHEN THE BUILDING IS OCCUPIED.**
- (3) Doors or grilles shall not be brought to the closed position when the space is occupied.
- (4) Doors or grilles shall be operable from within the space without the use of any special knowledge or effort.
- (5) Where two or more means of egress are required, not more than half of the means of egress shall be equipped with horizontal-sliding or vertical-rolling grilles or doors.

7.2.1.4.1.5 Horizontal-sliding doors complying with 7.2.1.14 shall be permitted.

7.2.1.4.1.6 Horizontal-sliding doors serving a room or area with an occupant load of fewer than 10 in health care occupancies shall be exempt from the requirements of 7.2.1.4.1 as provided in Chapter 18 or Chapter 19.

7.2.1.4.1.7 Where private garages, business areas, industrial areas, and storage areas with an occupant load not exceeding 10 contain only low or ordinary hazard contents, doors to such areas shall be exempt from the requirement of 7.2.1.4.1.

7.2.1.4.1.8 Revolving doors complying with 7.2.1.10 shall be permitted.

7.2.1.4.1.9 Existing fusible link-operated horizontal-sliding or vertical-rolling fire doors shall be permitted to be used as provided in Chapter 12 through Chapter 42.

7.2.1.4.2 Doors required to be of the side-hinged or pivoted-swinging type shall swing in the direction of egress travel where serving a room or area with an occupant load of 50 or more, except under the following conditions:

- (1) Doors in horizontal exits shall not be required to swing in the direction of egress travel where permitted by 7.2.4.3.7.1 or 7.2.4.3.7.2.
- (2) Smoke barrier doors shall not be required to swing in the direction of egress travel in existing health care occupancies as provided in Chapter 19.

7.2.1.4.3 A door shall swing in the direction of egress travel under either of the following conditions:

- (1) Where the door is used in an exit enclosure, unless the door is the door of an individual living unit that opens directly into an exit enclosure
- (2) Where the door serves a high hazard contents area

7.2.1.4.4* During its swing, any door in a means of egress shall leave not less than one-half of the required width of an aisle, a corridor, a passageway, or a landing unobstructed and shall project not more than 7 in. (180 mm) into the required width of an aisle, a corridor, a passageway, or a landing, when fully open, unless both of the following conditions are met:

- (1) The door provides access to a stair in an existing building.
- (2) The door meets the requirement that limits projection to not more than 7 in. (180 mm) into the required width of the stair landing when the door is fully open.

7.2.1.4.5 The forces required to fully open any door manually in a means of egress shall not exceed 15 lbf (67 N) to release the latch, 30 lbf (133 N) to set the door in motion, and 15 lbf (67 N) to open the door to the minimum required width, unless otherwise specified in 7.2.1.4.5.2 through 7.2.1.4.5.5.

7.2.1.4.5.1 The forces specified in 7.2.1.4.5 shall be applied to the latch stile.

7.2.1.4.5.2 Opening forces for interior side-hinged or pivoted-swinging doors without closers shall not exceed 5 lbf (22 N).

7.2.1.4.5.3 The opening force for existing doors in existing buildings shall not exceed 50 lbf (222 N) applied to the latch stile.

7.2.1.4.5.4 The opening forces for horizontal-sliding doors in detention and correctional occupancies shall be as provided in Chapter 22 and Chapter 23.

7.2.1.4.5.5 The opening forces for power-operated doors shall be as provided in 7.2.1.9.

7.2.1.4.6 Screen doors and storm doors used in a means of egress shall be subject to the requirements for direction of swing that are applicable to other doors used in a means of egress.

7.2.1.5 Locks, Latches, and Alarm Devices.

7.2.1.5.1 Doors shall be arranged to be opened readily from the egress side whenever the building is occupied.

7.2.1.5.2 Locks, if provided, shall not require the use of a key, a tool, or special knowledge or effort for operation from the egress side.

7.2.1.5.3 The requirements of 7.2.1.5.1 and 7.2.1.5.2 shall not apply where otherwise provided in Chapter 18 through Chapter 23.

7.2.1.5.4 Exterior doors shall be permitted to have key-operated locks from the egress side, provided that the following criteria are met:

- (1) This alternative is permitted in Chapter 12 through Chapter 42 for the specific occupancy.