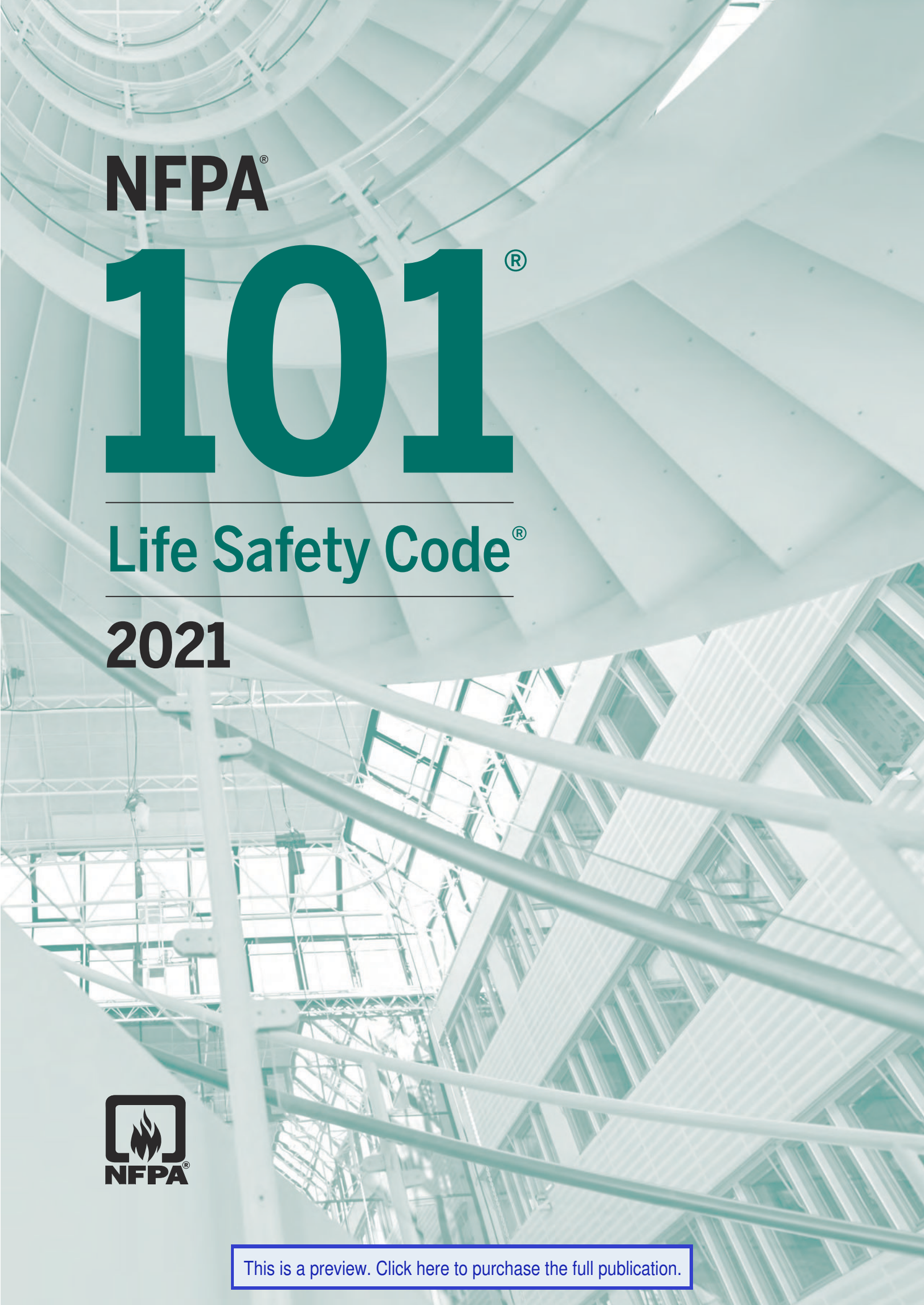

NFPA® 101®

Life Safety Code®

2021

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NFPA 101®

Life Safety Code®

2021 Edition

This edition of NFPA *101*®, *Life Safety Code*®, was prepared by the Technical Committees on Assembly Occupancies; Board and Care Facilities; Building Service and Fire Protection Equipment; Detention and Correctional Occupancies; Educational and Day-Care Occupancies; Fire Protection Features; Fundamentals; Health Care Occupancies; Industrial, Storage, and Miscellaneous Occupancies; Interior Finish and Contents; Means of Egress; Mercantile and Business Occupancies; and Residential Occupancies; released by the Correlating Committee on Safety to Life; and acted on by the NFPA membership during the 2020 NFPA Technical Meeting held June 8–29. It was issued by the Standards Council on August 11, 2020, with an effective date of August 31, 2020, and supersedes all previous editions.

This edition of NFPA *101* was approved as an American National Standard on August 31, 2020.

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 Nightclub 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 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 into 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 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 3-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 Appendix F and Appendix G, a new Appendix D on alternative calculations for stair width, and Appendix E, a fire safety evaluation system (FSES) 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. Appendix C through Appendix 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 Chapters 10 and 11 for new and existing educational occupancies to new Chapters 30 and 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 into Chapter 3, and each defined term was numbered; (4) the paragraph numbering style that separated the chapter number from the section number using a hyphen was changed to the use of 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 chapters, formerly Chapters 8 through 32, became Chapters 12 through 42, with some repositioning of chapters. For example, the daycare occupancies chapters were renumbered from Chapters 30/31 to Chapters 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 repositioned the inch-pound (US 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.

The 2009 edition added provisions to Chapter 7 for electrically controlled egress doors, horizontal-sliding doors serving an area with an occupant load of fewer than 10, elevator lobby access door locking, and door inspection and maintenance. The remoteness criteria of Chapter 7 were expanded to have applicability to all three portions of the means of egress — exit access, exit, and exit discharge. Extensive revisions were made throughout the *Code* to standardize the use of the terms *stories in height, finished ground level, grade plane, basement, and level of exit discharge*. Section 9.6 and the applicable occupancy chapters were

revised to limit the use of public address systems for occupant alarm notification to large venue assembly occupancies and mercantile mall buildings, where the physical configuration, function, and human behavior present challenges with respect to effective occupant notification by standard means in accordance with *NFPA 72®*, *National Fire Alarm Code®*. A subsection was added to Chapter 11 for special provisions applicable to air traffic control towers. The criteria for assembly stage proscenium opening fire curtains were deleted from Chapter 12 and replaced by a reference to the new fire curtain provisions of NFPA 80, *Standard for Fire Doors and Other Opening Protectives*. Provisions were added to Chapters 14 through 17 for the placement and use of alcohol-based hand-rub dispensers in educational and day-care occupancies. The provisions of Chapters 18 and 19 were expanded to address door locking where the needs of patients or clients require specialized protective measures for their safety and security in hospitals, nursing homes, and limited care facilities. Also, a limitation on common path of travel was added to Chapter 18 for new health care occupancies; the requirement for patient sleeping room windows was deleted for new and existing health care occupancies; and all existing high-rise health care occupancy buildings must be sprinklered within 12 years of the adoption of this edition of the *Code*. Numerous occupancy chapters were revised to require emergency plans in accordance with Section 4.8. Chapter 43 on building rehabilitation was revised to address issues not identified when the chapter was written for the 2003 edition and to delete redundancies. An adoptable annex was added for elevators for occupant evacuation prior to Phase I Emergency Recall Operations. Another adoptable annex was added for supplemental escape devices and systems.

The 2012 edition expanded what had been the definitions of *noncombustible material* and *limited-combustible material* and moved the material to new subsections in Chapter 4. The material addressing elevators for occupant controlled evacuation, which had comprised Annex B, was moved to Chapter 7. A new section was added to Chapter 7 to address normally unoccupied building service equipment support areas. The Chapter 8 table addressing minimum fire protection ratings for opening protectives was expanded. Provisions for carbon monoxide detection were added to Chapter 9. Requirements for carbon monoxide detection were added to some of the occupancy chapters. The health care occupancies provisions were modified to permit the health care setting to be made more homelike.

The 2015 edition included new provisions in Chapter 4 detailing the code requirements hierarchy to be applied where a provision in one chapter conflicts with a provision in another chapter. Means of egress provisions were revised or added relative to rooms opening directly onto an exit enclosure, door opening threshold height for spaces not normally occupied, door encroachment on egress width, existing door frames without labels, security access turnstiles, handrail orientation on flaring-width stairs, horizontal exit stacking, horizontal exit exterior wall extensions, elevators in towers, occupant evacuation elevators, and occupant load factors for ambulatory health care and concentrated business use. Atrium walls are permitted to serve as part of the separation for creating separated occupancies on a story-by-story basis. The provisions for the inspection of door assemblies were revised so that fire-rated doors are addressed in Chapter 8 and non-rated egress doors in Chapter 7. The Chapter 8 table addressing minimum fire protection rating for opening protectives was again expanded. Provisions for alcohol-based hand-rub dispensers were added to Chapter 8 so they can be referenced by the occupancy chapters. The high-rise building provisions of Chapter 11 were expanded to include remote video monitoring of exit stair enclosures. The assembly occupancy life safety evaluation provisions were expanded. The day care and residential board and care occupancy provisions were revised to permit more than one floor level to be considered the level of exit discharge. The health care occupancy provisions were further revised to permit facilities to be made more home-like, including a reduction in nursing home minimum corridor width and the clarification of permitted smoke alarm placement for kitchens that are open to the corridor. Health care occupancy doors subject to locking are permitted to be disguised with murals. Smoke barriers are permitted to be omitted on a non–health care floor below a health care floor. The ambulatory health care occupancy chapters were rewritten to be self-contained, removing the need to reference the business occupancy chapters.

The 2018 edition expanded the *Code's* scope to include hazardous materials emergencies, injuries from falls, and emergency communications. In Chapter 4, a reference was added to NFPA 241 for construction, alteration, and demolition operations, and new requirements for fire-retardant-treated wood. In Chapter 7, the terms *electrically controlled egress door assemblies, delayed-egress locking systems,* and *access-controlled egress door assemblies* were revised to *door hardware release of electrically locked egress door assemblies, delayed-egress electrical locking systems,* and *sensor-release of electrical locking systems*, respectively. New Chapter 7 criteria was added that permits occupant load to be reduced to available egress capacity as was previously permitted only for building rehabilitation. In Chapter 8, wall marking and identification provisions for fire barriers, smoke barriers, and smoke partitions were added. Opening protective requirements were substantially revised and reorganized. A reference to NFPA 4 was added to Chapter 9 for integrated fire protection and life safety system testing and new provisions for risk analyses for mass notification systems. In Chapter 10, the interior finish requirements for expanded vinyl wall coverings and textile wall and ceiling coverings were revised, and new provisions for laminated products and facings or wood veneers were added. In Chapter 11, the provisions for airport traffic control towers were revised, and the emergency lighting and standby power requirements for high-rise buildings were reorganized. Animal housing facilities were added as special structures. Carbon-monoxide detection requirements for new assembly occupancies were added to Chapter 12. In Chapters 14–17, 38, and 39, criteria for door locking to prevent unwanted entry in educational, day-care, and business occupancies were added. The sprinkler requirement threshold for new educational occupancies in Chapter 14 was revised. Health care corridor projection allowances in Chapters 18 and 19 were modified to correlate with accessibility standards and to permit the installation of emergency stair travel devices and self-retracting seats. New provisions were added to permit health care and ambulatory health care smoke compartments up to 40,000 ft^2 (3720 m^2) in area. In Chapters 20 and 21, door locking provisions for patient special needs in ambulatory health care occupancies were revised. In Chapter 24, criteria for bathtub and shower grab bars were added and then

referenced by numerous occupancy chapters. Attic protection requirements were added to Chapters 28 and 30 for certain new hotels and dormitories and apartment buildings. In Chapter 32, carbon-monoxide detection requirements for new residential board and care occupancies were added. Mall terminology was revised in Chapters 36 and 37, and new provisions were added to differentiate between open and enclosed mall concourses. In Chapters 38 and 39, a reference to NFPA 99 for medical gases in business occupancies was added. A new Annex C was added to provide guidance on several NFPA hazardous materials standards.

Selected key revisions in the 2021 edition include: allowance for a second door lock/latch releasing motion on existing educational and day care occupancy classroom doors to accommodate lockdown events; mandatory sprinklers in new day care occupancies with more than 12 clients; modified sprinkler requirements for existing high-rise buildings containing ambulatory health care, business, industrial, or apartment building occupancies; modified construction limits for existing nursing homes; clarification that non-required fire doors are not subject to the inspection requirements of NFPA 80; provisions for temporary barriers to separate areas under construction in health care and ambulatory health care occupancies; updated criteria for special amusement buildings; mandatory sprinkler requirement for new bars and restaurants with an occupant load of 50 or more; minimum requirement for fire department two-way communication signal strength in all new buildings; carbon monoxide detection requirement for existing hotels and dormitories; low-frequency fire alarm notification signals in new hotel, dormitory, and apartment building sleeping rooms per NFPA 72; and provisions for burglar bars/grates on means of escape windows in residential occupancies.

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 the NFPA Division of Continuing Education.

Essentially, the *Code* comprises four major parts. The first part consists of Chapters 1 through 4, Chapters 6 through 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 Chapters 12 through 42, which are the occupancy chapters. The fourth and last part consists of Annex A through Annex D, which contain useful additional information.

A thorough understanding of Chapters 1 through 4, Chapters 6 through 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 Chapters 1 through 4 and Chapters 6 through 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 phrase "where permitted by Chapters 11 through 43" appears. In this case, that provision can be used only where specifically permitted by an occupancy chapter. For example, the provisions of 7.2.1.6.1 on delayed-egress electrical locking systems are permitted only when permitted by Chapters 11 through 43. Permission to use delayed-egress electrical locking systems is normally found in the "____.2.2" subsection of each occupancy chapter. For example, 12.2.2.2.5 specifically permits the use of delayed-egress electrical locking systems in new assembly occupancies. If this permission is not found in an occupancy chapter, delayed-egress electrical locking systems 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 wording "unless prohibited by Chapters 11 through 43" is used. In this case, the provision is permitted 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 nonemergency and emergency movement of people.

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Farid Alfawakhiri, American Iron and Steel Institute, IL [M]
(Alt. to Jonathan Humble)
Gene Boecker, Code Consultants, Inc., MO [U]
(Alt. to Kevin D. Morin)
David Cook, Ralph Gerdes Consultants, LLC, IN [SE]
(Voting Alt.)
Robert D. Fiedler, City of Lincoln, NE [E]
(Alt. to Charles J. Schweitzer)
Jerrold S. Gorrell, Theatre Safety Programs, AZ [U]
(Alt. to Karl G. Ruling)
Shawn M. Hanson, Greater Naples Fire Rescue District, FL [E]
(Alt. to Eric Center)
Christopher M. Jenkins, Church of Jesus Christ of Latter-day Saints, UT [U]
(Alt. to Max L. Gandy)
David Kurasz, New Jersey Fire Sprinkler Advisory Board, NJ [M]
(Alt. to Ryan Lee Peterson)
Julie A. Little, Office of State Fire Marshal, LA [E]
(Alt. to Elbert R. Thomas, Jr.)
Jason A. Lupa, Siemens Industry, Inc., NJ [M]
(Alt. to Daniel P. Finnegan)
Van Hoover Patterson, State Of Florida NE Region Jacksonville Office, FL [E]
(Voting Alt.)
Janet A. Washburn, Bonita Springs Fire Control District, FL [E]
(Alt. to Stephen C Hesson)
Toby J. White, Arup, MA [SE]
(Alt. to Jeffrey S. Tubbs)

Gregory E. Harrington, NFPA Staff Liaison

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Committee Scope: This Committee shall have primary responsibility for documents on protection of human life and property from fire and other circumstances capable of producing similar consequences, and on the nonemergency and emergency movement of people in assembly occupancies, tents, and membrane structures.

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

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

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

Scott D. Allen, LifeServices Management Corporation, PA [U]
Roland A. Asp, National Fire Sprinkler Association, Inc., MD [M]
Chad E. Beebe, ASHE - AHA, WA [U]
Tracey D. Bellamy, Telgian Corporation, GA [SE]
Harry L. Bradley, Maryland State Fire Marshal's Office, MD [E]
Rep. International Fire Marshals Association
Richard L. Day, Michigan State Fire Marshal's Office, MI [E]
Rebekah L. Eaddy, Texas Health and Human Services Commission, TX [E]
Martin J. Farraher, Siemens Industry, Inc., IL [M]
Rep. National Electrical Manufacturers Association
Nicholas E. Gabriele, JENSEN HUGHES, CT [SE]
Steven Heaney, Brandywine Senior Living, NJ [U]
Rep. American Health Care Association
Adam C. Jones, Buechel Fire Protection District, KY [E]
Henry Kowalenko, Illinois Department of Public Health, IL [E]
Peter A. Larrimer, US Department of Veterans Affairs, PA [U]
Mark Larson, Mark Larson And Associates LLC, ID [U]
Rep. National Disability Rights Network
Randy S. McDermott, US Department of Health & Human Services, TX [E]
David E. Mills, UL LLC, IL [RT]
Gayanne Coral Pacholzuk, Kelowna Fire Department, Canada [E]
Carter J. Rierson, Best Defense Fire Protection, WI [IM]
Heather Roth, New York State Office of Fire Prevention and Control, NY [E]
Terry Schultz, Code Consultants, Inc., MO [SE]
Joshua Talley, Koffel Associates, Inc., MD [SE]
Jon Taluba, Greenwood Sales, NH [M]
Yunyong Pock Utiskul, Exponent, Inc., MD [SE]

Alternates

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(Alt. to Nicholas E. Gabriele)
Kurtis Grant, US Department of Health & Human Services, GA [E]
(Alt. to Randy S. McDermott)
Kevin Knippa, Texas Health and Human Services Commission, TX [E]
(Alt. to Rebekah L. Eaddy)
Henry Kowalenko, Illinois Department of Public Health, IL [E]
(Alt. to Dennis L. Schmitt)
James K. Lathrop, Koffel Associates, Inc., CT [SE]
(Alt. to Joshua Talley)
Kaitlin McGillvray, Code Consultants, Inc., NY [SE]
(Alt. to Anne M. Guglielmo)
Pamela Reno, Telgian, OH [SE]
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Stephen G. Rood, Legrand North America, NY [M]
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(Alt. to Henry Kowalenko)
Terry L. Victor, Johnson Controls, MD [M]
(Alt. to Roland A. Asp)
Fred Worley, Fred Worley Architect, TX [SE]
(Alt. to John A. Rickard)

Tracy Vecchiarelli, NFPA Staff Liaison

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